The Siam Cement Public Company Limited

Sustainability Report 2021

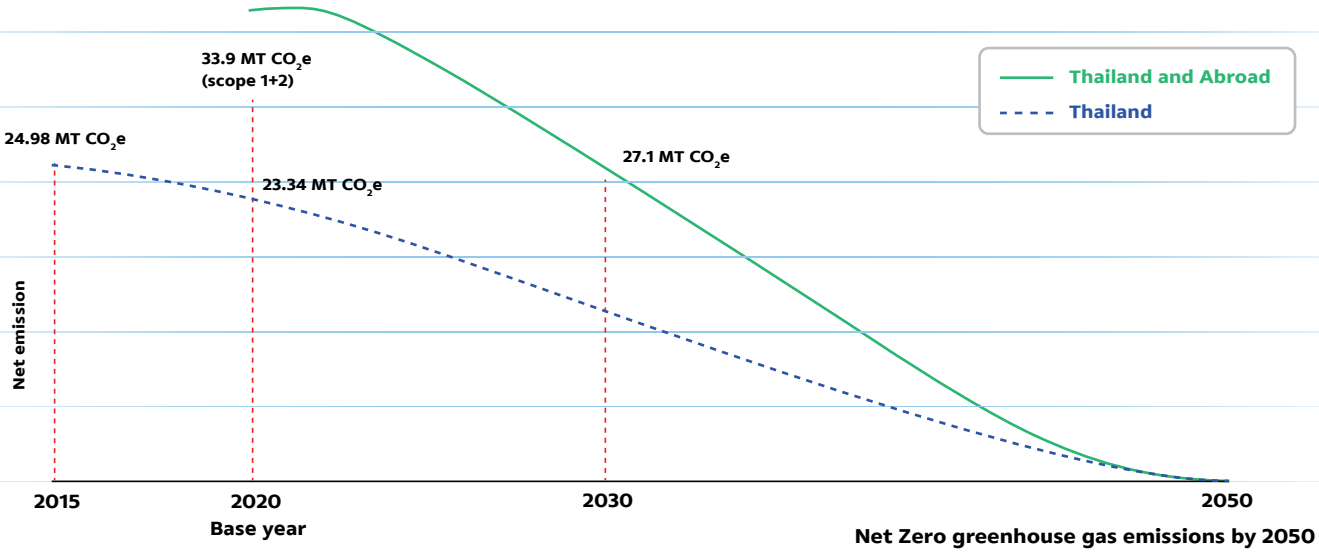
INTEGRATING ESG
TOWARDS SUSTAINABLE GROWTH

SCG

ESG Pathway

20% Net GHG Reduction by 2030 (from Base Year 2020)

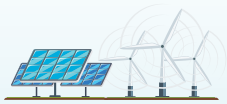
Net Zero by 2050



NET ZERO TRANSITION PATHWAY INITIATIVES

Energy Efficiency

By using the best available technologies



Clean and Green Energy

By increasing the share of biomass and renewable energy

Carbon Capture

By networking with national and international to scale up carbon capture, utilization and storage (CCUS) technologies

Low - carbon Products

By innovating the low - carbon products based on the principles of circular economy across value chain

Natural Climate Solution

By collaborating with communities and authorities for reforestation and rehabilitation as carbon sink

INTEGRATING ESG

TOWARDS SUSTAINABLE GROWTH

SCG strives to develop innovative products, services, and solutions
to meet a diverse range of customer needs
while also driving sustainable business growth
in accordance with ESG and principles of circular economy
while maximizing resource efficiency
and seeking to accelerate a transition to a low-carbon society
and foster climate resilience.
Through the passion of SCG People,
we aspire to bring “betterment” to society
under the promise “Passion for Better.”


SCG

Contents

Message from President & CEO

and SCG Sustainable Development Committee

In 2021, the world continued to be plagued by the COVID-19 pandemic and resultant impacts on the health, economic, environmental and social domains. SCG remained firmly committed to its sustainable development policy, which aimed to achieve an economic, environmental, and social balance and was guided by the principle of corporate governance in accordance with the ESG (Environmental, Social and Governance) frameworks. As well as it strengthened the business resilience, agility, and speed in the face of disruptions and carried out business continuity management (BCM) to ensure that SCG's businesses could continue normal operation amid COVID-19 pandemic.

