



# TCFD REPORT 2023



**TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURE**

**SCG Packaging Public Company Limited**

**1 Siam Cement Road., Bangsue, Bangkok 10800, Thailand**

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# 1 INTRODUCTION

## 1.1 Message from CEO



**“SCGP drives our execution to low carbon products and services, including execution aligned with TCFD Recommendation to achieve its set goals”**

SCGP pledges to aggressively follow the company's Climate Strategy and Climate-related Performance, which has ambitious targets such as GHG emissions reduction and energy consumption reduction. Our management and ESG Committees provided the company with strategic guidance on reaching our ambitious goal of “Net Zero by 2050” and “Reduce GHG Emission 20% by 2030 compared with the based year of 2020” for the GHG target of Thailand and abroad companies, which is in line with the Sustainable Development Goal and Paris Agreement.

SCGP has focused on collaboration with stakeholders such as employees, suppliers, communities, associations, alliances, coalitions and etc. to encourage for GHG emission reduction aligned with the goal of restricting global temperature rise to 1.5°C above pre-industry levels through supply chain.

SCGP has made a firm commitment to climate action by adopting the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). This decision underscores our recognition of the criticality of minimizing climate-related risks and impacts, including leveraging opportunities arise in the future.

To support our commitment to the TCFD recommendations, we are undertaking several key actions:

- **Enhanced Climate Risk Assessment:** SCGP will conduct a comprehensive assessment to identify and evaluate the potential of climate related risks and opportunities. This assessment will consist of physical risks, such as extreme weather events, water scarcity and flood as well as transition risks arising from regulatory changes, shifts in market demand, and advance technologies.
- **Robust Data Collection and Analysis:** SCGP will enhance our data collection processes to ensure we have accurate and up-to-date information related to our greenhouse gas emissions, energy consumption, and other climate-related metrics, including verify data by third party for accuracy and transparency. SCGP will derive significant insights to guide our decision-making and target areas for improvement.

- **Integration of Climate Considerations:** SCGP will integrate climate-related considerations into our policy, strategic planning, investment decisions, and risk management frameworks, including set climate change and energy committee to control and monitor GHG emission reduction projects and performance. This will help us align our business objectives with climate targets and contribute to building a sustainability.
- **Transparent Reporting:** SCGP is committed to providing transparent and comprehensive reporting on our climate-related risks, opportunities, executions, targets and performances. By following the TCFD recommendations, SCGP will enhance the disclosure of our climate-related financial information and communicate our progress towards our sustainability goals to all stakeholders.
- **Collaboration and Partnerships:** SCGP recognizes that addressing climate change requires collective action. Therefore, SCGP will actively build partnerships and collaborations with government and private agencies and experts to advance our knowledge, share best practices, and drive innovation in sustainable business practices.

By aligning our actions with the TCFD recommendations, SCGP is not only protecting our business against climate risks but also embracing the immense opportunities presented by the transition to a low-carbon economy and sustainability business.



(Wichan Jitpukdee)

CEO and Board of Directors

SCG Packaging Public Company Limited

## 1.2 About SCGP

SCG Packaging Public Company Limited (SCGP) has 4 core value in conducting business: Adherence to Fairness, Dedication to Excellence, Belief in the Value of the Individual, and Concern for Social Responsibility. Our vision is to be “A leading multinational consumer packaging solutions provider through innovative and sustainable offerings”.

SCGP’s Business Strategy as follows;

- Pursuing quality growth through merger & partnership and organic expansion.
- Aiming to become a top-of-mind packaging in solution provider through innovations and sustainable products/services in response to e-commerce mega-trend.
- Achieving operational excellence.
- Operating businesses based on the principle of sustainable development in line with ESG (Environmental Social, and Governance) concepts.

SCGP is organized into 3 main operating segments: Integrated Packaging Business, Fibrous Business, and Recycling Business, & Others. The business is conducted with high importance on the Environment, Society, and Corporate Governance (ESG), with a commitment to comply with the SCG ESG Pathway Scheme given by the parent company, SCG.

To correspond with our company’s vision, SCGP has implemented the ESG 4 Plus guidelines, which consist of: 1) Aim for Net Zero 2) Go Green 3) Lean Inequality 4) Emphasize collaboration, fairness, and transparency.

For more SCGP’ sustainability details, please see on SCGP Sustainability Report 2022.

Link: <https://sustainability.scgpackaging.com/storage/downloads/sd-reports/files/sd-report-2022-en.pdf>

## 1.3 About This Report

Our disclosure is adapted from Task Force on Climate Related Financial Disclosures (TCFD) Recommendation, which corresponds to four main topics: Governance, Strategy, Risk Management, and Metrics and Targets, including: Global Standard on Responsible Corporate Climate Lobbying.

The term ‘corporate climate lobbying’ refers to those activities carried out by corporations or their agents to directly or indirectly influence climate-significant policy decision-making by political or bureaucratic actors. Climate-significant policy refers to any environmental or non-environmental public policy with non-trivial implications – positive or negative – for realising the temperature goals of the Paris Agreement. Such lobbying – also commonly known as advocacy – can have a significant impact on the stringency and effectiveness of public climate policy. It is not only a matter of societal concern, but also an issue of material, financial, significance for corporations and their investors



## 2 GOVERNANCE

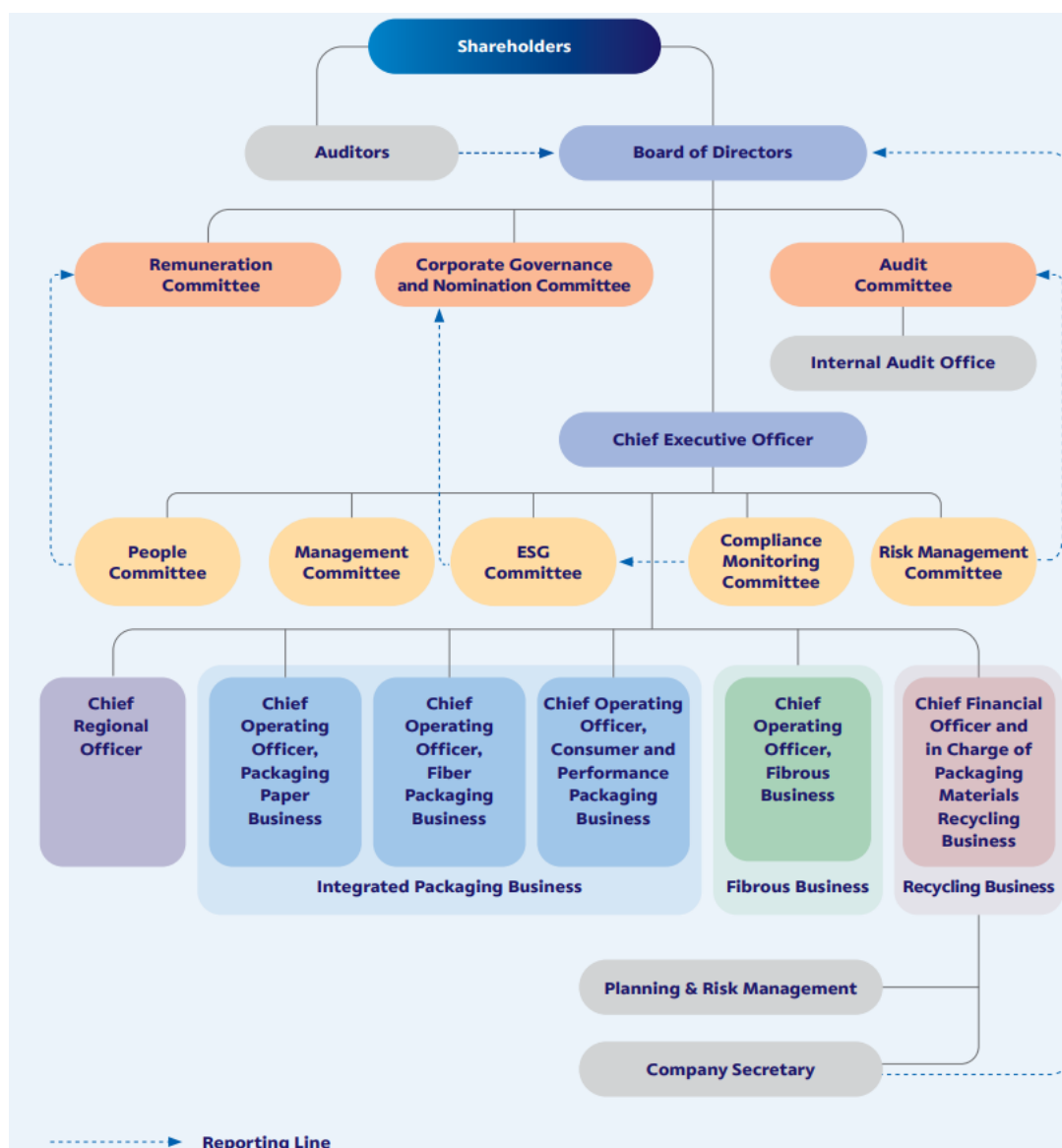
### 2.1 SCGP Sustainability Structure and Climate-Related Issues Oversight

SCGP is conducting business in accordance with the guidelines and goals of sustainable development in terms of Environmental, Social, and Governance (ESG) to drive organizational growth and ensure the stability of business expansion. Stable financial positions and suitable returns to shareholders must also be safeguarded. In this regard, the Board of Directors has established **SCGP Risk Management Policy** to ensure that there is in place, an efficient and effective Enterprise Risk Management System across the Company that is in accordance with good international practices. Moreover, **SCGP Sustainable Development Policy** was also established by the Board of Directors, in order to ensure that all SCGP operations are operating on the basis of sustainable development by considering risks and opportunities in enabling work improvement at all levels of the organization, both short-term and long-term demands and expectations of all stakeholders, as well as social and environmental impacts.

In addition, **Corporate Governance Structure** and **Sustainability Structure** were established in order to govern and reinforce all relevant functions to execute sustainable development through the SCGP value chain.

In 2022, SCGP developed and improved the Environmental and Climate Change Policy, Biodiversity Policy, and Product Stewardship Policy for precise and robust sustainability development. **A reporting line** from the ESG Committee to the Governance and Nomination Committee has also been added to the Corporate Governance Structure at the Board of Directors Meeting No. 240 (8/2022).

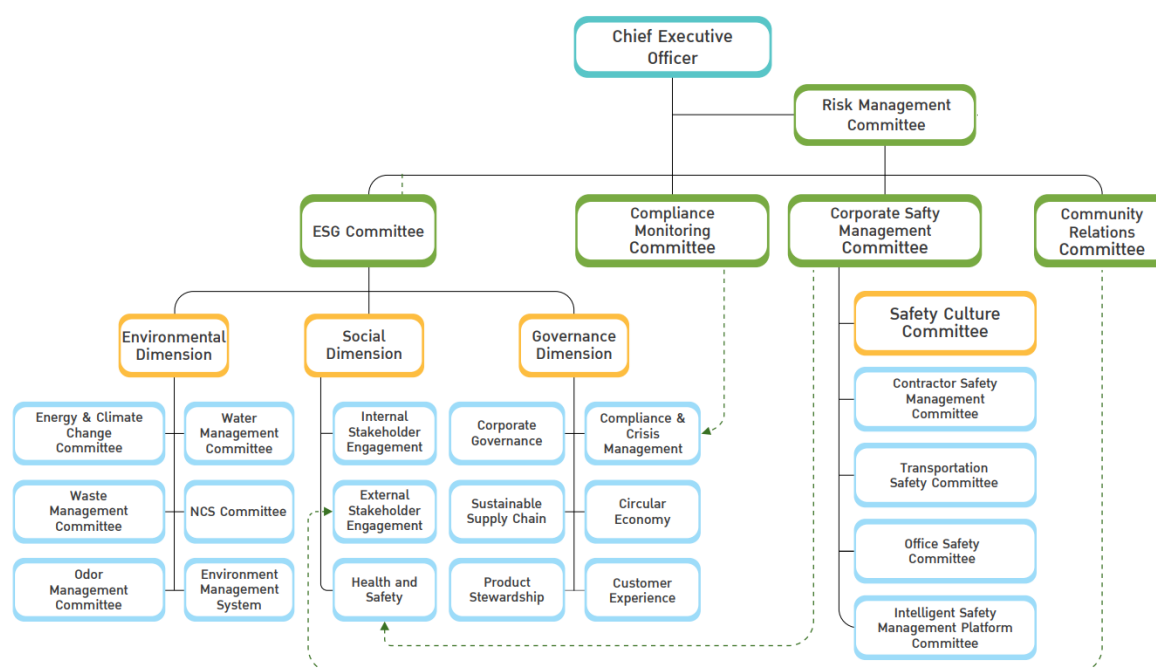




### SCGP Corporate Governance Structure

However, relevant parties involved in Energy & Climate Change-related issues are more than the ESG committee. The Board of Directors (BOD), The Board of Directors Sub-committees, The Committees chaired by the BOD representative, The ESG Committee's sub-committee, the ESG department, as well as operations, are collaborating on these matters. The mentioned parties are described below.

