

Task Force on Climate-related Financial Disclosures (TCFD)

June 2022

1. Introduction

SCG Packaging Public Company Limited (SCGP) is a leading comprehensive Packaging Solutions Provider with two main operating Segments: The Integrated Packaging Business and Fibrous Business. 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

SCGP also pledges to aggressively follow the company's Climate Strategy and Climate- related Performance, which has ambitious in-direct 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" for the GHG target, which is in line with the Sustainable Development Goal and Paris Agreement.

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.



2. Governance

2.1 Risk Governance (The Board of Directors Oversight and Decision Making)

SCGP's risk management structure consists of three-level, which ranges based on authority. The top-level, the board of directors, is responsible for decision-making and oversight by executing through an Audit Committee. The Audit Committee is responsible for auditing, and evaluating both risk management processes and systems. The risk management structure is illustrated below:



Annually, the management team goes through the climate-related risks and opportunities, including climate-related policy, strategy, and targets to apply in the company and its subsidiaries. The Board of Directors are constantly updated on advancements within SCGP and outlook globally. This is done through in-house seminars and discussions, 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 and seminar on Energy Transition Outlook 2021.

On behalf of the Board of Directors, the Audit Committee establishes risk management policies and oversees the company's risk management process and practice. The Audit Committee also evaluates the risk management system to ensure efficiency, effectiveness, and compliance with established guidelines.

Every quarter, the Risk Management Committee (RMC) meets and assesses the risk, including climaterelated, transition, and physical risks. Influenced by the TCFD recommendation, climate strategies are developed to target climate-related opportunities, both financial and non-financial. Scenario analysis is also applied to help plan and monitor projects, reduce risks and increase opportunities, as well as Business Continuity Management (BCM) to minimize any friction in the company's operation.

2.2 Organizational risk management roles & responsibilities

As per risk management structure, SCGP defined roles and responsibilities for relevant parties as shown in figure and described below.



As previously mentioned, SCGP's Board of Directors and the Audit Committee have been oversighted for

climate related risks and opportunities. The RMC has to define and consider the risks and opportunities.

SCGP Risk Management Committee (RMC) consists of the Chief Executive Officer (CEO) who serves as the Committee Chairman, the Chief Operational Officer of each business unit, the Chief Financial Officer and the Chief Regional Officer. The Risk Management Committee has the following core responsibilities for defining the risk management structure and identify responsible persons, considering risks (physical risks and transition risks) & opportunities, considering risks management strategies, frame work and plans, as well as reviewing risk profile and monitoring risk management practices of the entire organization, and Reporting the risks & opportunities and the risk management performance to the Audit Committee.

Moreover, SCGP Sustainable Development Committee: SDC, whose members consist of CEO as a chairman, the Chief Operating Officers, high level executives of each business unit and chairman of environmental management sub-committees. The Committee is accountable for Environment, Social and Good Governance (ESG) direction, policies, strategies and targets, which are align with risk management, and they meet quarterly to manage and review ESG issues across the value chain including climate-related risks, opportunities and performance to ensure that the climate-related risk and opportunities are integrated in business and operational execution, as well as communicate, encourage and provide advice together with strategic direction and support for practically effective implementation with change leadership. .

Under SDC, there are the committees that oversight climate related issues for example Energy and Climate Change Committee, Water Management Committee, Natural Climate Solution Committee incorporate with Product Stewardship and Circular Economy Working Groups in order to provide execution guidance for operational level like responsible functions and factories.

Factories are executed projects align with policies and strategies to prevent impact and reduce climaterelated risks. In addition, factories performance has to report to Sustainable Development Committee quarterly.

SCGP focuses on climate change management by executives at all levels. This can be seen from setting GHG emission reduction as the organization's goal including corporate KPIs related to Net Zero by 2050 commitment. These KPIs has been cascaded from the highest management level to employee level, namely the Chief Executive Officer (CEO), Chief Operating Officer (COO), business unit directors and managers, and employees, respectively. If the overall performance meets the climate-related target, the incentives will be provided. For monetary incentive is variable bonus. And non-monetary incentive is performance score which is result in promotion.