Moreover, as SCG had initiated digital transformation and continuously placed emphasis on a proactive and forward looking approach, it was able to turn crises into opportunities through the application of the principles of circular economy and create added value through innovative products and services. SCG also explored new market opportunity in light of the COVID-19 pandemic and continued its expansion in areas with rising demands, such as businesses related to health and better living segments, which in turn foster confidence among customers and all stakeholders. In addition, SCG leveraged its experience, knowledge, and expertise to provide assistance to all sectors in society in coping with COVID-19 pandemic. At the same time, SCG presses ahead towards Net Zero target by 2050 and decarbonization of the economy to ensure sustainability of the world we are handing over to the next generation.

ESG Pathway to Sustainable Business

In 2021, SCG adopted the ESG (environmental, social and governance) Pathway to drive its business practices, in keeping with a global shift towards greater eco-consciousness as a result of COVID-19 pandemic and the climate crisis, which impact the entire world. This is in line with heightened interest among investors across the globe in businesses with long-term sustainability and positive environmental and social impacts.

SCG's corporate governance is guided by fairness, transparency, and accountability. The Company also places emphasis on cultivating its Four Core Values: Adherence to Fairness, Dedication to Excellence, Belief in the Value of the Individuals, and Concern for Social Responsibility, which have been passed down through generations and become the heart of SCG's corporate culture and business strategies. As such, the integration of ESG to business context will further bolster the power of change to create and hand over a better world to all stakeholders across the value chain and the future generation.

In December 2021, SCG organized "SCG ESG Pathway: Starting Together for Us and for the World" to invite all Thais to help avert the global crisis with the concept of ESG and ultimately elevate society, the environment, and businesses sustainably. The activity was communicated via SCG's online channels, which served as a source of inspiration and helped to disseminate knowledge of sustainable development and ESG to the society.

Towards the Net Zero Greenhouse Gas Emissions by 2050

SCG has been working actively to increase the use of all forms of clean energy and expand the use of alternative energy in its energy mix. As well as it has adopted principles of circular economy, digital technology, artificial intelligence, and automation to enhance production capacity and energy efficiency, reduced resource consumption to ensure competitiveness for long-term growth, minimized the impacts of climate change on people at all levels, and created equality of access to clean energy sources and security of livelihoods.

Furthermore, SCG has undertaken initiatives to rehabilitate forest resources, biodiversity, and ecosystems through natural climate solutions (NCSs) in tandem with research and development efforts to bring advanced carbon capture utilization and storage (CCUS) technology into being in the near future.

SCG also recognizes business opportunities in a Net Zero goal and a transition towards a low-carbon economy. To this end, it has invested in clean energy businesses through SCG Cleanergy and electric vehicle-related businesses and developed various eco-friendly products, such as hybrid cement and SCG solar rooftop solutions, which support consumers in collective action towards reduction of greenhouse gas emissions and energy conservation at the same time.

Transition Towards a Low-Carbon Business Through Digital Technology and Circular Economy

SCG focuses on designing and developing integrated products, services, and solutions that address consumers' needs that have shifted towards environmental conservation and greater emphasis on health and well-being. Toward this end, SCG strives to enhance its capabilities to reduce greenhouse gas emissions and waste as well as maximize resource and energy efficiency and the recycling of waste from production and consumption in accordance with the principles of circular economy.

In this regard, the key success factor is the development and application of innovation and digital technology to every step of processes. The highlights of each business unit of SCG in 2021 are as follows. The Cement-Building Materials Business unveiled CPAC Green Solution, in which the building information modeling (BIM) is employed to elevate construction standards and ensure eco-friendliness in step along the way of construction. The Chemicals Business introduced SCG GREEN POLYMER™, an innovative eco-friendly plastic resin with 4Rs principles: Reduce, Recyclable, Recycle, and Renewable. SCGP (Packaging Business) developed green circular packaging solutions that prolong product lifespans while the packaging is recyclable or bio-degradable. In addition, every business unit also actively collaborated with the public-private-civic networks to create a sustainable waste management network as well as empower communities at the same time.