- SCGP's Board of Directors – There are 8 directors that have experience, skills, and expertise in ESG
- The Board of Directors Sub-committees – The Audit Committee oversees climate-related risks and opportunities
- The Committees are chaired by the BOD representative – Risk Management Committee (RMC) and ESG Committee
- ESG Committee's Sub-committee – Energy & Climate Change Committee which is working under Environmental Dimension.



**ESG Committee and its committees and working groups under E, S, & G dimensions**  
(Apart from SCGP Sustainability Structure)

## Climate-Related Issues Oversight

**The BOD** takes responsibility as the leaders who sustainably bring value to the Company's business by defining key objectives and business goals that promote sustainable value creation.

The BOD sub-committees; the **Audit Committee** are overseeing climate-related issues on behalf of the BOD.

Climate-Related Risks & Opportunities have been responsible by **ESG Committee and RMC**. The committees are working and collaborating on enterprise Climate Resilience, targets, strategies, and management. **Energy and Climate Change Committee** is a specific committee working and responsible for Climate-related issues and reporting to ESG Committee.

Committees in both ESG Committee and RMC consist of representatives from the business level and operational levels. The Chief Executive Officer serves as the Committee Chairman and the Board of Directors' representative in mentioned committees. A summary of performance and key actions progress will be reported to the CG Committee and the Audit Committee respectively.

The BOD constantly updated on advancements within SCGP and the outlook globally for Climate-related issues and Risk Management. This is done through in-house seminars & discussions and Specific Director Training Program, in which the board members get the opportunity to exchange comments, updates, and ideas in an open environment.

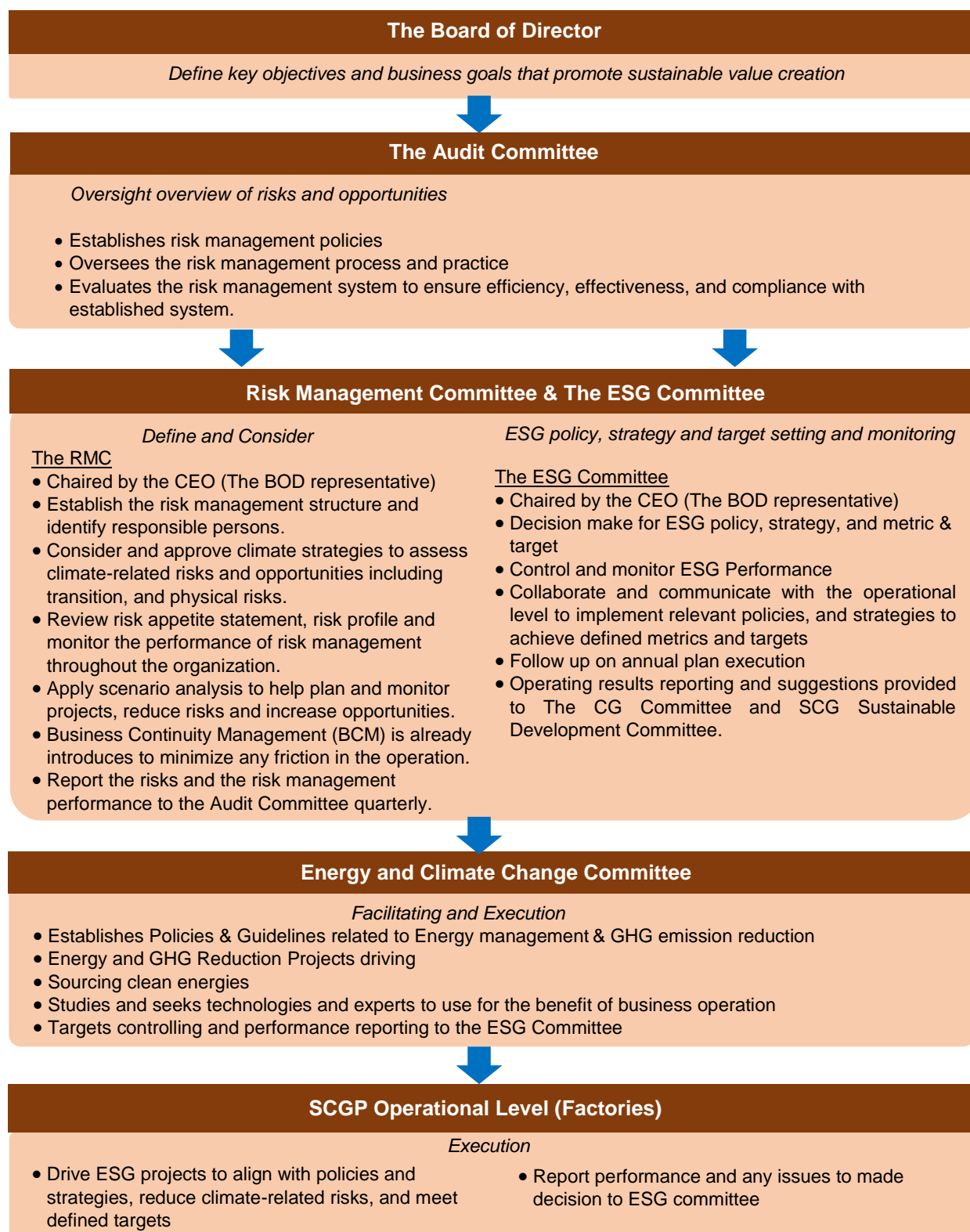


Examples include Medium Term Plan 2022-2026 discussion session, seminars on climate-related topics, the meeting to define the direction for ESG & CSR for Sustainability among SCG affiliates, and Risk Management Program for Corporate Leaders program.

The Global Standard on Responsible Climate Lobbying is a new challenge for SCGP to consider and implement its' indicators. The details of **SCGP Responsible Climate Lobbying** are shown in the Appendix 6.2.

## **2.2 Management's Role in Assessing and Managing Climate-Related Risks & Opportunities**

As per Corporate Governance Structure, SCGP defined roles and responsibilities for relevant parties as shown in the figure and described below.



under ESG Committee, the core responsible committee is Energy and Climate Change Committee but Water Management Committee, and Natural Climate Solution Committee incorporated with Product Stewardship and Circular Economy Committee are cooperating to provide execution guidance for operational levels such as responsible functions and factories.

## 2.3 Climate-Related Position Adopted Criteria

SCGP works collaboratively with all sectors including governments, businesses, and society, creating a balance between the environmental, social, and governance based on sustainability principles. For the climate-related position in other agencies, SCGP considers employees at high level such as C-level, Director, and Management level to be our representatives in climate-related agencies for driving the policies, strategies, and any execution to align with Paris Agreement and global standards.

The climate-related management organizations in which SCGP participated to drive Paris Agreement and our Net Zero pathway in 2022 consist of organizations both national levels such as The Thailand Carbon Neutral Network (TCNN), Thailand Greenhouse Gas Management Organization (Public Organization) (TGO), and the international level such as The United Nations Global Compact (UNGC) which relevant activities drive through The Global Compact Network Thailand (GCNT), and The Science Based Targets initiative (SBTi).

Organization	SCGP position
TCNN	Joining TCNN as a Climate Action Initiator and Climate Action Leading Organization member, declaration of intention to reduce GHG emissions and towards Net Zero by 2050, target and plan clearly which are aligned with Paris Agreement and support Thailand commitment, including collaborating for developing projects and a carbon offset market.
TGO	<ul style="list-style-type: none"> <li>Registration for Carbon Footprint of Products (CFP) to demonstrate the company's commitment and responsibility to participate in sustainable energy conservation efforts by reducing resource use and improving production processes for better efficiency, in preparation for and compliance with domestic and international tax regulations.</li> <li>Joining in ESG policy and regulation public hearings such as Thailand carbon tax.</li> </ul>
UNGC, GCNT	Supporting the 10 Principles of the United Nations Global Compact in the areas of human rights, labour, environment, and anti-corruption. Committing to making those principles part of our strategy, culture, and day-to-day operations and, collaborating, driving any policies or declaration to enhance societal goals, such as UN SDGs, including the intention to address the issue of "Preventing and solving problems caused by climate change"
SBTi	Target set and committed for GHG emission reduction based on scientifically accepted and internationally recognized standards and aligning with the goals of the Paris Agreement. The initiative seeks to establish targets and find ways to reduce the impact of climate change.

## 2.4 Climate-Related Incentive

SCGP emphasizes climate change management at all levels of execution. Starting from setting GHG emission reduction as the organization's goal including corporate KPIs related to Net Zero by 2050 commitment. These KPIs have been developed and cascaded from the highest management level to the operational level, namely the Chief Executive Officer (CEO), Chief Operating Officer (COOs), ESG & Sustainability director, and managers, and employees respectively.

The percentage of GHG reduction is the example of KPI defined in “ESG & People”, one of four main criteria according to the Balanced Scorecard principle of the Performance Assessment and Remuneration of the Chief Executive Officer and Top Executives.

In conclusion, if the overall performance meets the climate-related target, incentives will be provided. For monetary incentive is a variable bonus. And non-monetary incentive is a performance score that results in promotion.

## 3 STRATEGY

### 3.1 Climate-Related Risks and Opportunities Scenario Analysis (Short, Medium, and Long term)

The climate change issue is the interest topics of worldwide. The impacts from climate change are increasing and more severe ever year. The 26th United Nations Climate Change Conference (COP 26) has taken significant steps in addressing this by agreeing on key actions. All over the world to realize and find the ways to reduce greenhouse gas emissions for keeping a rise in global temperatures to well below 2°C with efforts to keep temperature within 1.5°C by 2100 as in line with the Paris Agreement. Countries have committed to accelerating their efforts to reduce greenhouse gas (GHG) emissions, including people and all business are concerned the impact of climate change, so they are focus on low carbon products and services. There are opportunities for SCGP to create environmentally friendly and low carbon products and services through innovation and technology.

SCGP has identified the climate-related risks and opportunities over short, medium and long term. SCGP has adopted ERM framework to study and embrace TCFD. Standard TCFD's approach for climate scenario included 6 steps;

1. Ensure Governance
2. Assess Materiality of Climate-related Risks
3. Identify and Define Range of Scenario
4. Evaluate Business Impacts
5. Identify Potential Response
6. Document and Disclose

**1 Ensure Governance**

Integrate scenario analysis into strategic planning and/or enterprise risk management framework. Assign oversight to relevant board committee/sub-committees. Identify which internal (and external) stakeholders to involve and how.

**2 Assess Materiality of Climate-related Risks**

What are the current and anticipated organizational exposures to climate-related risks and opportunities? Do these have the potential to be material in the future? Are organizational stakeholders concerned?

**3 Identify and Define Range of Scenarios**

What scenarios (and narratives) are appropriate, given the exposures? Consider input parameters, assumptions, and analytical choices. What reference scenario(s) should be used?

**4 Evaluate Business Impacts**

Evaluate the potential effects on the organization's strategic and financial position under each of the defined scenarios. Identify key sensitivities.

**5 Identify Potential Response**

Use the results to identify applicable, realistic decisions to manage the identified risks and opportunities. What adjustments to strategic/financial plans would be needed?

**6 Document and Disclose:** Document the process; communicate to relevant parties; be prepared to disclose key inputs, assumptions, analytical methods, outputs, and potential management responses.

## SCGP's Climate Scenario Analysis Approach

**3.2 Risks & Opportunities and Impacts Analysis**

Since 2021, Thailand has been showing commitment alongside other countries in setting a target for Carbon Neutrality of 2050 and achieving Net Zero emissions by 2065. SCGP has operated with commitment to reducing GHG emissions at least 20% by 2030 compared with the base year of 2020 and achieve Net Zero GHG emissions by 2050, both Thailand and abroad companies.