2.3 Risk Management Process

SCGP implemented the Enterprise Risk Management Framework in consistent with the COSO and ISO 31000 throughout the organization to effectively reduce the likelihood and/or the impact of risks that may arise. SCGP has adopted the risk management framework for strategic, operational and investment project risk management. The risk management process is included in the Risk Management Manual and comprised of 4 steps:



1) Risk/Opportunity identification of 3 dimensions which are environmental, social and governance dimension

2) Risk assessment for short term, medium term and long term, and consideration risk impact

3) Establishing risk response, Key Risk Indicators and Key Performance Indicators - both leading and lagging – to anticipate risks and manage risk levels so they are in line with targets

4) Risk reporting to the Risk Management Committee prior to the Audit Committee on a quarterly basis to consider immediate risk, Intermediate risk, Strategic risk and Investment project risk, as well as risks specific to current situation

3. Strategy

3.1 Climate-related risk management framework

For climate-related risk specifically, the guideline from World Business Council for Sustainable Development (WBCSD) and Global Reporting Initiative (GRI) tool is applied to set climate-related strategy and established the clear short-, medium- and long-term goal to reduce carbon emission. SCGP has set the target to reduce GHG emission by 10% in 2025, 20% in 2030 and to achieve the Net Zero in 2050. All of which is backed by the strategic execution plan to ensure that our efforts are align with the climate science, UN SDGs target and 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.

SCGP has adopted ERM framework to study and embrace TCFD. Standard TCFD's approach for climatescenario included 4 steps :

- 1. Assess materiality of climate-related risks: Assess risks and opportunities covering multiple dimensions including market and technology shift, policy, reputation and physical risks
- 2. Identify and define range of scenarios: Define scenario and input parameters assumptions for key risk events both transitions risks and physical risk
- Evaluate business impacts: Evaluate the potential effect on the business strategy and financial impact under each defined scenario. Identify key sensitivities e.g. input costs, operating costs, revenues, supply chain, business interruption and timing
- Identify potential responses: Use the results to identify applicable realistic decision to manage the identified risks and opportunities. Adjustments to strategic/financial plans e.g. business model, portfolio, investment



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

Climate-Related Risk

Transition Risk													
Technology	Market	Policy and Legal	Reputation										
Medium-term High cost of new technologies Increase energy cost 	 Medium-term Increased demand for recycled/recyclable products Intensive to low carbon products Increase raw material cost 	 Medium-long term Increased operation cost and transportation cost Carbon tax or financial mechanism execution Reduced of revenue from sale due to Abroad carbon legal 	 All time frames Global focus on environmental pollution Fossil fuel avoidance Customers and stakeholders concern and focus on low carbon products 										

Physical Risk								
Acute	Chronic							
Medium-long term	Medium-long term							
• Weather event change and increased severity such as	Rising of temperature							
cyclone, floods, water and scarcity	Extreme weather							
	Sea level rising and make flooding in risk area							
	Impact on production, if occur disaster situations							

Climate-Related Opportunities

Resource Efficiency	Energy Source	Products and	Markets	Resilient
		Services		
 More production 	Use of cleaner and	 Development of 	 New markets 	 Participation in
efficiency	renewable energy	Low carbon	access	renewable energy
Use of more	 New technologies 	products	 Climate-related 	program
recycling	for production	 Development of 	incentive usage	Resource
 Reduced material 	process	project to prevent	Lower finance cost	substitution and
usage	 Innovative energy 	climate-related	from sustainable	innovation
 Reduced water 	options	risks	loan	More interest in low
consumption	 Incentive policy or 	 Innovation for more 	 Carbon credit 	carbon product
 New technologies 	mechanism	efficient product	trading	 Leading in
to capture GHG	execution	and service		sustainable
				companies

3.2 Climate-related risks and opportunities impact on SCGP

Climate-related risks and opportunities are impact on business execution as follows;

More Ambitious targets	The Paris Agreement is a legally binding international treaty on climate change. It was adopted 2015. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. There are commitment from all major countries to reduce and cut their pollution. SCGP realizes the importance and set ambitious targets accordance with The Paris Agreement, as a result SCGP has to increase production efficiency and execution which can reduce GHG.
Regulation	Environmental regulations are more stringent, including regulations and measures that are conducive to reducing GHG such as Carbon Border Adjustment Mechanism (CBAM). Therefore, SCGP need to prepare plans and projects to comply with the regulations, such as calculation Carbon Footprint Products (CFP) to consider and prepare for low carbon products, including looking for various measures to reduce GHG from the production process. Moreover SCGP use Internal Carbon Pricing (ICP) at 25 USD/ ton CO_2e to encourage GHG reduction projects.
Financial	Global focus on GHG Reduction and low carbon products, including customers and suppliers are interested and concerned in global worming crisis. So SCGP need to invest new technologies and encourage R&D to reduce GHG. Every year SCGP allocates budget for investment in GHG emission reduction projects. Moreover climate crisis is impacted on material and product cost. The increased popularity of sustainability linked credit facilities dependent upon on ESG performance, including GHG emission reduction performance.
Innovation and R&D	For reduction GHG emission, the development technologies, innovation and R&D are important. SCGP has specialized department for research and develop new technologies to reduce GHG emission

3.3 Organization's Climate strategy

In 2021, SCGP announced our intention to achieve the Net Zero GHG by 2050 to control global temperature rise not to exceed 1.5 degrees Celsius under the Paris Agreement by active and consistent supervision and actions, according to international guidelines in all business units, to achieve the specified goals. SCGP sets strategy toward Net Zero as follows:

1) Increase energy efficiency by utilizing the best available technology to improve and upgrade equipment for achieving higher energy efficiency.