Furthermore, SCG has applied innovation to the development of products, services, and solutions across all business units and certified them by "SCG Green Choice" eco label so as to offer options to eco-conscious consumers and give them an assurance that these certified items have the least impact on the environment while providing a better quality of living for consumers in the society.

Collaboration for Sustainability and ESG Leadership

SCG has attached great significance to social contribution, which is a component of ESG, and thus seeks to foster collaboration with multi-sectoral stakeholders. In 2021, SCG provided assistance to society at large during COVID-19 pandemic by promptly developing innovations to address the crisis, including SCGP paper field hospital beds and modular ICUs as well as worked in collaboration with the government sector to set up vaccination sites at Bang Sue Headquarters and RIL industrial Estate in Rayong to administer vaccines to the general public and establish green-level COVID-19 patient observation centers to lighten the burden of the government. As people suffer economic hardships, SCG also lent a hand to over 300 local entrepreneurs and communities by developing jobs, helping them with the development of processed products, and placing their products on SCG's and its partners' online platforms for sale, such as SCGHOME.com.

In addition, SCG has continued to foster partnership with its networks of allies, such as the Circular Economy in Construction Industry (CECI) and the Global Cement and Concrete Association (GCCA), to reduce greenhouse gas emissions in the cement and concrete industry. The Company has also been working in collaboration with the Public Private Partnership for Sustainable Plastics and Waste Management (PPP Plastics), the Alliances to End Plastic Wastes (AEPW), and the Ocean Cleanup (TOC) to solve plastic waste problems on the local, regional, and global levels.

This edition of 2021 Sustainability Report demonstrates parts of our efforts towards sustainable development in accordance with ESG practices, which is based on our commitment that has steered our business to overcome crises and challenges over the past 108 years. It is part of our ambition to be a leader business in advancing sustainability through the concepts of ESG and principles of circular economy so as to realize a low-carbon society, raise awareness of resource efficiency, and ensure resilience against climate change and other disasters that may arise in the future.

"Integrating ESG into business could strengthen our transformation to build and give a better world for all stakeholders."

Roongrote Rangsiyopash
President and CEO, SCG
Chair of Sustainable Development Committee, SCG

Tanawong Areeratchakul
President, Chemicals Business
Co-Chair, Sustainable Development Committee, SCG

Our Ambition

Vision

SCG's vision is to become a regional business with a relentless commitment to driving innovative products, services, and solutions that meet the diverse needs of consumers whilst creating business success in accordance with the principles of circular economy to contribute to the sustainable growth of every society and community where we operate with our passion to deliver better things under our promise "Passion for Better".

Business Philosophy

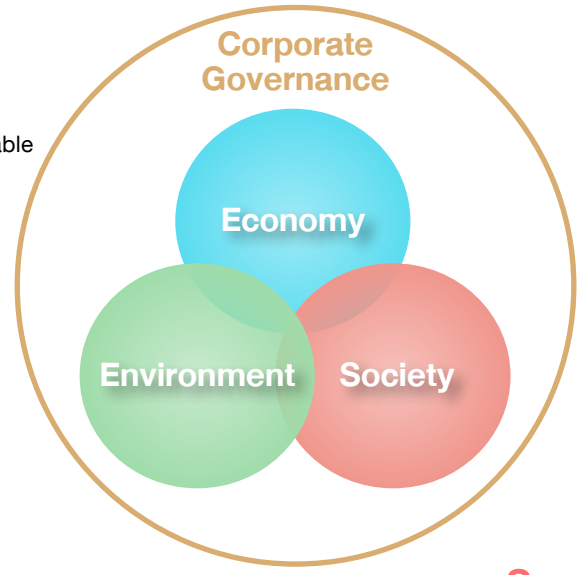
- Adherence to Fairness
- Dedication to Excellence
- Belief in the Value of the Individual
- Concern for Social Responsibility

Sustainable Development Framework for ESG Integration

SCG has established SCG Sustainable Development Framework based on international guidelines, encompassed economic, social, and environmental dimensions under the principles of good corporate governance, with the goal of establishing uniform practices across all business units.

Corporate Governance

Conduct business with fairness and transparency in compliance with national and international corporate governance principles as well as implements systematic risk management and internal control.



Economy

Conduct business with the ultimate goal of creating mutual benefits throughout the value chain, meet the needs of customers, and enhance the quality of life and well-being of people in society through innovation.