The current global crisis is a challenge that requires collective efforts from all sectors to change our behaviors and activities, which are the root causes of global warming and climate change. SCGP, a business organization in the industrial sector that plays a significant role in greenhouse gas emissions, is committed to implementing various strategies to reduce emissions and increase carbon removal, by fostering collaboration with stakeholders throughout the value chain, to achieve its set goals

Climate-related risks & opportunities and Financial Impacts are challenging the business execution, and affecting their profitability, competition, reputation and survival. SCGP has analyzed climate-related risks, including transition risk and physical risk, and opportunities aligned with TCFD Framework.



## Transition Risks and Business Impacts

Risks (Key Driver)	Time Horizon	Definition of Risks & Business Impacts	Financial Impacts
<b>Policy and Regulatory</b>			
Implementation of carbon tax	2 year onward (short to long)	<p><b>Definitions of Risks</b></p> <ul style="list-style-type: none"> <li>• Non-compliance with laws or legal stipulations</li> <li>• More stringent trend of laws and regulations related to the environment, especially climate-related issue.</li> </ul> <p><b>Business Impacts</b></p> <ul style="list-style-type: none"> <li>• Fossil fuel-based electricity and fuel costs increasing</li> <li>• Fossil fuel feedstock costs increase</li> <li>• Transportation costs increase</li> <li>• Carbon emissions cost</li> </ul> <p>However, the carbon tax also presents opportunities. The tax could make energy and carbon reduction projects feasible, which would not have been possible without the tax. This will allow SCGP to implement more carbon reduction projects with a positive financial return above its hurdle rate.</p>	OPEX
Carbon border adjustment mechanism (CBAM)	3 year onward (short to long)	<p><b>Definitions of Risks</b></p> <ul style="list-style-type: none"> <li>• More stringent trend of laws and regulations related to the environment, especially climate-related issue.</li> </ul> <p><b>Business Impacts</b></p> <ul style="list-style-type: none"> <li>• SCGP' revenue decreasing</li> <li>• Competitiveness of low carbon emission products</li> </ul> <p>The impact of CBAM on SCGP will likely be minimal, as most of its export destinations are in ASEAN, where CBAM is expected to be implemented similarly to Thailand's CBAM and carbon tax policies.</p>	Revenue
Science-informed emission reduction targets in line with at least a "well-below 2°C"	5 year onward (medium to long)	<p><b>Definitions of Risks</b></p> <p>All business focuses on utilizing solar power and biomass as a replacement for conventional grid electricity and fossil fuels such as natural gas.</p>	OPEX

Risks (Key Driver)	Time Horizon	Definition of Risks & Business Impacts	Financial Impacts
		<p>Though leaders engage all business to transitions execution to low carbon business.</p> <p><b>Business Impacts</b></p> <p>In the long term, SCGP aims to explore new technologies such as solar batteries, hydrogen fuel combustion kilns, and high-density solar power when the cost is optimal.</p>	
<b>Technology</b>			
Decarbonization technologies	3 year onward (short to long)	<p><b>Definitions of Risks</b></p> <ul style="list-style-type: none"> <li>Technologies development to low GHG emissions such as lowering the amount of GHG emissions produced by the burning of fossil fuels, use renewable energy to produce greener energy</li> </ul> <p><b>Business Impacts</b></p> <ul style="list-style-type: none"> <li>Fossil fuel-based electricity and fuel costs increasing</li> <li>Fossil fuel feedstock costs increasing</li> <li>Transportation costs increasing</li> </ul>	CAPEX, OPEX
Development of commercially viable green hydrogen and transitional use of blue/ grey hydrogen	10 year onward (medium to long)	<p><b>Definitions of Risks</b></p> <ul style="list-style-type: none"> <li>Technologies development to low GHG emissions</li> <li>Green hydrogen is more expensive compared to fossil fuel-based alternatives</li> <li>Uncertainty regarding government policies, subsidies, and market demand can impact the growth and investment in green hydrogen projects.</li> </ul> <p><b>Business Impacts</b></p> <ul style="list-style-type: none"> <li>Shift to greener sources of energy</li> <li>Investment required both in capex as well as R&amp;D</li> </ul>	CAPEX, OPEX
Maturity of Carbon Capture, Utilization and Storage (CCUS)	10 year onward (medium to long)	<p><b>Definitions of Risks</b></p> <ul style="list-style-type: none"> <li>Technologies development to low GHG emissions</li> </ul>	CAPEX, OPEX

Risks (Key Driver)	Time Horizon	Definition of Risks & Business Impacts	Financial Impacts
		<ul style="list-style-type: none"> <li>CCUS technologies are currently expensive to implement and operate</li> <li>CCUS technologies are still in the early stages of development, and large-scale deployment is limited</li> <li>Legal challenges related to liability, ownership, and long-term responsibilities for stored CO<sub>2</sub> can create barriers and uncertainties for project developers.</li> </ul> <p><b>Business Impacts</b></p> <ul style="list-style-type: none"> <li>Important technology for hard-to-abate sectors</li> <li>Investments required in CAPEX as well as R&amp;D</li> <li>Will help reduce carbon costs</li> </ul>	
<b>Market</b>			
Increasing demand for low-carbon products	3 year onward (short to long)	<p><b>Definitions of Risks</b></p> <ul style="list-style-type: none"> <li>All supply chain expects and demands factories to produce low carbon product.</li> <li>Scaling up the production of low-carbon products requires a complex and interconnected supply chain</li> </ul> <p><b>Business Impacts</b></p> <ul style="list-style-type: none"> <li>Sales of low-carbon products to increasing</li> <li>Products with lesser carbon footprint preferred</li> <li>CAPEX for alternative production technologies increasing</li> </ul>	CAPEX, Revenue
Increase in demand for products based on recycled plastic waste and packaging	3 year onward (short to long)	<p><b>Definitions of Risks</b></p> <ul style="list-style-type: none"> <li>All supply chain expects and demands factories to produce products based on recycled plastic waste and packaging</li> <li>Need collaboration to collect recycle plastics and packaging to production process</li> </ul> <p><b>Business Impacts</b></p> <ul style="list-style-type: none"> <li>Sales of recycled plastic products to increase</li> </ul> <p>*SCGP has already recycling business</p>	CAPEX, Revenue

Risks (Key Driver)	Time Horizon	Definition of Risks & Business Impacts	Financial Impacts
<b>Reputation</b>			
Stakeholder's higher expectation on climate action	3 year onward (short to long)	<b>Definitions of Risks</b> <ul style="list-style-type: none"> <li>Stakeholder's expectation on climate-related action from organizations</li> <li>Need collaboration to drive climate action through value chain</li> </ul> <b>Business Impacts</b> <ul style="list-style-type: none"> <li>Reputation-related issues which could result in declining stakeholders trust, which may impact company's valuation, earnings, funding etc.</li> </ul>	Valuation, Revenue

CAPEX = Capital Expenditures, OPEX = Operational Expenditures

### Physical Risks and Business Impacts

Risks (Key Driver)	Time Horizon	Definition of Risks & Business Impacts	Financial Impacts
<b>Acute</b>  Weather event change and increased severity such as cyclone, floods, water and scarcity	2 year onward (short to long)	<b>Definitions of Risks</b> <ul style="list-style-type: none"> <li>Impact from climate change for acute impacts - Weather event change and increase severity, especially water scarcity and floods</li> <li>Impact from climate change for chronic impacts such as rising of temperature</li> </ul> <b>Business Impacts</b> <ul style="list-style-type: none"> <li>Business interruptions due to unable to carry out production process such as lack of water in production process</li> <li>Losses to assets of SCGP and supply chain</li> <li>Rising costs and expenditures for prevention of and recovery from impacts of natural disasters</li> </ul>	CAPEX, Revenue
<b>Chronic</b>  - Rising of temperature - Extreme weather - Sea level rising and make flooding in risk areas	10 year onward (medium to long)		

## Opportunities and Business Benefits

Opportunity	Definition of Opportunities & Business Benefits
<b>Resource Efficiency</b>	<b>Definitions of Opportunities</b> <ul style="list-style-type: none"> <li>• Efficient consumption of energy and resources, e.g., raw material from recycling source, water recycling and energy saving to reduce GHG emission</li> </ul> <b>Business Benefits</b> <ul style="list-style-type: none"> <li>• More production efficiency</li> <li>• Use of more recycling</li> <li>• Reduced material usage</li> <li>• Reduced water consumption</li> <li>• New technologies to capture GHG</li> </ul>
<b>Energy Source</b>	<b>Definitions of Opportunities</b> <ul style="list-style-type: none"> <li>• Use clean and environmentally friendly energy such as biomass, solar cell, and etc.</li> <li>• Use of best available technologies</li> <li>• Shift toward decentralized energy generation</li> </ul> <b>Business Benefits</b> <ul style="list-style-type: none"> <li>• Use of cleaner and renewable energy</li> <li>• New technologies for production process</li> <li>• Innovative energy options</li> <li>• Incentive policy or mechanism execution</li> </ul>
<b>Products and Services</b>	<b>Definitions of Opportunities</b> <ul style="list-style-type: none"> <li>• Development and expansion to low carbon products and services</li> <li>• Development new products and services through R&amp;D and innovation</li> <li>• Shift in consumer preferences</li> </ul> <b>Business Benefits</b> <ul style="list-style-type: none"> <li>• Increased revenue of low carbon products and services</li> <li>• Better competitive position to reflect shifting consumer preferences, resulting in increased revenues</li> <li>• Good image for low carbon business</li> </ul>

Opportunity	Definition of Opportunities & Business Benefits
<b>Markets</b>	<b>Definitions of Opportunities</b> <ul style="list-style-type: none"> <li>• Expand to new business such as recycling business</li> <li>• Access to new assets and locations</li> <li>• Access to green funding</li> </ul> <b>Business Benefits</b> <ul style="list-style-type: none"> <li>• Increased revenues through access to new and emerging markets</li> <li>• Increased opportunity to access in financial funding or green finance</li> </ul>
<b>Resilience</b>	<b>Definitions of Opportunities</b> <ul style="list-style-type: none"> <li>• Participation in renewable energy programs and adoption of energy efficiency measures</li> <li>• Resource substitutes/diversification</li> </ul> <b>Business Benefits</b> <ul style="list-style-type: none"> <li>• Participation in renewable energy program</li> <li>• Resource substitution and innovation</li> <li>• Increased revenue through low carbon products and services related to ensuring resiliency</li> <li>• Leading in sustainable companies</li> <li>• Increased reliability of supply chain and ability to operate under various conditions</li> </ul>

### 3.3 Transition Risks Scenario Analysis

For evaluating transition to lower-carbon economy is focused on the future outcome influenced by key factors such as policy, legal, technology, market change, and reputation to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organizations.

#### Scenario Analysis

SCGP updated climate-related scenarios based on the World Energy Outlook 2022. The Announced Pledges Scenario (APS) and the Net Zero Emissions by 2050 Scenario (NZE) have been modeled.;

- 1) The Announced Pledges Scenario (APS) has a 50% chance of constraining global warming at 1.8°C by reaching net zero emissions by 2050 and is based on the Announced Pledges Scenario.
- 2) Net Zero Emission Scenario (NZE) has a 50% chance of constraining climate global warming at 1.50°C by reaching Net Zero Emissions by 2050, and is based on the WEO Net Zero by 2050 scenario.