2) Increase the share of renewable energy and clean energy sources such as biomass fuel, biogas, and solar energy to replace fossil fuels.

3) Produce low-carbon products according to the Circular Economy principles with low-carbon production methods throughout the supply chain.

4) Study "the Carbon Capture, Utilization, and Storage: CCUS technologies" in cooperation with national and international organizations to enhance specific future technology into concrete actions with a higher level of use.

5) Promote Natural Climate Solutions by supporting and cooperating with communities, organizations, and governments involved in forest protection and terrestrial forest ecosystem restoration to preserve biodiversity by continually planting trees to increase their capacity to absorb carbon dioxide and release oxygen into the atmosphere.

6) Apply economic tools to enhance greenhouse gas emissions reduction within the organization.

SCGP recognizes that climate change issue is critical. It is highly challenged, impacts business operations, and therefore needs cooperation with all sectors. The Board of Directors and the top management supervise and follow up the performance through the Climate Change and Energy Committee, comprising representatives from every business to drive the policy into actual actions, follow up and evaluate performance together in the quarterly meetings to ensure that all specified targets are achieved. The Actual Performances and Strategic Plans for reducing greenhouse gas emissions and energy management are as follows:



4. Risk Management

4.1 Physical Risk

Climate change is a volatile challenge that directly impacts on physical risks such as Flooding, Increased storm intensity or cyclones, Greater variability of water suppliers, Droughts, Fires, More higher-temperatures days, and etc. SCGP analyzes impacts by using scenario analysis is a tool to enhance strategic thinking.

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 Kampangpetch (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 6 different natural hazard variables, which are Water Scarcity, Riverine and 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 Categorization

Water Scarcity	Riverine and Urban Floods	Landslide Hazards
Hazard is classified based on catchment level Water Stress, which is the ratio of water withdrawal to available renewable water resource	River flood and urban flood hazards are classified using a threshold of "area flooded to damaging intensity threshold of 0.5m. The area threshold is 1% of the Administrative (ADM) unit for river flood, and 4% of the ADM unit for urban flood	Hazard classified based on the frequency of rainfall-induced landslide events.
Coastal Floods	Extreme Heat	Cyclone

Further physical risk assessment is conducted where the result is shown below.

1) SCGP's Operation

Baseline

Location	Water Scarcity	Urban Floods	Riverine Floods	Coastal Floods	Extreme Heat	Cyclones	Landslide
Nam Phong, Khon Kaen	1	3	3	N/A	2	1	1
Jawa Barat, Indonesia	2	3	3	N/A	2	1	3
Binh Duong, Vietnam	1	3	3	N/A	2	3	1
Bulacan, Philippines	1	3	3	3	2	3	3

Normalized Hazard Category								
High								
Medium								
Low								
No Hazard								
Not Applicable								

Score	
3	
2	
1	
0	
N/A	

3	2	3	3								
Risk Likelihood											
1. Urban floods and Riverine floods											
2. Cycl	ones and La	andslide									

<u>RCP 2.6</u>

RCP2.6		Water	Scarcity	y		Urban	Flood			Riverin	e Flood	l		Coasta	al Flood			Extren	ne Heat	- -		Сус	lone			Land	dslide	
Location	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050
Khon Kaen, Thailand	1	1	1	1	3	1	1	1	3	-2	-1	-1	N/A	N/A	N/A	N/A	2	1	1	2	1	1	1	1	1	-2	-1	-1
Jawa Barat, Indonesia	2	-1	-1	-1	3	-1	2		3	1	1	1	N/A	N/A	N/A	N/A	2	1	1	1	1	1	1	1	3	1	1	1
Binh Duong, Vietnam	1	1	1	1	3	1	1	2	3	2	3	3	N/A	N/A	N/A	N/A	2	1	1	1	3	1	1	1	1	2	3	3
Bulacan, Philippines	1	-1	-1	-1	3	1	1	1	3	-1	-1	-2	3	1	1	1	2	1	1	1	3	1	1	1	3	-1	-1	-2

Legend and Hazard Score:

	Category	Drought (Change in annual drought probability	Riverine & Urban Floods (change in 1 day and 5 day maximum rainfall)	Coastal floods and sea level rise	Extreme Heat (Change in annual average maximum temperature)	Cyclone (Change in sustained wind speed
3	Significant Increase	<-1	>10%	>50cm	>2°C	>5%
2	Moderate Increase	<-0.5	>5%	>25cm	>1°C	>2.5%
1	Slight Increase	<0	>0%	>0cm	>0°C	>0%
0	No Change	0	0%	0cm	0°C	0%
-1	Slight Decrease	>0	<0%	<0cm	<0°C	<0%
-2	Moderate Decrease	>0.5	<-5%	<-10cm	<-1°C	<-2.5%
-3	Significant Decrease	>1	<-10%	<-20cm	<-2°C	<-5%

Key Interpretations:

Scenario	2030	2040	2050
RCP 2.6	Moderate to significant increase in risk	Moderate to Significant increase in risk intensity of	Significant increase in risk intensity of
	intensity of	1. Riverine Flood	1. Urban Flood
	1. Riverine Flood	2. Landslide	2. Riverine flood
	2. Landslide	3. Urban Flood	3. Landslide

<u>RCP 8.5</u>

RCP2.6		Water	Scarcit	y		Urban	Flood			Riverin	e Flood	ł		Coasta	l Flood			Extrem	ne Heat			Сус	lone			Land	lslide	
Location	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050
Khon Kaen, Thailand	1	1	-1	-1	3	1	-1	-1	3	-1	-1	-2	N/A	N/A	N/A	N/A	2	1	2	2	1	1	1	1	1	-1	-1	-2
Jawa Barat, Indonesia	2	-1	-1	-1	3	-1	-1	1	3	1	1	1	N/A	N/A	N/A	N/A	2	1	2	2	1	1	1	1	3	1	1	1
Binh Duong, Vietnam	1	1	-1	-1	3	2	2	3	3	3	3	3	N/A	N/A	N/A	N/A	2	1	2	2	3	1	1	1	1	3	3	3
Bulacan, Philippines	1	-1	-1	-1	3	-1	-1	-1	3	-1	1	1	3	2	2	3	2	1	2	2	3	1	1	1	3	-1	1	1

Legend and Hazard Score:

	Category	Drought (Change in annual drought probability	Riverine & Urban Floods (change in 1 day and 5 day maximum rainfall)	Coastal floods and sea level rise	Extreme Heat (Change in annual average maximum temperature)	Cyclone (Change in sustained wind speed
3	Significant Increase	<-1	>10%	>50cm	>2°C	>5%
2	Moderate Increase	<-0.5	>5%	>25cm	>1°C	>2.5%
1	Slight Increase	<0	>0%	>0cm	>0°C	>0%
0	No Change	0	0%	0cm	0°C	0%
-1	Slight Decrease	>0	<0%	<0cm	<0°C	<0%
-2	Moderate Decrease	>0.5	<-5%	<-10cm	<-1°C	<-2.5%
-3	Significant Decrease	>1	<-10%	<-20cm	<-2°C	<-5%

Key Interpretations:

Scenario	2030	2040	2050
RCP 8.5	Moderate to significant increase in risk	Moderate to Significant increase in risk	Significant increase in risk intensity of
	intensity of	intensity of	1. Riverine Flood
	1. River Flood	1. Riverine Flood	2. Landslide
	2. Landslide	2. Landslide	3. Urban Flood
	3. Urban Flood	3. Extreme Heat	4. Coastal Flood
		4. Urban Flood	5. Extreme Heat

2) Supplier and Customer

<u>Baseline</u>

Location	Water Scarcity	Urban Floods	Riverine Floods	Coastal Floods	Extreme Heat	Cyclones	Landslide
Supplier – Udon Thani, Thailand	1	2	2	N/A	2	1	1
Customer - Kamphaeng Phet,	1	2	3	NI/A	3	1	1
Thailand	I	2	5	N/A	5	I	I
Normalized Hazard Catego	ory	Score					
High		3					
Medium		2					
Low		1					
No Hazard		0					
Not Applicable		N/A					

Risk Lil	kelihood
Supplier	Customer
1. Urban floods, Riverine floods and Extreme Heat	1. Riverine Flood and Extreme Heat
	2. Urban Flood

<u>RCP 2.6</u>

RCP2.6		Water S	Scarcity	<i>,</i>		Urban	ı Flood			Riverin	e Flood			Coasta	al Flood	l		Extrem	ie Heat	t		Сус	lone			Land	Islide	
Location	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050
Supplier	4	4			0				0				N1/A			NI/A	0		0	4	4				4	4		
Udon Thani, Thailand					2		2		2	-1			N/A	N/A	N/A	N/A	2	2	2		1		1		1	-1	1	
Customer	1	1	1	4	0	2		1	2	2	1	2						1	1	4	4	1	1	4	4	2	1	2
Kamphaeng Phet, Thailand					2	-3	-2		3	-3	-1	2	N/A	N/A	N/A	N/A	3									-3	-1	2