Environment

Commit to sustainable environmental and natural resource conservation, resource efficiency, and the preservation of ecological balance.

Society

Provide equal opportunities for all groups of people to reach potential development and quality society.

SCG At a Glance

SCG was established in 1913 to manufacture cement, which was a vital building material for national development at the time. SCG has since developed and expanded its business and become the ASEAN Region's leading company group.

SCG develops innovative products, services, solutions, processes, and business models to create added value and meet the needs of all stakeholders. It also strives to bring sustainable prosperity to every community where it operates.

Core Business

Cement-Building Materials Business

seeks to comprehensively elevate the standard of construction and residences by developing products, services, solutions, and sales channels that cater for the needs of the customers and correspond with the market landscape.

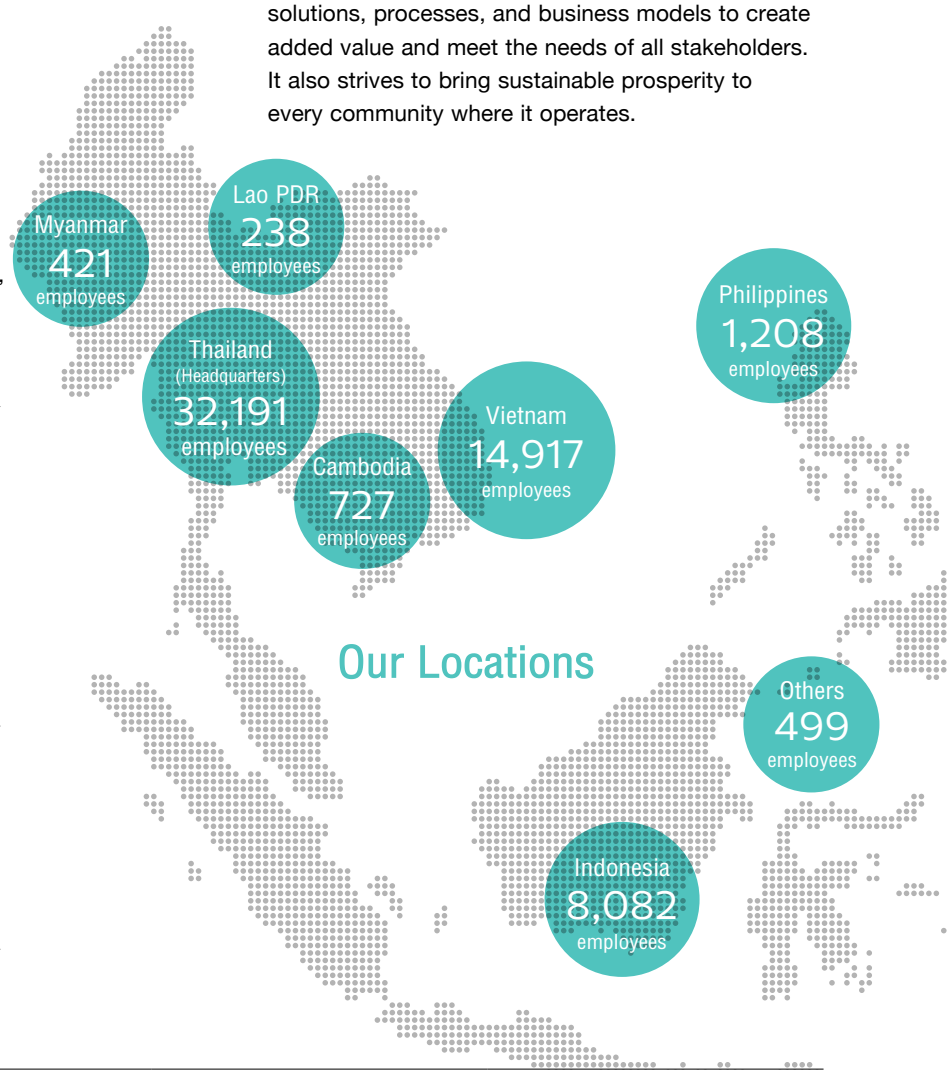
Chemicals Business

strives to develop high value-added innovative products and solutions that address the sustainability challenges, major global trends, and the needs of the global market in order to become a regional leader and drive innovation through a world-class R&D network.