## Broad macroeconomic scenario drivers–IEA APS and NZE

		IEA APS 2030	IEA NZE 2030	IEA APS 2050	IEA NZE 2050
World population	Million	8,501		9,692	
Southeast Asia	Million	726		792	
Urbanisation rate		60%		68%	
Southeast Asia		56%		66%	
World GDP growth		3.3% (2021-2030)		2.6% (2030-2030)	
Southeast Asia		5.0% (2021-2030)		3.3% (2030-2030)	
Crude oil prices	\$/barrel	63.5	35	60.4	24.0
Natural gas prices	\$/MBtu, Japan	9.1	6.0	7.4	5.1
Steam coal	\$/t, Japan	74.4	59.0	59.5	46.0
Fossil fuels in primary energy mix		70%	62%	36%	18%
Energy and environmental policies		<p>Policies promoting production and use of alternative fuels and technologies such as hydrogen, biogas, biomethane and CCUS across sectors.</p> <p>Faster deployment of large-scale near zero emissions plants in energy intensive industries.</p> <p>Energy demand in the buildings sector declines by 8% by 2030.</p>	<p>No new unabated coal power plants approved for development.</p> <p>Nearly 50% of electricity from low-emissions sources, and over 40% is from wind and solar PV.</p> <p>Phase out of unabated coal in advanced economies.</p> <p>8% of emissions from cement production captured and stored.</p>	<p>Policies to support increasing deployment of CCUS and hydrogen in various industry and fuel transformation sub-sectors.</p>	<p>Nearly 90% of Electricity generation from renewables, and almost 70% is from solar PV and wind.</p> <p>Phase out of all unabated coal for electricity generation.</p> <p>More than 90% of heavy industrial production is low emissions.</p> <p>95% of emissions from cement production captured and stored</p> <p>More than 85% of buildings are zero carbon-ready levels, and 50% of existing buildings are retrofitted.</p>

## Carbon Price

USD / ton CO <sub>2</sub>	Scenario	2030	2040	2050
Thailand – carbon taxes	APS	17	110	160
	NZE	45	160	200
EU CBAM	APS	135	175	200
	NZE	140	205	250

- We assume Thailand's carbon taxes based on the study published by Thailand Greenhouse Gas Management Organization (TGO), World Economic Outlook published by IEA, and discussion with the officials in TGO.
- In both APS and NZE scenario, we assume Thailand will implement carbon tax in year 2026 with the initial price of USD 5/ton CO<sub>2</sub> and gradually increase to USD 17/ton CO<sub>2</sub> in 2030.
- EU carbon prices are based on International Energy Agency (IEA) on both APS and NZE scenarios.

### 3.4 Physical Risks Scenario Analysis

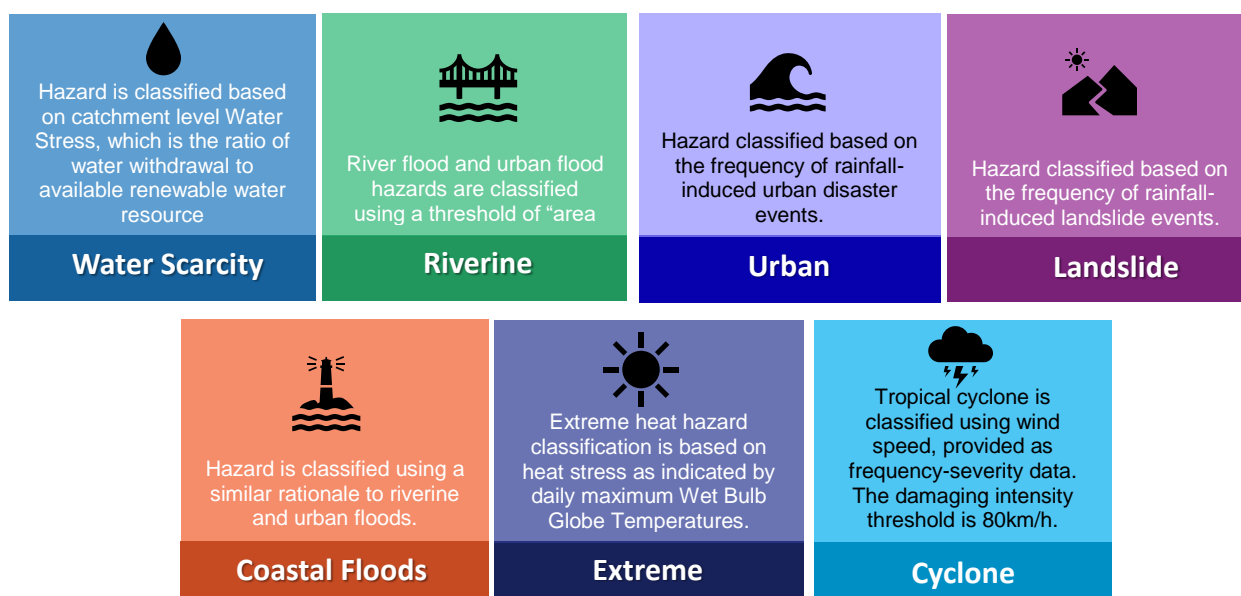
Climate change is a volatile challenge that has a direct impact on physical hazards such as floods, increased storm severity or cyclones, increased variability of water supplies, droughts, fires, higher temperatures days, and so on. SCGP analyzes impacts using scenario analysis, considered a tool to enhance strategic for risk reduction.

SCGP conducts analyses against geographical locations where SCGP, supplier and major clients operate which include 4 SCGP's plants in Khon Kaen (Thailand), Vietnam, Philippines and Indonesia, 1 Critical tier-1 supplier in Udonthani (Thailand) and 1 major customer in Kampongpetch (Thailand). 2 scenarios are used for evaluating physical risk hazards as follows:


- RCP 2.6 (stringent mitigation scenario) is representative of a scenario that aims to keep global warming likely below 2°C above pre-industrial temperatures.
- RCP 8.5 (very high GHG emission) is a "very unlikely" pathway thus corresponds to the pathway with the highest greenhouse gas emissions.

SCGP evaluated physical impact on 7 different natural hazard variables, which are Water Scarcity, Riverine Floods, Urban Floods, Landslide Hazards, Coastal Floods, Extreme Heat and Cyclone. Which are align with Baseline risk likelihood for relevant natural hazards were evaluated based on the review of an online tool (ThinkHazard) developed by the World Bank/Global Facility for Disaster Reduction and Recovery (GFDRR). The natural hazards are classified based on the following factors;

#### Natural Hazard Categories



## 1. Baseline Data



Location	Operation				Upstream	Downstream
	PPPC Khon Khen Thailand	Fajar Jawa Barat Indonesia	VKPC Binh Duong Vietnam	UPPC Bulacan Philippines	Starch Wealth Udon Thani Thailand	Thai Beverage Kamphaeng Phet Thailand
Water Scarcity	1 ★	2	1	1	1 ★	1
Riverine Floods	3	3	3	3	2	3
Urban Floods	3	3	3	3	2	2
Landslide	1	3	1	3	1	1
Coastal Floods	N/A	N/A	N/A	3	N/A	N/A
Extreme Heat	2	2	2	2	2	3
Cyclones	1	1	3	3	1	1

★ SCGP has previously gathered information on droughts and floods. These could have an effect on business in the Khon Kaen province area immediately impacted by the Mekong dam project. We consequently monitor and develop a strategy to be ready in case of drought in the area, that was developed several years ago.

## Physical Risks

Score	Normalizes Hazard Category
3	High
2	Medium
1	Low
0	No Hazard
N/A	Not applicable

## 2. Physical Risks Assessment

Location	Year	Operation								Upstream		Downstream	
		PPPC, Khon Khen, Thailand		Fajar Jawa Barat, Indonesia		VKPC Binh Duong, Vietnam		UPPC Bulacan, Philippines		Starch Wealth Udon Thani, Thailand		Thai Beverage Kamphaeng Phet, Thailand	
		RCP2.6	RCP8.5	RCP2.6	RCP8.5	RCP2.6	RCP8.5	RCP2.6	RCP8.5	RCP2.6	RCP8.5	RCP2.6	RCP8.5
Water Scarcity	BSL	1 ★	1	2	2	1	1	1	1	1 ★	1	1	1
	2030	1	1	-1	-1	1	1	-1	1	1	1	1	1
	2040	1	-1	-1	-1	1	-1	-1	1	1	-1	1	-1
	2050	1	-1	-1	-1	1	-1	-1	-1	1	-1	1	-1
Riverine Floods	BSL	2	3	3	3	3	3	3	3	2	2	3	3
	2030	-2	1	1	-1	2	3	-1	-1	-1	2	-3	1
	2040	-1	-1	1	1	3	3	-1	1	1	1	-1	1
	2050	-1	-1	1	1	3	3	-2	1	1	-1	-2	1
Urban Floods	BSL	3	3	3	3	3	3	3	3	2	2	2	2
	2030	1	1	-1	-1	1	2	1	-1	1	1	-3	1
	2040	1	-1	2	-1	1	2	1	-1	2	3	-2	2
	2050	1	-1	3	1	2	3	1	-1	1	3	1	2
Landslide	BSL	1	1	3	3	1	1	3	3	1	1	1	1
	2030	-2	-1	1	1	2	3	-1	-1	-1	2	-3	1
	2040	-1	-1	1	1	3	3	-1	1	1	1	-1	1
	2050	-1	-2	1	1	3	3	-2	1	1	-1	2	1
Coastal Floods	BSL	N/A	N/A	N/A	N/A	N/A	N/A	3	3	N/A	N/A	N/A	N/A
	2030	N/A	N/A	N/A	N/A	N/A	N/A	1	2	N/A	N/A	N/A	N/A
	2040	N/A	N/A	N/A	N/A	N/A	N/A	1	2	N/A	N/A	N/A	N/A
	2050	N/A	N/A	N/A	N/A	N/A	N/A	1	3	N/A	N/A	N/A	N/A
Extreme Heat	BSL	2	2	2	2	2	2	2	2	2	2	3	3
	2030	1	1	1	1	1	1	1	1	1	1	1	1
	2040	1	1	1	1	1	1	1	1	2	2	1	2
	2050	2	2	1	2	1	2	1	2	2	2	1	2
Cyclones	BSL	1	1	1	1	1	3	3	3	1	1	1	1
	2030	1	1	1	1	2	1	-1	1	1	1	1	1
	2040	1	1	1	1	3	1	-1	1	1	1	1	1
	2050	1	1	1	1	3	1	-2	1	1	1	1	1

## Criteria for physical risks

Category		Drought (Change on annual drought probability)	Riverine floods (5 day maximum rainfall)	Urban floods (1 Day maximum rainfall)	Land slide (Change on annual frequency)	Coastal floods (Change of sea Level)	Extreme Heat (Change in annual average maximum temperature)	Cyclone (Change in sustained wind speed)
3	Significant Increase	< -1%	> 10 %	> 10 %	> 5 %	> 50 cm	> 2° C	> 5 %
2	Moderate Increase	< - 0.5%	> 5 %	> 5 %	> 2.5 %	> 25 cm	> 1° C	> 2.5 %
1	Slight Increase	< 0%	> 0	> 0	> 0	> 0 cm	> 0° C	> 0
0	No Change	0%	0	0	0	0	0° C	0
-1	Slight Decrease	> 0%	< 0 %	< 0 %	< 0 %	< 0	< - 0° C	< 0 %
-2	Moderate Decrease	> 0.5%	< - 5 %	< - 5 %	< - 2.5 %	< - 10 cm	< - 1° C	< - 2.5 %
-3	Significant Decrease	> 1%	< - 10 %	< - 10 %	< - 5 %	< - 20 cm	< - 2° C	< - 5 %



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Climate Change Knowledge Portal  
For Development Practitioners and Policy Makers

\* Climate Data CMIP-5 for RCP 2.6 and 8.5 (2030 / 2040 / 2050)

## Operations

Baseline (2021): Urban floods, riverine floods, coastal floods, and cyclones were identified as hazards with high risk. Other high-risk items 2030-2050 are described below.

For both RCP 2.6 and RCP 4.5 scenario of operation business, there have moderate to significant increase in urban floods, river floods and landslide in short-term (2030), medium-term (2040) and long-term (2050).