Legend and Hazard Score:

	Category	Drought (Change in annual drought probability	Riverine & Urban Floods (change in 1 day and 5 day maximum rainfall)	Coastal floods and sea level rise	Extreme Heat (Change in annual average maximum temperature)	Cyclone (Change in sustained wind speed
3	Significant Increase	<-1	>10%	>50cm	>2°C	>5%
2	Moderate Increase	<-0.5	>5%	>25cm	>1°C	>2.5%
1	Slight Increase	<0	>0%	>0cm	>0°C	>0%
0	No Change	0	0%	0cm	0°C	0%
-1	Slight Decrease	>0	<0%	<0cm	<0°C	<0%
-2	Moderate Decrease	>0.5	<-5%	<-10cm	<-1°C	<-2.5%
-3	Significant Decrease	>1	<-10%	<-20cm	<-2°C	<-5%

Key Interpretations:

Scenario		Supplier			Customer	
Ocentario	2030	2040	2050	2030	2040	2050
RCP 2.6	Moderate to significant increase in risk intensity of 1. Extreme Heat	Moderate to Significant increase in risk intensity of 1. Urban Flood 2. Extreme Heat	Moderate to Significant increase in risk intensity of 1. Urban Flood	Moderate to significant increase in risk intensity of 1	Moderate to Significant increase in risk intensity of 1	Moderate to Significant increase in risk intensity of 1. Riverine Flood 2. Landslide

<u>RCP 8.5</u>

RCP 8.5		Water \$	Scarcity	/		Urban	Flood			Riverin	e Flood			Coasta	ıl Flood			Extrem	ie Heat	t		Сус	lone			Land	Islide	
Location	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050	BSL	2030	2040	2050
Supplier Udon Thani, Thailand	1	1	-1	-1	2	1	3	3	2	2	1	-1	N/A	N/A	N/A	N/A	2	1	2	2	1	1	1	1	1	2	1	-1
Customer Kamphaeng Phet, Thailand	1	1	-1	-1	2	1	2	2	3	1	1	1	N/A	N/A	N/A	N/A	3	1	2	2	1	1	1	1	1	1	1	1

Legend and Hazard Score:

	Category	Drought (Change in annual drought probability	Riverine & Urban Floods (change in 1 day and 5 day maximum rainfall)	Coastal floods and sea level rise	Extreme Heat (Change in annual average maximum temperature)	Cyclone (Change in sustained wind speed
3	Significant Increase	<-1	>10%	>50cm	>2°C	>5%
2	Moderate Increase	<-0.5	>5%	>25cm	>1°C	>2.5%
1	Slight Increase	<0	>0%	>0cm	>0°C	>0%
0	No Change	0	0%	0cm	0°C	0%
-1	Slight Decrease	>0	<0%	<0cm	<0°C	<0%
-2	Moderate Decrease	>0.5	<-5%	<-10cm	<-1°C	<-2.5%
-3	Significant Decrease	>1	<-10%	<-20cm	<-2°C	<-5%

Key Interpretations:

Scenario		Supplier			Customer	
Scenario	2030	2040	2050	2030	2040	2050
RCP 8.5	Moderate to significant increase in risk intensity of 1. Riverine Flood 2. Landslide	Moderate to Significant increase in risk intensity of 1. Urban Flood 2. Extreme Heat	Moderate to Significant increase in risk intensity of 1. Urban Flood 2. Extreme Heat	Moderate to significant increase in risk intensity of 1	Moderate to Significant increase in risk intensity of 1. Urban Flood 2. Extreme Heat	Moderate to Significant increase in risk intensity of 1. Urban Flood 2. Extreme Heat

Simulation Cases of the Effects on Water-Related Crisis.

The company has Pulp and paper facilities in the Northeastern region, which is more likely effected by severe drought than other regions in Thailand. Therefore, there might be a risk that Company's production process could be interrupted if the water reservoir in the Ubol Ratana Dam in 2021 decrease under the 3 simulation scenarios as follows;

Scenario	Effect
1. Amount of water reservoir decrease by 10% from the target	No effect no business operation
2. Amount of water reservoir decrease by 30% from the target	No effect no business operation
3. Amount of water reservoir decrease by 50% from the target	Effect on business operation, without
	production stoppage.