SCGP (Packaging Business)

actively creates new packaging solutions to meet consumer needs and strives towards becoming the region's leading provider of integrated packaging solutions.

Our Locations



Business Overview

	Cement-Building Materials Business	Chemicals Business	SCGP (Packaging Business)
Number of employees	27,029	6,168	23,341
Revenue from sales (million baht)	182,529	238,390	124,223
Total assets (million baht)	224,226	377,174	206,824
Manufacturing plants	• Cement 14 plants • Ready-mix cement 709 plants • Ceramic tile 12 plants • Roof tile 15 plants	• Olefins 2 plants • Polyolefins 9 plants • PVC and related products 14 plants • Integrated Petrochemical Complex (under construction) 1 plant	• Paper and packaging 8 plants • Pulp and paper 6 plants 1 Sales Office • Pulp and paper packaging 29 plants • PPP packaging 11 plants • Medical items 2 plants 4 Sales Office
Services and others	• Distributing network 500 outlets nationwide • CPAC Solution Center 23 centers • Housing-related online platforms (SCG Home, Q-CHANG, Design Connext)	• i2P Center-Innovation Center Ideas to Products • R&D center 4 countries (Italy, United Kingdom, Norway, and Switzerland)	• SCGP Inspired Solutions Studio • Online e-commerce platforms, such as https://festforfood.com

Remarks: 1,745 other employees

Achievements
of ESG Towards Sustainable Business

International Level

Member of Dow Jones Sustainability Indices Powered by the S&P Global CSA

SCG has been listed on the Dow Jones Sustainability Indices in the category of DJSI World and DJSI Emerging Markets in Construction Materials Industry for the 18th consecutive year by S&P Global. SCG is the first in ASEAN to have been included as DJSI member since 2004.

CDP

SCG has been rated B on climate change, water security, and forest in chemicals sector by the Carbon Disclosure Project (CDP).

MSCI ESG RATINGS AA

CCC | B | BB | BBB | A | AA | AAA

SCG received the AA rating on the MSCI ESG Ratings in the Construction Materials Industry for the fifth consecutively year by Morgan Stanley Capital International (MSCI), the world's leading stock index provider.

FTSE4Good

SCG has been recognized as member of the FTSE4Good Index Series based on the assessment of running business by taking its responsibilities on a basis of Environmental, Social and Governance (ESG) by FTSE Russell.

Member of
Dow Jones
Sustainability Indices
Powered by the S&P Global CSA

CDP

MSCI
ESG RATINGS
AA
CCC | B | BB | BBB | A | AA | AAA

FTSE4Good

THSI
THAILAND SUSTAINABILITY INVESTMENT 2021

CAC
CERTIFIED

SET
AWARDS
2021

THAILAND
CORPORATE
EXCELLENCE
AWARDS 2021

LCSi

Human
Rights
Awards
2021

National Level

THSI THAILAND SUSTAINABILITY INVESTMENT 2021	SCG has been honored on the list of Thailand Sustainability Investment thanks to its crisis management approach, which has enabled it to adjust and respond to future challenges, its ability to take care of the health and safety of its employees to ensure business continuity and maintain operational efficiency, and the assistance it has offered to society and stakeholders, including customers and suppliers, to enable everyone to overcome the crisis together.
CAC CERTIFIED	SCG has been named a certified company by the Thai Private Sector Collective Action Against Corruption (CAC) since 2013 and has been continuously recertified to maintain its status as a CAC-certified company. The CAC certification criteria integrated the framework of the United Kingdom's Bribery Act which is consistent with the principles of ISO 37001 Anti-bribery Management Systems.
SET AWARDS 2021	SCG won a Sustainability Excellence Award for the sixth consecutive year and a Sustainability Award of Honor for the fourth consecutive year at the SET Awards 2021, hosted by the Stock Exchange of Thailand, in recognition of its exemplary sustainability practices.
THAILAND CORPORATE EXCELLENCE AWARDS 2021	SCG received HRH Princess Maha Chakri Sirindhorn's Trophies for Leadership Excellence, Innovation Excellence, and Human Resource Management Excellence for the 19th consecutive year and Excellence Awards for Sustainable Development, Marketing, and Financial Management from the Thailand Management Association (TMA) and Sasin Graduate Institute of Business Administration of Chulalongkorn University.
LCSi	SCG has been recognized as an Excellence Company on the Low Carbon and Sustainable Business Index (LCSi) for the third consecutive year from the Thailand Greenhouse Gas Management Organization (Public Organization) – a testament to SCG's commitment to achieving its target, Net Zero by 2050.
Human Rights Awards 2021	SCG was given a Human Rights Award in the private sector (corporation) category for a second consecutive year by the Rights and Liberties Protection Department under the Ministry of Justice in recognition of its respect for the human rights of all in its business operations, its role in promoting human rights through equitable, non-discriminatory treatment for all, and its efforts to extend its human rights practices to its suppliers.