## Upstream (Supplier)

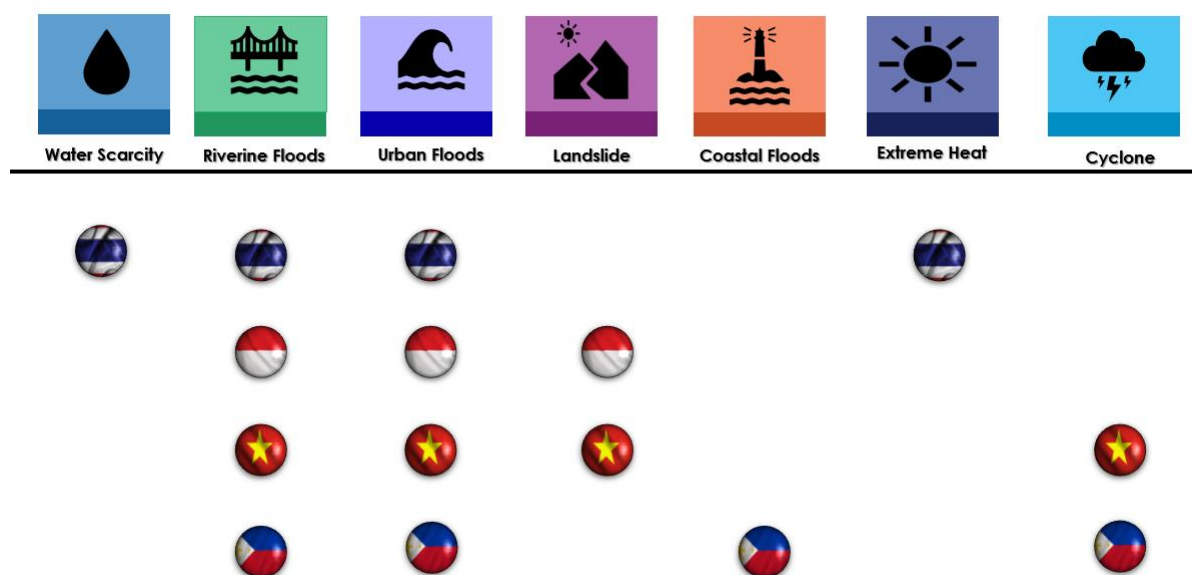
Baseline (2021): Urban floods, riverine floods, and extreme heat were identified as hazards with medium risk. Other risk items 2030-2050 are described below.

For both RCP 2.6 and RCP 4.5 scenario of upstream, there have moderate to significant increase in urban floods, river floods and extreme heat in short-term (2030), medium-term (2040) and long-term (2050).

## Downstream (Customer)

Baseline (2021): Riverine floods, extreme heat, and urban floods were identified as hazards with medium to high risk. Other high-risk items 2030-2050 are described below.

For both RCP 2.6 and RCP 4.5 scenario of downstream, there have moderate to significant increase in extreme heat, and urban floods in short-term (2030), medium-term (2040) and long-term (2050).



SCGP operates a pulp and paper plant (PPPC) in the Khonkhen province, where community are particularly susceptible, endures severe drought and flooding. As a consequence of the past record, there is a likelihood that the production process will be disrupted whether the water reservoir in the Ubol Ratana Dam probably decreases in 2022. We analyze three modeling scenarios that simulate drought and floods, with risk mitigation progress raise results explained in entirely below.

Water Scarcity Scenario	Business Effect
1. (-10%) of the Lower Balance Curve (LBC) level of water	There is not any impact on business operations.
2. (-30%) of the Lower Balance Curve (LBC) level of water	There is not any impact on business operations.
3. (-50%) of the Lower Balance Curve (LBC) level of water	Effect on business operations without an interruption in production **

\*\* Without disrupting business operations, this is having an impact on our EBIDA of 93 million baht daily.

Water Flooding Scenario	Business Effect
1. (+5%) 5 day maximum rainfall	There is not any impact on business operations.
2. (+10%) 5 day maximum rainfall	There is not any impact on business operations.
3. (+20%) 5 day maximum rainfall	There is not any impact on business operations.

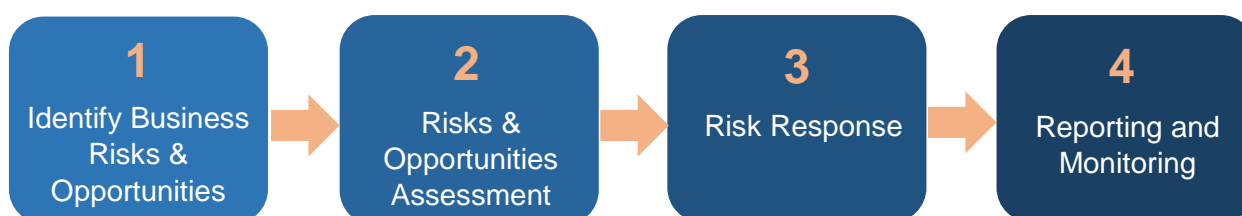


## 4 RISK MANAGEMENT

### 4.1 Climate-Related Risk Management Framework and Processes

SCGP implements an Enterprise Risk Management Framework in accordance with the COSO ERM Framework and ISO 31000 to effectively reduce the likelihood and/or the impact of ESG-related risks that may arise. SCGP integrates the risk management framework into critical operations encompassing Strategic Risks, Operational Risks and Investment Risks. The risk management process can be found in the Risk Management Manual which comprise of 4 steps:

- 1) Identify business and climate-related risks and opportunities consist of existing risks and emerging risks. The company uses multiple approaches, such as megatrend literature study and stakeholder engagement analysis, to identify and express climate change issues that may threaten the achievement of business objectives.
- 2) Assess the severity of risks by using Risk Map to measure the likelihood and impact and prioritize risks to be managed. To assess the climate-related risks, SCGP leverages climate change subject-matter expertise judgement to ensure emerging and longer-term climate-related risks are assessed and prioritized appropriately.
- 3) Establish risk responses, Key Risk Indicators and Key Performance Indicators – both leading and lagging – to anticipate and mitigate risks in accordance with the risk management goals and business objectives.
- 4) Report the performance of risk mitigation to the Risk Management Committee prior to the Audit Committee on a quarterly basis by considering Immediate Risks, Intermediate Risks and Strategic Risks such as IT Risks.



SCGP realizes that a corporate culture is an essential enabler for the success of risk management. As a result, the organizational culture of risk management has been encouraged through the following activities:

- Assigning top executives to communicate the significance of risk management and be role models in risk management. This includes establishing practical guidelines on common risk language, risk appetite, and common risk assessment systems
- Assigning role and responsibilities of risk owners
- Embedding risk management agenda in key meetings of each subsidiary.
- Encouraging experience sharing across departments and subsidiaries to continually communicate the benefits of risk management.
- Assigning Risk Champions and Risk Coordinators to attend risk management training and workshop regularly, so that risk management tools can be applied appropriately.

- Incorporating risk management into the new hire training course and developing an e-Learning course for all employees to access and go through the risk management.

To integrate climate-related risks into the risk governance and culture, SCGP embeds ESG in the entity's culture and core values as well as increases awareness of climate-related risks within the company. One of the approaches for enhancing awareness is including climate-related risks or climate change issues in Risk Management Committee meeting to identify, monitor and review quarterly. In addition, the risk management function is the driver that responsible for coordinating and consolidating the enterprise risk management activities encompassing with climate change issues and support risk owners to address the climate-related risks that may impact to business objectives, such as the risks associated with climate change regulation.

## 4.2 Climate Risk Management

### 1. Transition Risk

From COP 26, Thailand signed and ratified the Paris Agreement of keeping global average temperature rise to well below 2 degrees Celsius, while trying to limit the increase to 1.5 degrees Celsius. SCGP also set GHG emissions reduction target by 20% by 2030 compared with the base year of 2020 and Net Zero GHG emissions by 2050. From transition risks assessment, the impact of policy and regulation risks, market risk and reputation risks may increase in the future. SCGP set climate-related committee to monitor risks and performance, national climate policy and regulation such as carbon tax and fee and CBAM. SCGP has participated with governance and public sector such as Thailand Greenhouse Gas Management Organization (TGO), Thailand Carbon Neutral Network (TCNN), The United Nations Global Compact (UNGC) and etc. to support for driving progress toward low carbon economy.

SCGP sets strategy towards the goal of achieving Net Zero GHG Emission by dividing it into two main parts, reducing GHG emissions to the maximum extent and removing GHG to the maximum extent with various measures.

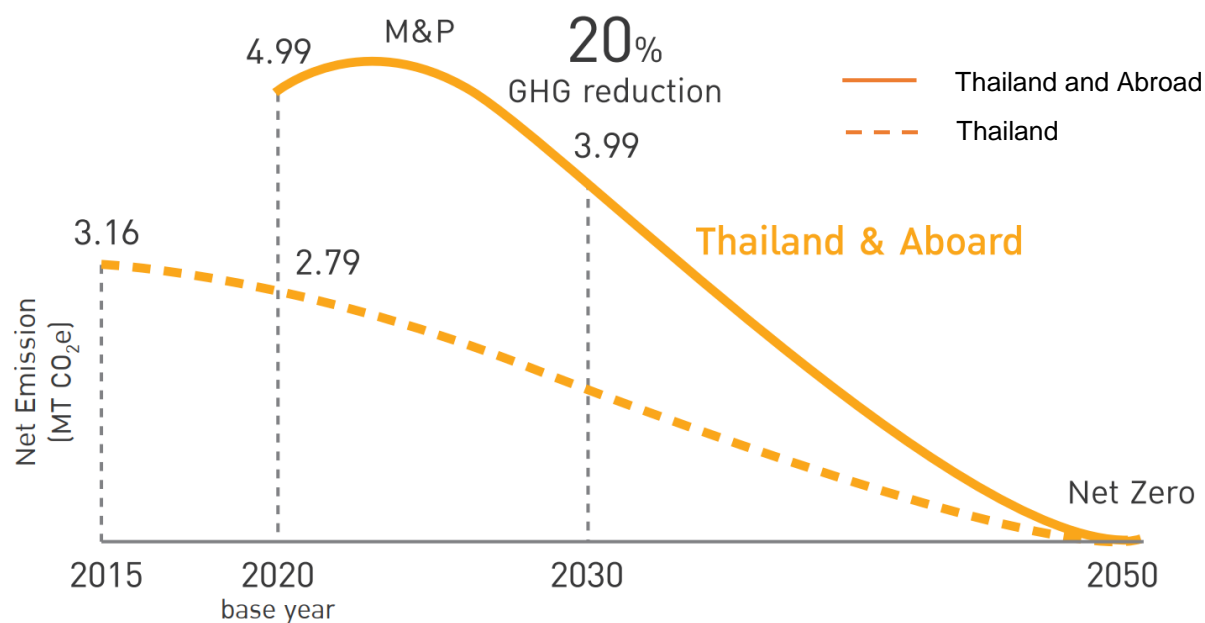
Reducing GHG emissions are comprised of 3 measures;

- Improving energy efficiency by upgrading or changing to the best available technology at the time.
- Increasing the use of renewable energy sources and clean energy sources, such as biomass and biogas.
- Developing low-carbon products in line with a circular economy.

GHG removal is comprised of 2 measures;

- Collaborate with national and international organizations to study Carbon Capture and Storage (CCUS) technology and to increase its maturity
- Support and participate in the conservation and restoration of forests and ecosystems to increase biodiversity and provide additional carbon sequestration areas.

And, economic tools are utilized, such as Internal Carbon Pricing (ICP) as 25 USD/ton CO<sub>2</sub>e, to encourage the reduction of GHG emissions, including raises awareness on energy conservation and climate resilience among employees and stakeholders through value chain.



#### Energy Efficiency

By using the best available technologies



#### Low GHG Energy Sources

By increasing the proportion of biomass and renewable energy



#### Low Carbon Product

Develop product aligned with circular economy



#### Carbon Capture

By network with national and international to scale of CCUS technologies

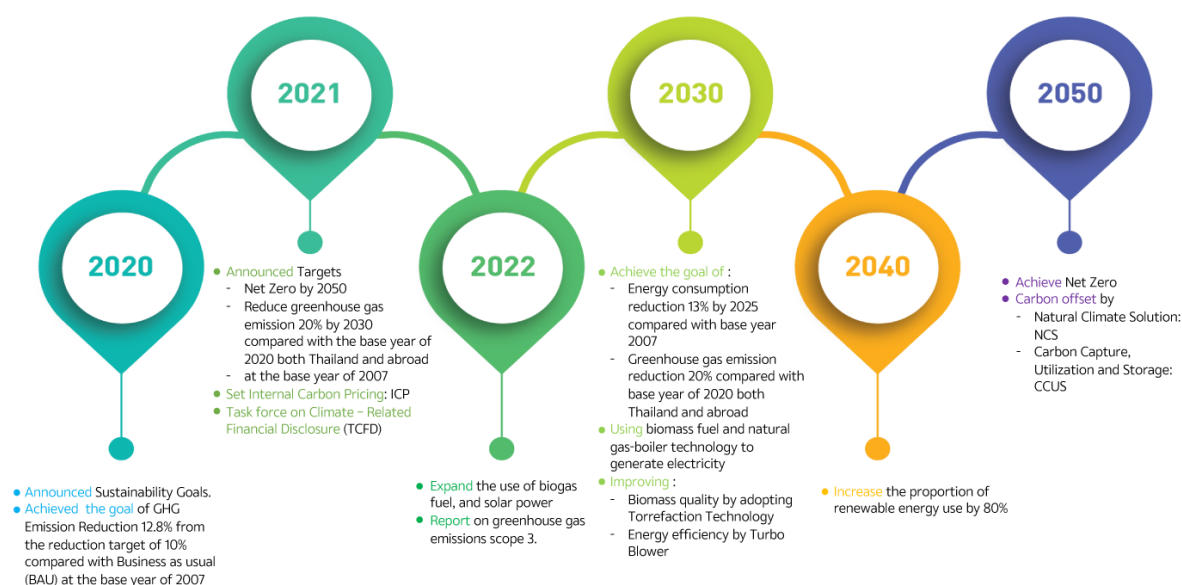


#### Natural Climate Solution

the conservation and restoration of biodiversity to provide sequestration areas.