For effect on business operation, without production stoppage, this impact with our EBIDA 93 million baht per day

Adaptation for Physical Risks

Water is an essential resource for SCGP's business operations. Therefore, SCGP has applied the 3R principle to improve the production process to reduce the amount of water, reuse, and recycle the water used in the production process, including the restoration of the natural water resources. Today's climate change conditions have significant effect on water management, such as unseasonal and erratic rainfall patterns, no rains at the headwater area, depletion of water volume in the dams. In addition, the demand of water consumption from increased population may create water shortage which impact manufacturing process and nearby communities. SCGP is committed to leveraging the capability to manage the water through the Integrated Water Management Committee comprising of representatives from every business to formulate a strategy to address water-related risks and water usage efficiency. There is a function unit for water-related risks - monitoring, working with the government and industry sectors, with digital technology adoption, and creating innovation to increase water usage efficiency in the production process and reuse the treated water. Water management strategies are as follows:

- 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

SCGP has a Business Continuity Management (BCM) function with a critical task to assess all water-related risk situations, either flooding or drought conditions, in all areas where SCGP operates. The BCM 's missions are to determine the preventive measures and set timely mitigation actions to avoid problems in the production process and with stakeholders, including using a digital system – the Early Warning System (EWS) connecting Application Programming Interface (API) with the Power BI to monitor, assess and create water situation dashboard. The Power BI monitors water usage situation in business, connected with essential information from various country sources, such as the Royal Irrigation Department, the Meteorological Department, Pollution Control Department, etc. In 2021, SCGP introduced disaster reduction measures of the United Nations Office for Disaster Risk Reduction: UNISDR, with SENDAI Target Champion Goal no.7 on implementing the Early Warning Systems (Disaster risk information and assessment to people by 2030). The BCM aims to turn all measures into actual actions to warn against various disasters, including water-related risks. The BCM's goal is to expand the scope of the Early Warning Systems from the business to the communities both nationally and internationally to create disasters awareness.

SCGP has plan for flooding measure by regularly cleaning the company's gutters in order to easily water drain to water source outside SCGP, closely monitor level of the dam, as well as prepare waterproof wall when occur flood disaster.

Project for Supply Chain Initiative

SCGP conducts water risk assessment using Life Cycle Assessment (LCA) to identify suppliers most impacted by SCGP water-related risk. Moreover, SCGP plans to educate suppliers on GHG (risk & opportunity and management) and Water Management to minimize physical risk.

4.3 Transition Risks

Our assessment of risks and opportunities arising from the climate-related issues are conducted through the medium-term plan strategy development session which engage key persons from across the organization for a holistic top- down and bottom- up view of such risks. Top 3 transitional risks and opportunities we identified, which become the drivers in financial model, are the carbon tax and pricing mechanism in countries we operate; the enforcement of carbon border adjustment mechanism; and the opportunity to launch low-carbon products. Our scenario analysis is consisted of four scenarios: Sustainable Development Strategy (SDS) which represents a wellbelow 2°C target with available mitigation plan and with stretched mitigation plan; Net Zero Emission (NZE) which represents a 1.5°C target with available mitigation plan and with stretched mitigation plan.

The scenarios which we use for evaluation and assessment risks and impact as follow;

1) "SDS" has 50% chance of constraining climate change to 1.65 °C by reaching net zero emission by 2070, and is based on the WEO Sustainable Development scenario.

2) "NZE" has a 50% chance of constraining climate change to 1.50°C by reaching net zero emission 2050, and is based on the WEO Net Zero by 2050 scenario.

Connerio	Seconaria Description	Carbon cost (Million Baht)			
Scenano	Scenario Description	2025 2030 2040 20		2050	
Best effort with	With normal decarbonized actions for	852	2,617	5,194	9,552
current mitigation -	SCGP to reduce CO ₂ emission under				
SDS	projected carbon tax and global				
	climate target to achieve net-zero by				
	2070 (SDS)				
Stretched case with	With extensive decarbonized actions	737	1,926	2,266	0
full mitigation - SDS	for SCGP to achieve net-zero by 2050				
	under projected carbon tax and global				
	climate target to achieve net-zero by				
	2070 (SDS)				
Best effort with	With normal decarbonized actions for	852	2,617	7,791	19,104
current mitigation -	SCGP to reduce CO ₂ emission under				
NZE	projected carbon tax and global				
	climate target to achieve net-zero by				
	2050 (NZE)				
Stretched case with	With full decarbonized actions for	737	1,926	3,399	0
full mitigation - NZE	SCGP to achieve net-zero by 2050				
	under projected carbon tax and global				
	climate target to achieve net-zero by				
	2050 (NZE)				

4.4 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.

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

SCGP is the first packaging company in the ASEAN to receive this SLL because of its financial stability, ability to manage the business strictly following the principles of good governance continuously, and as the leading regional packaging company offering total products and services solutions with sustainable business practice.

4.5 Highlight Projects

4.5.1 Climate Change and Energy Projects

1) Renewable Energy Use

• SCGP has put much effort into building its solar infrastructure. In 2021, SCGP expanded the solar rooftop project at Thai Containers Group Co., Ltd. (Nava Nakorn and Kamphaeng Phet) factories. Thus, SCGP generates 11.78 MWp of electricity from solar panels, reducing greenhouse gas by 8,757 tons of CO₂ equivalent annually.