OUR BUSINESS

Cement and Building Materials Business

Chemicals Business

SCGP (Packaging Business)

SCG's Commitment to Sustainable Development Goals

Sustainability Performance in 2021

Cement and Building Materials Business

Developing Innovative Construction Solutions for Sustainability

Greenhouse Gas Emissions

23.39
million ton CO_2

Energy Consumption

115.53
Petajoules

Alternative Fuel Consumption

17.38%

Lost Time Injury Frequency Rate for Employees and Contractors*

0.198
cases/1,000,000 hours worked

*For Thailand operations

Challenges and Goals

In 2021, the global economy remained in the grip of the COVID-19 pandemic, against the backdrop of intensifying climate change, which brought about a shift in consumer behavior and lifestyle, such as greater health consciousness and more hours spent at home, all of which played a role in accelerating digital transformation across all businesses. This was accompanied by increased awareness of environmental issues, which prompted businesses to take into consideration environmental, social, and governance (ESG) factors in its operations. In 2021, the Cement and Building Materials Business swiftly made adaptations to achieve sustainable growth, placing emphasis on meeting a comprehensive range of consumer needs, especially with regard to products, services, solutions, and sales channels, as well as on elevating its sustainable business practices through environmental and social responsibilities and corporate governance.

ESG-Related Actions for Sustainable Business

E Environmental

- Introducing digital technology to drive innovative solutions for sustainability under CPAC Green Solution, a one stop for all customers' needs, from design and construction to post-construction services, which not only save time and require less labor but also minimize environmental impact due to construction waste reduction. These innovations include: 1. CPAC BIM, in which digital technology shows all relevant parties an overview of every step of the construction, which can reduce waste by as much as 5-15%; 2. CPAC 3D Printing Solution, a new construction innovation that 3D-prints structures and buildings; and 3. CPAC Drone Solution, in which drones are used to conduct surveys to map out the site in the pre-construction phase.
- Developing products with SCG Green Choice labels as alternatives for consumers. Products bearing these labels are energy- and resource-efficient, have extended lifespans, and are hygienic. For oversea markets, Cement and Building Materials Business has worked with cement manufacturing association in relevant countries to reduce greenhouse gas (GHG) emissions.
- Increasing the use of alternative fuels, such as biomass from agricultural waste and refuse-derived fuels (RDFs), as well as the use of waste heat from production and deploying solar energy to reduce coal consumption in cement production. Electric vehicles (EVs) have also been introduced.

S Social

- Striving to operate in accordance with sustainable development practices and actively and continuously applying principles of circular economy, with the goal of reducing waste generated due to a lack of good management in construction projects and recovering as much waste for reuse as possible. In this regard, several initiatives have been undertaken, including the establishment of the Circular Economy in Construction Industry (CECI) collaboration, which has led to the pile head crushing project, which has been carried out in 10 construction projects from 5 companies and successfully recovered about 2,854 tons of waste for recycling and reuse in total equivalenting to 283 tons of carbon dioxide.
- Initiating collaborative projects with communities, government agencies, and private businesses. An example is the Zero Burn Project in Lampang, in which farmers are encouraged to make use of and create value from agricultural waste and generate revenue for local communities, such as by baling rice straw into pellets for sale to cattle farmers and general customers and for use as alternative fuel in cement production. As farmers no longer need to burn off agricultural waste or fire to clear the forest floor for farming, this project has effectively prevented and eliminated the problems of wildfires and smog in the area.
- Developing the modular ICU for COVID-19 patients in collaboration with Rajavithi Hospital, which could be constructed completely in only one week. The ICU has two pressurized zones to keep the patients and the medical professionals apart and thus reduce the risk of infection for the latter. The invention provides additional assurance with a filtration system that kills pathogens and prevents them from flowing out.