## SCGP Showcase

Upstream	Operations	Downstream
<p><b>Promote ESG Understanding and Partnership with Suppliers</b></p> <p>SCGP, together with SCG and affiliates, organized “Supplier Day 2022” to communicate and encourage participation in solving world problems by applying ESG 4 Plus and the revised Supplier Code of Conduct which addresses the important issues that are in the interest of stakeholders such as forced labor and environmental data collection to suppliers. Moreover, the workshop on topic 1. Human Rights, 2. Climate Change and 3. Governance and Business Ethics was held to share ideas and acknowledge as well as support needed for the future development of the partnership. There were 123 participants from 81 key suppliers.</p> <p>SCGP selects and assesses suppliers with the capability for sustainable business, conducting risk assessment and supplier segmentation to set supplier development plan corresponding with the risk to reduce GHG scope 3 emission of SCGP</p> <p><b>EV Transportation</b></p> <p>SCGP began with EV delivery trucks, after studying and testing them with suppliers since 2021. For Transporting paper rolls and pulp between factories in Ratchaburi Province and Saraburi Province, SCGP invests in the installation of electric charging stations at origin and destination, and will begin operations for finished product transportation at the beginning of 2023 with 7 vehicles from selected suppliers, and will expand its operation to other product groups and shuttle buses for employees in the future. Additionally, electric vehicle (EV) trucks for transporting goods can reduce greenhouse gas emissions by 475,087 kg CO<sub>2</sub>e per truck per year, and reduce energy costs by 50-60% compared to a diesel truck.</p>	<p>SCGP emphasizes improving the energy efficiency, use renewable energy. This is important in reducing GHG emissions, including absorb GHG by Natural Climate Solution.</p> <p><b>Increase water discharge efficiency from boiler</b></p> <p>SCGP implemented measures to increase water discharge efficiency from boilers in its paper production processes at 5 plants both Thailand and abroad companies with automated systems, saving 78,732 GJ of energy per year and reducing the emission of 7,978 ton CO<sub>2</sub>e per year.</p> <p><b>Increase water discharge efficiency from boiler</b></p> <p>PT Fajar Surya Wisesa Tbk as subsidiary of SCGP in Indonesia, they have optimized the water extraction system from the paper. by installing machines with new technology instead of the old system It saves energy by 172,214 GJ per year and reduces GHG emissions by 13,239 ton CO<sub>2</sub>e per year and upgraded its wastewater treatment system from reducing their use of electricity. Furthermore, they have used biogas to generate electricity, replacing the use of coal. This has reduced the emission of GHG by 36,000 tons ton CO<sub>2</sub>e per year.</p> <p><b>Use renewable energy</b></p> <p>SCGP increases the proportion of renewable energy and clean energy use instead of fossil fuel use. In the electricity of fossil fuel sources, SCGP has continuously installed solar power systems every year since 2018. Both rooftop and ground-mounted solar farms have been installed. In 2022, the company expanded the installation of solar energy to seven other companies in Thailand, adding a total of 10.5 MW to the current capacity, bringing the total capacity of solar energy production to 22.3 megawatts to date. This has helped to reduce GHG emissions by 10,238 ton CO<sub>2</sub>e per year.</p>	<p><b>Promote low-carbon products</b></p> <p>SCGP has developed innovating low carbon products, services and solutions based on circular economy across value chain. SCGP has been pursuing development and design of products under SCG “Green Choice” label with is given to product that meet our stated criteria for safety, environment-friendliness, less resource use, increase ratio of recycle materials and reduce GHG emission. SCGP set target to sale revenue of SCG Green Choice is 66.7% of total sale revenue by 2030. In 2022, revenue from SCG Green Choice was 48% of total sale revenue. And SCGP registered 37 packaging products for the Product Carbon Footprint label, and SCGP continue to develop products to register for Carbon Reduction Label in the future. SCGP is one of the first 30 companies in Thailand to receive the Circular Mark certification for the environment for 5 leading products, including Idea Green copier paper, consumer paper bags, Fest Bio, Laminated Mono-material (R1), and pet shampoo bottles made from 100% PCR HDPE plastic.</p> <p><b>No-waste packaging</b></p> <p>In 2022, GO-PAK UK Co., Ltd as subsidiary of SCGP, a leading company in European packaging, which is the owner of the popular Edenware brand. The company joined forces with Thai Paper Co., Ltd. to develop pulp made from Eucalyptus cellulose which was produced by Siam Kraft Co., Ltd at their Wang-Sala factory. The pulp was developed to be environmentally friendly and compostable. The pulp was also graded PFAS Free and sold to customers in the UK and Europe, emphasizing the importance of environmentally friendly products. The sales reached over 100 tons.</p>



### SCGP GHG Roadmap

## 2. Physical Risk

The significant physical risks impact of SCGP are drought and floods, which the impacts are varies effects both directly and indirectly. SCGP uses the water from surface water, ground water and tap water or from third party. The impacts from drought and floods situations are loss and damaging of property asset, lack of water supply to SCGP's operation and supply chain's operation, and conflicts with stakeholders on water withdrawal. SCGP has prepared a flood adaptation plan including response measures and implementation timescales for SCGP's assets and operations.


### Adaptation for physical Risks

Water is an essential resource for SCGP's operations. As a consequence, SCGP implemented the 3R principle to improve the manufacturing process with the goal to reduce the amount of water consumed, reuse, and recycle the water used in the manufacturing process, in addition to regenerate natural water resources. Climate change conditions, such as unseasonal and inconsistent rainfall patterns, no rains occurring in the headwater area, and decrease of water volume in dams, have a significant effect on water management today. Furthermore, growing population needs for water consumption could result in water scarcity, affecting the manufacturing process and nearby communities.

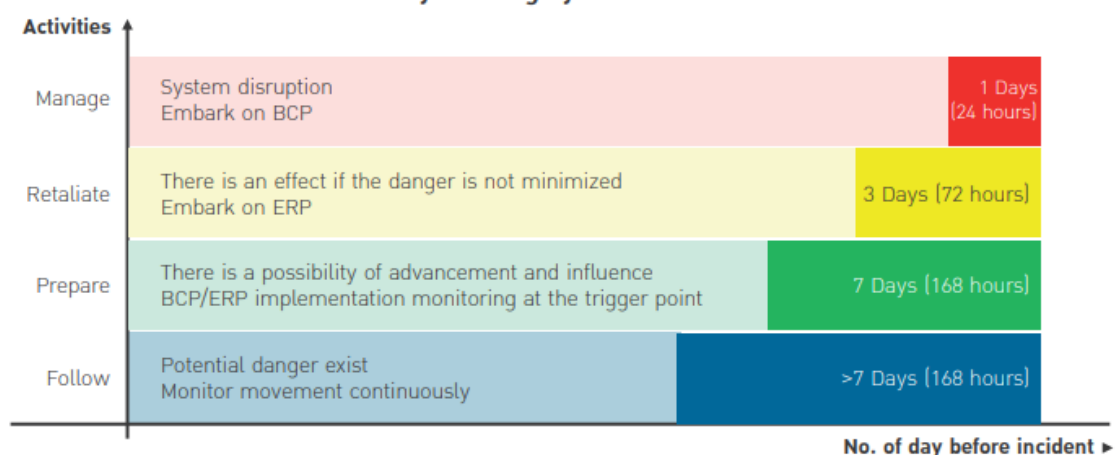
SCGP is committed to leveraging water management knowledge via the Integrated Water Management Committee, which consists of participants from all businesses, to establish a strategy to address water-related hazards and improve water efficiency. Water-related concerns are monitored, collaborated with the government and industrial sectors, digital technology is implemented, and innovation is generated for improved water usage efficiency in the manufacturing process and reuse the treated water. The following are water management strategies:

- 1) Water-related risk mitigation through integrated water resources management
- 2) Increase water usage efficiency in production processes and products

- 3) Treat the effluent to meet quality standards, monitor, measure the effluent and its quality, report on the effluent issues, incident investigation, corrective action, and reduce effluent
- 4) Bring the recycled water after treatment to be used
- 5) Capability building of the person who is involved in water management
- 6) Rehabilitate the water sources' ecosystems and support water to communities and agriculture

Risks	Response	Adaptation
Urban and Riverine Floods 	Water Management Collaborations	SCGP has joined the establishment of the Water User Organization and River Basin Committee under the supervision of the National Water Resources Committee
	Water Stress Monitoring	SCGP has track and analyze water data source linkages real time (API) data from government data base and related sources which for analyze water situation, forecast, monitor and manage water supply and demand issue.
	The Early Warning System (EWS)	An advanced warning system for potential disasters in Thailand and abroad. SCGP has developed this system to improve preparedness and reduce the impact on individuals, businesses, communities, and the environment for sustainability.
	Business Continuity Management (BCM)	SCGP Business Continuity Management for Sustainability to ensure that its business operations are uninterrupted and aligned with the United Nations Office for Disaster Risk Reduction (UNDRR) and Sendai Framework 7 goals.
	Community Engagement	SCGP engage with the community, such as promoting water conservation efforts during droughts, or digging canals to prevent flooding during the rainy season
	Disaster Management Collaboration	SCGP has established the SCGP Emergency Response Team (S.E.R.T.), which is a response team for emergency situations that occur Internal and outside the area factory. Cooperated with the government, Communities, Partnership

### Early Warning System: EWS



BCP : Business Continuity Plan  
ERP : Enterprise Resource Planning



## 4.3 Highlight Activities

SCGP has executed and participated the projects to reduce GHG emission aligned with the Paris Agreement through value chain. In 2022, the highlight projects as the follows;

### 1) Internal Carbon Pricing (ICP)

For new technologies and advancements in carbon capture and storage, research and development are still ongoing. Leading institutions and organizations around the world are exploring ways to make the technology practical and feasible. The SCGP is keeping a close eye on the progress and trying to actively participate in the developments, in order to bring appropriate innovations to the organization.

However, supporting investment in new projects to reduce greenhouse gas emissions or to mitigate carbon sequestration is important. Using economic tools, such as Internal Carbon Pricing (ICP), the SCGP sets an internal carbon price for the years 2022-2024 with a maximum value of 25 US dollars per ton of carbon dioxide equivalent, an increase from the previous year's rate of 18 US dollars, in order to accelerate support for various projects. Currently (2022), 5 projects have been supported by ICP, with a total investment of THB 159 million. It is expected that these projects will help reduce greenhouse gas emissions by a total of 7,550 tons of carbon dioxide equivalent per year.

### 2) Sustainability Link Loan

SCGP is committed to conducting business with high importance attention to the Environment, Society and Corporate Governance, strictly complying with the ESG principles and integrating the business philosophy under the SCG ESG Pathway scheme. We adhere to creating innovative packaging for consumers and a sustainable World by following circular economy principles for reducing the probable impacts. Regarding the environmental dimension, we focused on Resource Recovery.