• Using agricultural leftovers, SCGP converted biomass energy into an alternative fuel for power plants using purchased sugarcane leaves from farmers in Kanchanaburi, Ratchaburi, Suphan Buri, and Phetchaburi. In 2021, SCGP increased the biomass consumption ratio to 6.7% per year (327,720 tons/year) and reduced greenhouse gas emissions even more to 277,440 tons CO₂ equivalent per year. These outcomes were from purchasing sugarcane leaves from farmers and improving machinery for continuously using biomass fuel.

2) Digital technology to improve energy efficiency.

• In 2021, Siam Kraft Industry Co., Ltd. (Ban Pong and Wang Sala) integrated an Online Airflow measurement system using Data Analytics for the Dryer, reducing the operator's work by up to 4 hours to measure the airflow. The benefits gained were adjusting and optimizing the system more quickly, reducing thermal energy consumption by 37,344 gigajoules per year and reduced greenhouse gas emissions by 4,061 tons CO₂ equivalent per year.

• Siam Kraft Factory (Wangsala) developed a Radar Sensor with software responsible for regulating the conveyer belt speed before releasing wastepaper bales into the pulper. It makes the pulp more consistent, reduced electricity consumption by 3,500,000 kilowatt-hours/year, and reduced greenhouse gas emissions by 2,882 tons CO2 equivalent per year.

• Siam Kraft Industry Co., Ltd.(Wangsala) developed a program to automatically on-off control the Aerated Effluent treatment system based on real-time effluent quality measurement. It enhanced effective energy use while reducing the electricity consumption of turning on and off the system by 963,600 kilowatt-hours/year and reducing greenhouse gas emissions by 819 tons of carbon dioxide equivalent per year.



3) A Project study on technology

• SCGP: Innovation and Product Development Center (IPDC) has studied the Torrefaction Technology for various types of biomass such as wood chips, sugarcane leaves, rice straws, rice husks, veneers, pulp sludge, paper sludge, and palm kernel shell, aiming to increase biomass usage without fouling and corrosion problems in the boilers. In 2021, the work done in the laboratory showed promising results, revealing the similarity of the torrefied biomass to coal. In the following year, IPDC will pursue pilot-scale Torrefaction and combustion to maximize torresfied biomass usage. This project's ultimate target is reducing fossil fuel usage leading to the SCGP's Net zero goal.



4) Restoring forest areas as a source of Carbon Dioxide absorption

• In 2021, SCGP organized forestation activities for government agencies and communities to buile forestry as a source of Carbon Dioxide absorption, which is the cause of global warming, and also to conserve the biodiversity under the "Plant the tree to save the world" Project, including other planting tree projects, both internal and external of factory's proximity totaling 55,315 planted trees. Siam Forestry Company Limited has directed Sustainable Forest Restoration in the conservation area of Kampaengphet Plantation project requesting the registration of the T-VER Project, totaling 684.4 rai, with a base-case CO₂ sequestration amount of 14,315 tons CO2 equivalent.



5) Apply economic tools

• SCGP, collaborate with The Creagy Company Limited and Thailand Greenhouse Gas Management Organization (Public Organization), studied and developed an economic mechanism for determining Internal Carbon Pricing: ICP (SCGP use 25 USD/ton CO₂). SCGP has applied the principles to get the most reasonable price to support the Company's environmentally friendly projects. The Project has created sustainable investment opportunities and benefits to organizations in managing climate change risks, including reducing greenhouse gas emissions - the significant cause of global warming.

4.5.2 Product Stewardship

1) SCG Green Choice

In order to make quantitative data of the labeled product trustworthy, we has developed the criteria for SCG Green Choice consideration in accordance with ISO 14021 (Environmental labels and declarations-Self-declared environmental claims) and environmental friendly product development direction from SCG Green Choice Committee, taking into account "stakeholders" benefit. There are 15 criteria for SCG Green Choice products ranging by a product life cycle as follows;

(1) Designed for Disassembly	(9) Health or Hygiene
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- (2) Reduced Resource Use (10) Extended life product
- (3) Renewable Materials (11) Reusable and Refillable
- (4) Recovered Energy (12) Waste Reduction

(13) Greenhouse Gas Reduction

(15) Compostable

(14) Recyclable or Recycled Content

- (5) Renewable Energy
- (6) Reduced Energy Consumption
- (7) Reduced Water Consumption
- (8) Ergonomics Product

The example of products certified with the SCG Green Choice Label are as follows:

• Bleached Eucalyptus Pulp and Dissolving Pulp - "Bleached Eucalyptus Pulp production reduces the use of water withdrawal at least 7%" received the SCG Green Choice Label, Indirect Type - "Reduce water consumption."