In 2021, SCGP signed credit support linked to long-term sustainability operations (Sustainability Linked Loan or SLL) totaling 5,000 million baht for four years with Bank of Ayudhya PCL. The interest rate structure is linked to Sustainability Performance Targets or SPT, whereby the bank adjusts lower down interest rates each year if SCGP achieves the three specified set targets:

1. Reduction in total greenhouse gas emissions
2. Reduction of total water withdrawal
3. Increased sales revenue from "SCG Green Choice" products and services

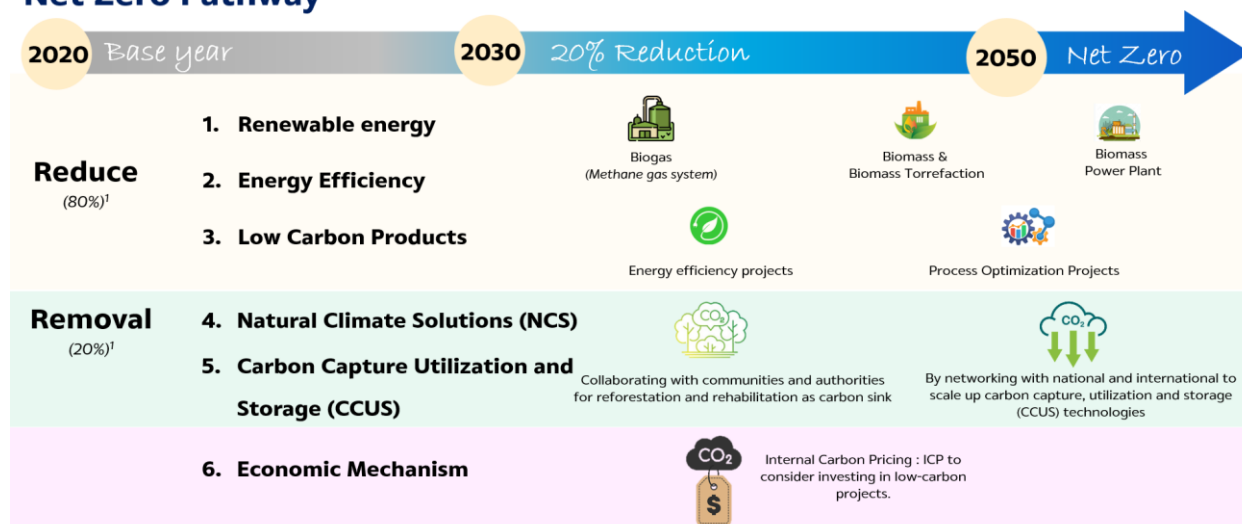
### 3) Climate-related training and sharing ESG knowledge

SCGP shared Carbon Footprint Organization (Scope 1 & 2 & 3) and Carbon Footprint Product knowledge to buyers on 20<sup>th</sup> December 2022 and 11<sup>st</sup> January 2023 through online channel. The project's objectives are increasing knowledge and raising awareness to support and can share knowledge to suppliers. There were 160 participants to join this training.

## 5 METRICS AND TARGETS






SCGP set ambitious GHG reduction emission and Energy consumption targets, including climate-related target to ensure our targets and performances align with policy and strategy. SCGP committed Science Based Targets (Near Term Target) to be guideline to achieve Net Zero by 2050.

### Net Zero Pathway



In 2022, SCGP increased its challenge to help control the global temperature from rising beyond 2 degrees Celsius by promoting science-based initiatives such as the Science-based Targets Initiatives (SBTi) to reduce greenhouse gas emissions, covering both direct emissions (Scope 1) and indirect emissions (Scope 2) based on the baseline year of 2020. In addition, it has started collecting data on other indirect emissions (Scope 3) to better manage greenhouse gas emissions in the future.

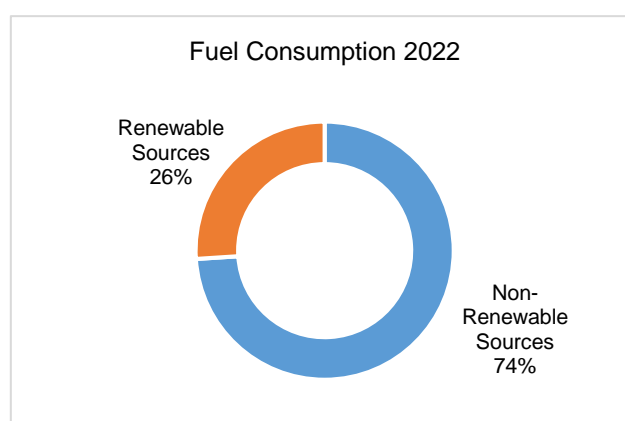
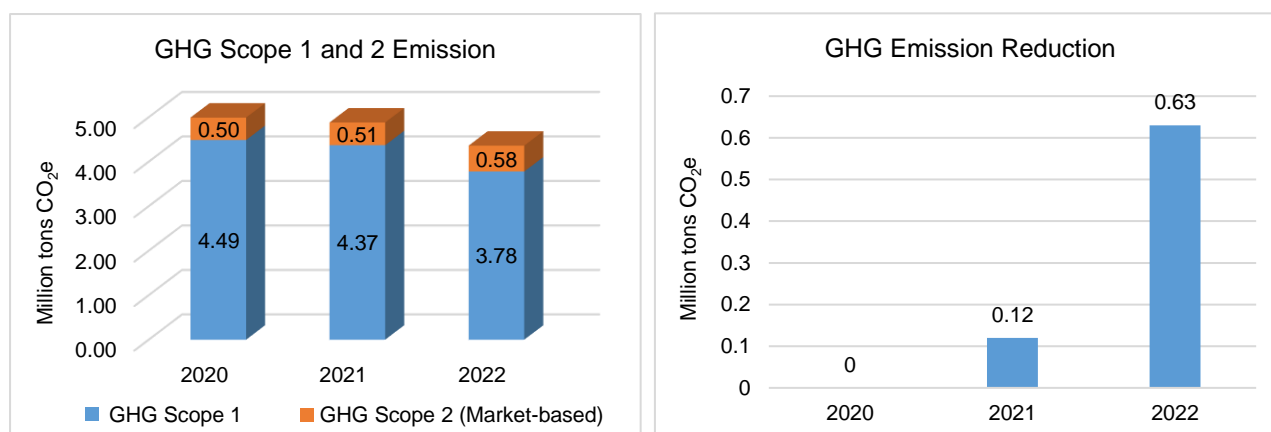
### 5.1 GHG Emission Reduction and Energy Consumption

GHG and Energy Target	GHG and Energy Performance 2022
 Net Zero GHG emission by 2050	 Reduced GHG Emission 12.7% compared with base year of 2020
 Reduce GHG Emission 20% by 2030 compared with base year of 2020	 Reduced Energy Consumption 6.8% compared with Business As Usual (BAU) at the base year of 2007
 Reduce Energy Consumption 13% by 2025 compared with Business As Usual (BAU) at the base year of 2007	

Scope	Unit	Performance			
		2019	2020	2021	2022
GHG Scope 1 and 2 (Market based) Emission	MtCO <sub>2</sub> e	2.91	4.99	4.87	4.36
GHG Scope 1 Emission	MtCO <sub>2</sub> e	2.53	4.49	4.37	3.78
GHG Scope 2 Emission (Market based)	MtCO <sub>2</sub> e	0.38	0.50	0.51	0.58
GHG Scope 2 Emission (Location based)	MtCO <sub>2</sub> e	0.41	0.52	0.51	0.63
GHG Scope 3 Emission	MtCO <sub>2</sub> e	-	-	2.17	1.46
CO <sub>2</sub> emissions from biomass/biogenic	MtCO <sub>2</sub> e	-	-	1.40	1.54

Note: GHG performance in 2019 is data of Thailand companies and since 2020 to 2022 are data of Thailand and Abroad companies.

In 2022, SCGP collected GHG Scope 3 of Thailand companies and estimated GHG scope 3 of Abroad companies.

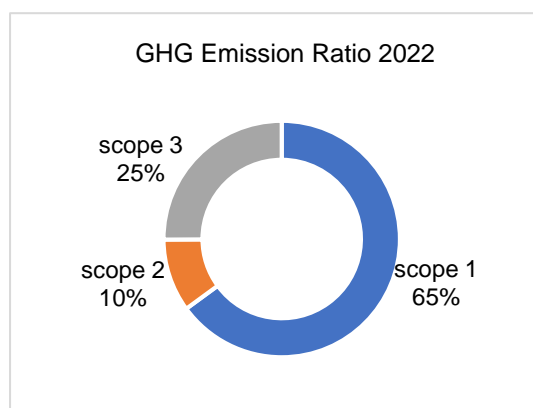


Additional to Scope 1 and 2 reporting, SCGP has started to collect and disclose GHG scope 3.

The emission is described as below:

Unit: tonnes of CO<sub>2</sub>e

Scope of other indirect (Scope 3) GHG emissions	GHG emissions
1. Purchased goods & services	556,430
3. Fuel and energy-related activities	427,544
4. Upstream transportation & distribution	354,632
5. Waste generated in operations	0
6. Business travel	653
7. Employee commuting	533
8. Upstream leased assets	0
9. Downstream transportation & distribution	83,180
11. Used of sold products	0
12. End-of-life treatment of sold products	17,035
13. Downstream leased assets	0
14. Franchises	0
15. Investment	19,002
<b>Total emissions</b>	<b>1,459,010</b>




In 2022, the significant categories of GHG scope 3 are category 1: Purchased goods and services, category 3: Fuel and energy-related activities, category 4: Upstream transportation & distribution and category 9: Downstream transportation & distribution.

In 2023, SCGP has plan to collaborate with suppliers to reduce GHG scope 3, increase EV car for transportation and increase biomass usage ratio.




In 2022, GHG Scope 1 and 2, including GHG Scope 3 data are verified by third party.

## 5.2 Other Climate-related Target and Performance



### • Natural Climate Solution (NCS)

GHG and Energy Target	GHG and Energy Performance 2022
 Plantation 7,000 rais by 2022	 Plantation 7,138 rais (999,226 trees)



### • Water Management

GHG and Energy Target	GHG and Energy Performance 2022
 Reduce Water Withdrawal 35% by 2025 compared with Business As Usual (BAU) at the base year of 2014	 Reduce Water Withdrawal 28% compared with Business As Usual (BAU) at the base year of 2014   Proportion of recycle water was 16.3%

### • Product Stewardship

GHG and Energy Target	GHG and Energy Performance 2022
 Sale revenue of SCG Green Choice products, services, and solutions is 66.7% of the total sales revenue by 2030	 Sale revenue of SCG Green Choice products, services, and solutions is 48% of the total sales revenue

### • Circular Economy

GHG and Energy Target	GHG and Energy Performance 2022
 The volume of Recyclable, Reusable, or Compostable Packaging equals 100% of total volume of packaging by 2025	 The volume of Recyclable, Reusable, or Compostable Packaging equals 99.7% of total volume of packaging

## 6 APENDIX

### 6.1 GHG Scope 3 Assurance Statement



## ASSURANCE STATEMENT

**related to the SCG Packaging Public Company Limited Greenhouse Gas Assertion Scope 3 for Greenhouse Gas Inventory for calendar year ended December 31, 2022**

#### NATURE OF THE ASSURANCE/VERIFICATION

SGS (THAILAND) LTD. (hereinafter referred to as "SGS") has been contracted by The SCG Packaging Public Company Limited (hereinafter referred to as "SCGP") to assure its Greenhouse Gas Assertion for scope 3 (hereinafter referred to as "the GHG Assertion") for the year ended December 31, 2022 in accordance with the reporting criteria.

#### RESPONSIBILITIES

The management of SCGP is responsible for the organization's GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information and the reported GHG emissions. SGS's responsibility was to carry out an assurance engagement on the GHG Assertion and GHG inventory in accordance with our contract with SCGP. SGS has not been involved in the preparation of any of the GHG Assertion and GHG inventory included in the Report.

#### LEVEL OF ASSURANCE

The level of assurance agreed is that of limited assurance.

#### SCOPE OF ASSURANCE AND CRITERIA

SCGP has commissioned an independent verification by SGS of reported GHG emissions arising from their Thailand and abroad activities, to establish conformance with the verification criteria within the scope of the verification as outlined below. Data and information supporting the GHG assertion were both historical in nature (proven by evidence) or estimated based on the best available data and in accordance with the methodology defined by SCGP.