• Offset BM Plus Paper and White Card PRO Paper - "Offset BM Plus Paper production reduces the use of water withdrawal at least 20%, and" White Card PRO Paper products at least 20%" received the SCG Green Choice Label, Indirect Type - "Reduce Water Consumption."

• TS box surface paper (TS – Kraft Liner) - "TS box surface packaging paper is made from 100 percent recycled waste paper; thus, it can reduce the natural resource consumption by at least 5 percent, resulting in lighter paperweight but retaining the usual strength. It got both the SCG Green Choice Label, Direct Type - "Reduce the resource use and Indirect Type - "Recyclable or Recycled Content."

• G - Corrugated Cardboard Packaging - "Extra small corrugated packaging can reduce paper usage by at least 135 grams per square meter at the same strength, compared to Folding carton 500 GSM"., received the SCG Green Choice Label, Indirect Type, - "Reduce Resource Use."

• Green Carton Packaging - "The Green Carton packaging is made from corrugated cardboard that uses less than 25 grams of reduced resources per square meter while maintaining the same strength". It received the SCG Green Choice Label, Indirect Type, - "Reduce Resource Use."

2) ISCC Plus

Visy Packaging Thailand - SCGP was granted the ISCC PLUS certification by International Sustainability and Carbon Certification (ISCC), applicable worldwide to certify organizations with superior carbon and sustainability management throughout the supply chain. Visy Packaging got certified as Converter: manufacturing of rigid plastic food packaging operating under the Circular Economy principles, using recycled plastic pellets as raw material with a clear and transparent system to control every step of production covering processes from acquisition, accepting, storing of raw materials, quantity control, to sales and delivery. The certification ensures that the Company's products contain recycled raw materials, meet high production standards and traceability, control mass balance, achieve high quality that meets customers' expectations for food packaging. And respond to a group of customers keen to adopt the Circular Economy principles for their supply chain.

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.



Climate-related targets



Reduce water withdrawal 35% within 2025 compared with Business As Usual (BAU) at the base year 2007

Circular Economy

The Volume of Recyclable, Reusable or Compostable packaging is 100% from the volume of total packaging by 2025

Product Stewardship



Sales Revenue of products, services and solutions with the SCG Green Choice Label is 66.7% of total sales revenue by 2030

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Sales Revenue of products, services and solutions, provide directly value to customers with the SCG Green Choice Label is 33.3% of total sales revenue by 2030

Waste Management



Every Year - Zero waste from the production process in Thailand to landfill

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Reduction of waste disposal by incineration without energy recovery in Thailand 100% by 2025 compared with the base year 2014

Climate-related Performances

1) GHG and Energy Performance

Performance 2021



GHG Emission Reduction 2.4% compared with the base year 2020

Energy Consumption Reduction 5.8% compared with Business As Usual (BAU) at the base year 2007

Scope	Unit	Performance			
		2018	2019	2020	2021
GHG Scope 1 + 2 (Market based) Emission	MtCO ₂ e	2.96	2.91	2.92	4.87
GHG Scope 1 Emission	MtCO ₂ e	2.58	2.53	2.66	4.37
GHG Scope 2 Emission (Market based)	MtCO ₂ e	0.38	0.38	0.26	0.51
GHG Scope 2 Emission (Location based)	MtCO ₂ e	0.41	0.41	0.28	0.51
GHG Scope 3 Emission (Screening)	MtCO ₂ e	-	-	-	2.17
Energy Consumption	Petajoules	40.97	40.83	40.79	64.68

Note: GHG & Energy performance in 2017-2020 is data of Thailand companies and 2021 is data of Thailand and Abroad companies.





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2) Water Stewardship

Performance 2021

Reduced water withdrawal 26.3% compared with Business As Usual (BAU) at the base year 2007

Water withdrawal usage 0.64 m³ per sale revenue at billion baht



3) Waste Management

Performance 2021



Waste from the production process in Thailand to landfill is 0 tons

Reduction of waste disposal by incineration without energy recovery in Thailand is 99% compared with the base year 2014



4) Circular Economy

Performance 2021



The Volume of Recyclable, Reusable or Compostable packaging is 99.7% from the volume of total packaging



5) Product Stewardship

Performance 2021



Sales Revenue of products, services and solutions with the SCG Green Choice Label is 45% of total sales revenue



Sales Revenue of products, services and solutions, provide directly value to customers with the SCG Green Choice Label is 13% of total sales revenue



6. DISCLAIMER Forward-Looking Statements

TCFD Report contains forward-looking statement. These statements can be identified through the consideration, evaluation and estimate. Forward-looking statement offer show our insight vision, strategy and guideline for business execution and expectation in the future.