- GRI 305-3 Other indirect (Scope 3) GHG emissions
- World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard (hereafter referred to as the GHG Protocol)
- ISO 14064-1:2018 - Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals (hereafter referred to as ISO 14064-1)

This engagement covers verification of emission from anthropogenic sources of greenhouse gases included within the organization's boundary and is based on ISO 14064-3:2019

- The organizational boundary was established following the operational control approach
- Title or description of activities: SCGP
- Location/boundary of the activities: Thailand and abroad
- GHG sources, sinks and/or reservoirs included: Other indirect (Scope 3) GHG emissions - Purchased goods & services, Fuel and energy-related activities, Upstream transportation & distribution, Waste generated in operations, Business travel, Employee commuting, Upstream leased assets, Downstream transportation & distribution, Used of sold products, End-of-life treatment of sold products, Downstream leased assets, Franchises and Investment
- Types of GHGs included: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub>
- GHG information for the following period was verified: 01 January 2022 to 31 December 2022
- Intended user of the verification statement: internal, investors, general public



**MATERIALITY**

The materiality required of the verification was considered by SGS to be below 5%, based on the needs of the intended user of the GHG Assertion. Materiality assessment did not take into consideration uncertainty inherent in the methodologies applied to determine GHG emissions data including the use of modelling for scope 3 emissions and estimates based on proxies where actual data were not available for Scope 1 and 2 data.

**ASSURANCE METHODOLOGY**

Our objective of this verification exercise are, by review of objective evidence, to independently review:

- Whether the GHG emissions are as declared by the organization's GHG assertion
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

The assurance engagement was conducted as a sampling exercise, focusing on the following activities:

- Review of the processes to measure, collect, consolidate, report and control GHG emissions used at the SCGP businesses which included assessment of GHG information system, monitoring and reporting plan/protocol. For the specific scope of this engagement, SGS has not performed verification of GHG emissions data at the installation level.
- Onsite visits to SCG's head office in Thailand to interview relevant corporate staff and to understand and evaluate the data management systems and processes (including data collection and internal review processes) used for collecting and reporting the GHG emissions data, and to review the accuracy of the data consolidation.
- Verified the other indirect GHG emissions data included in the 2022 GHG inventories, using data and information available at the SCGP business level.

**ASSURANCE/VERIFICATION OPINION**

The GHG assertion for scope 3 provided by SCGP, for the period 01/01/2022 – 31/12/2022 disclosing gross emissions of 1,459,010 metric tonnes of CO<sub>2</sub> equivalent are verified by SGS to a limited level of assurance, consistent with the agreed verification scope, objectives and criteria.

SGS' approach is risk-based, drawing on an understanding of the risks associated with modeling GHG emission information and the controls in place to mitigate these risks. Our examination included assessment, on a sample basis, of evidence relevant to the voluntary reporting of emission information.

We planned and performed our work to obtain the information, explanations and evidence that we considered necessary to provide a limited level of assurance that the CO<sub>2</sub> equivalent emissions for the period 01/01/2022 – 31/12/2022 are fairly stated.

We conducted our verification with regard to the GHG assertion of SCGP which included assessment of GHG information system, monitoring and reporting plan/protocol. This assessment included the collection of evidence supporting the reported data, and checking whether the provisions of the protocol reference, were consistently and appropriately applied.

SGS concludes that based on the work undertaken, no evidence has been identified that would result in the conclusion that the presented SCGP CO<sub>2</sub> equivalent assertion is not materially correct and is not a fair representation of the CO<sub>2</sub> equivalent data and information. No evidence was identified to suggest that the inventory is not prepared in accordance with the verification criteria.

This statement shall be interpreted with the GHG assertion of SCGP as a whole

Signed:

For and on behalf of SGS (Thailand) Limited

Montree Tangtermsirikul

General Manager

100 Nanglinchee Road Chongnonsee Yannawa, Bangkok 10120 Thailand

22 May 2023

[WWW.SGS.COM](http://WWW.SGS.COM)

**Table 1. Summary of Scope 3 GHG Emissions Report 2022**

The emission is described as below:

Unit: tonnes of CO<sub>2</sub>e

Scope of other indirect (Scope 3) GHG emissions	GHG emissions
1. Purchased goods & services	556,430
3. Fuel and energy-related activities	427,544
4. Upstream transportation & distribution	354,632
5. Waste generated in operations	0
6. Business travel	653
7. Employee commuting	533
8. Upstream leased assets	0
9. Downstream transportation & distribution	83,180
11. Used of sold products	0
12. End-of-life treatment of sold products	17,035
13. Downstream leased assets	0
14. Franchises	0
15. Investment	19,002
<b>Total emissions</b>	<b>1,459,010</b>

Note: This statement is issued, on behalf of Client, by SGS (Thailand) Ltd under its General Conditions for Greenhouse Gas Verification Services available at <https://www.sgs.com/en/terms-and-conditions>. The findings recorded here on are based upon an verification performed by SGS. A full copy of this statement, the findings and the supporting GHG Assertion may be consulted at SCGP. This statement does not relieve client from compliance with any bylaws, federal, national or regional acts and regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its client.



## 6.2 SCGP Responsible Climate Lobbying

### Policy and Commitment

No.	Framework Indicator	SCGP Actions
1	Make a public commitment to align all of its climate change lobbying with the goal of restricting global temperature rise to 1.5°C above pre-industrial levels	SCGP commits to achieving Net Zero GHG emissions by 2050 and reducing GHG emissions by at least 20% by 2023 compared with the base year of 2020 in all operations. SCGP also commits to conducting business in consideration of reducing environmental impact and setting ambitious targets to support environmental conservation, Climate change adaptation, and implementation in line with Thailand' NDC and Paris Agreement targets towards net zero greenhouse gas emissions by 2050, including climate change lobbying. Our commitment has been clarified and communicated to internal and external stakeholders included in <a href="#">SCGP Environmental and Climate Change Management Policy</a> .
2	Apply the scope of this commitment to all of its subsidiaries and business areas, and all operational jurisdictions	Climate change-related policies, strategies and actions covers all operations and activities of SCGP, including those of its business partners in the value chain. From design, procurement, production of products, services and solutions, distribution and logistics, as well as managing waste and products after use. This also covers business partners tier 1 and non-tier 1. and service providers, both directly and indirectly including other important business partners such associate companies (non-managed operations), joint venture partners, outsourcing partners, new project, modification project, due diligence of mergers and partnership of SCGP both Thailand and abroad.
3	Publicly commit to taking steps to ensure that the associations, alliances and coalitions of which it is a member conduct their climate change lobbying in line with the goal of restricting global temperature rise to 1.5°C above pre-industrial levels	All associations and organizations that SCGP contributed to and going to contribute, this is to support them in executing their mission of gathering information and supporting policymakers, in order to create and push public policies, regulations making resulting in members and participants of those associations and organizations can achieve sustainability enhancement, especially GHG emission reduction, Thailand's NDC, Net Zero and Paris Agreement.

## Action

No.	Framework Indicator	SCGP Actions
4	Create or participate in coalitions that have the specific purpose of lobbying in support of the goal of restricting global temperature rise to 1.5°C above pre-industrial levels	Our large contribution is to drive Sustainable Business growth following ESG and principles of Circular Economy. The 2 main contributions are for Sustainable Business and Circular Economy such as GCNT, the Chambers of Commerce and related, the Federation of Thai Industries (F.T.I.), the Technical Association of the Pulp and Paper Industry (TAPPI), the Asian Corrugated Case Association (ACCA) including the Thailand Institute of Packaging and Recycling Management for Sustainable Environment (TIPMSE) and Sustainable Packaging Coalition. Both largest contributions are conforming to Paris Agreement and our Net Zero pathway.

## Specific Disclosures

No.	Framework Indicator	SCGP Actions
5	Publicly disclose, for all geographies, its membership of, support for and involvement in all associations, alliances and coalitions engaged in climate change related lobbying	<p>SCGP Contribution to Organization information normally is disclosed via our website  <a href="https://sustainability.scgpackaging.com/en/governance/corporate-governance">https://sustainability.scgpackaging.com/en/governance/corporate-governance</a>).</p> <p>Our large contribution in 2022 to drive Sustainable Business growth following ESG and principles of Circular Economy. Both largest contributions are conforming to Paris Agreement and our Net Zero pathway.</p> <p>1. Collaboration for <b>Sustainable Business</b>, SCGP is committed to conducting business for sustainable growth following the ESG framework. Engagement with our stakeholders through partnership and collaboration across sectors—government agencies, businesses, and civil societies is a key factor. SCGP has joined the Global Compact Network Association of Thailand (GCNT), The Chambers of Commerce and related, The Federation of Thai Industries (F.T.I.), the Technical Association of the Pulp and Paper Industry (TAPPI), and the Asian Corrugated Case Association (ACCA), Water User Organizations and River Basin Committee. The main purposes are for collaboration and elevation for Sustainable Industry development with digitalization, technology, innovation acceleration, and</p>

No.	Framework Indicator	SCGP Actions
		<p>enhancement of competitiveness of the industry including Climate Resilience and Paris Agreement Alignment. SCGP applies standards, tools, and knowledge of them as a model and shares that knowledge with our stakeholders.</p> <p>2. Collaboration in Driving <b>Circular Economy</b>, SCGP adheres to creating innovative packaging for consumers and a sustainable World by following circular economy principles for reducing the probable impacts. To be able to do that we are seeking and being partners with external organizations, both public and private sectors. For the circular Economy, SCGP has joined the Thailand Institute of Packaging and Recycling Management for Sustainable Environment (TIPMSE), The Federation of Thai Industries for collaboration and elevation of a recycling-oriented society, including supporting pilot projects related to circular economy principles. Moreover, SCGP employees are the committee members of the organization. Also, SCGP has joined Sustainable Packaging Coalition for collaboration and enhancement for creating sustainable packaging. These collaborations will help in GHG emission reduction.</p> <p>We are already joined <b>TCNN</b> in 2022 as a Climate Action Initiator and Climate Action Leading Organization member, declaration of intention to reduce GHG emissions and towards Net Zero by 2050, target and plan clearly which are aligned with the Paris Agreement and support Thailand's commitment, including collaborating for developing projects and a carbon offset market. However, the contribution to TCNN was made in early 2023 THB 20,000 which will include the contribution of TCNN in 2023's Contribution summary in the "Collaboration for Sustainable Business" topic.</p>

No.	Framework Indicator	SCGP Actions																
6	Publicly disclose, for each of these organisations: (a) how much it pays to them on an annual basis; (b) those organisations where it sits on the board or plays an active role in committees or other activities related to climate change	<p>Contributions to Each Organization: No. 1-5 were contributions to Sustainable Business, <b>THB 925,824.12</b> No. 6-7 were contributions to Circular Economy, <b>THB 717,945.62</b></p> <table><thead><tr><th>Organizations</th><th>2022 Contribution (THB)</th></tr></thead><tbody><tr><td>1. Global Compact Network Association of Thailand</td><td>488,750.00</td></tr><tr><td>2. The Thai Chamber of Commerce and related</td><td>163,457.00</td></tr><tr><td>3. The Federation of Thai Industries (F.T.I)</td><td>121,429.90</td></tr><tr><td>4. Technical Association of Pulp and Paper Industry (TAPPI)</td><td>82,799.28</td></tr><tr><td>5. ASIAN CORRUGATED CASE ASSOCIATION (ACCA)</td><td>69,387.94</td></tr><tr><td>6. Thailand Institute of Packaging and Recycling Management for Sustainable Environment (TIPMSE)</td><td>500,000.00</td></tr><tr><td>7. Sustainable Packaging Coalition</td><td>217,945.62</td></tr></tbody></table>	Organizations	2022 Contribution (THB)	1. Global Compact Network Association of Thailand	488,750.00	2. The Thai Chamber of Commerce and related	163,457.00	3. The Federation of Thai Industries (F.T.I)	121,429.90	4. Technical Association of Pulp and Paper Industry (TAPPI)	82,799.28	5. ASIAN CORRUGATED CASE ASSOCIATION (ACCA)	69,387.94	6. Thailand Institute of Packaging and Recycling Management for Sustainable Environment (TIPMSE)	500,000.00	7. Sustainable Packaging Coalition	217,945.62
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7	Publicly disclose its overall assessment of the influence that its climate lobbying has had on (a) supporting ambitious public climate change policy; (b) the company's ability to deliver its own corporate transition strategy	<p>SCGP is committed to supporting various organizations with a vision and mission in creating sustainable growth whether it is with ESG principles or Circular Economy principles, as well as towards net zero emissions according to the intentions of the global community. Being TCNN's Climate Action Initiator and Climate Leader Organization Member influenced SCGP to declare our intention to reduce GHG emissions and towards Net Zero by 2050. This effect our annual target and transition strategy. On the other hand, other contributions will lead to reduce GHG emissions such as TIPMSE, F.T.I., and Sustainable Packaging Coalition.</p>																