G Governance

- Cultivating the notion of SCG People, consisting of SCG's 4 Core Values and the Open & Challenge mindset, among employees as guidance for working in order to encourage them to place emphasis on fairness and responsibility towards society at large and the country on the basis of equality among all.
- Adapting structure and working process in accordance with ESG integration into business strategy by emphasizing customer-centric and taking a proactive approach to understanding customer behavior and obtaining insights into their sentiments in order to develop products and services that better cater to their needs. It has also adjusted the mindset of its employees to enhance agility and resilience so that they can meet customer needs and adapt to the rapidly-changing environment.

Chemicals Business

Towards a “Chemicals Business for Sustainability”

Greenhouse Gas Emissions

4.73
million ton CO_2

Energy Consumption

77.24
Petajoules

Sales Volume of SCG GREEN POLYMER™ Products

20,100
tons per year

Lost Time Injury Frequency Rate for Employees and Contractors*

0.057
cases/1,000,000 hours worked

*For Thailand operations

Challenges and Goals

In 2021, Chemicals Business continued to grapple with challenges brought on by new COVID-19 pandemic amid slow global economic recovery. Some industries, such as the automotive industry remained in the grip of the crisis while the overall demand of chemical products turned rise, especially for the packaging industry, with sales of polyolefin products hitting a record 1.98 million tons in 2021. Chemicals Business also continued to actively develop high value-added products and solutions in accordance with principles of circular economy as well as introduce digital technology for management across the supply chain in order to enhance its competitiveness and maintain its leadership in ASEAN. In addition, Chemicals Business established ESG-led business strategies and approaches towards becoming a “Chemicals Business for Sustainability.”

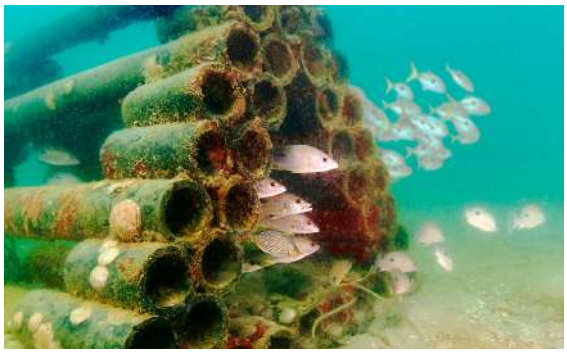
ESG-Related Actions for Sustainable Business

E Environmental

- Developing SCG GREEN POLYMER™ – eco-friendly plastic solutions, consisting of four major groups: Reduce, Recyclable, Recycle, and Renewable. It is also making a foray into the recycling business by signing the Share Purchase Agreement to purchase shares in Sirplaste, Portugal’s largest recycled plastic manufacturer, to further advance its recycling technology and expand sales channels in the European market.
- Launched Thailand’s first-ever Advanced Recycling process, where post-consumer plastics are processed into recycled feedstock for petrochemical plants. Supporting principles of circular economy, the facility has a production capacity of 4,000 tons per year. A feasibility study is also being conducted into a joint investment in a bioplastic manufacturing plant in Thailand with Braskem, a world-class leader in bioplastics, in order to meet the rising demand for this material in Asia and on the global level.
- Developing SCG Floating Solar Solutions to cater to those seeking a source of alternative energy and has joined hands with TTCL Public Company Limited to install a 2.5 MW floating solar solution in a pond at Suranaree University of Technology Hospital to reduce electricity expenses and emissions of greenhouse gases.
- Chemicals Business is the first company in Thai petrochemical industry to successfully obtain ISCC PLUS certification for its entire value chain. It also won four awards at Prime Minister’s Industry Award 2021, namely the Best Industry Award 2021 and three Industry Awards in Circular Economy, Corporate Social Responsibility, and Environmental Quality Conservation categories.

S Social

- Prioritizing the safety and health of its employees and family amid the COVID-19 pandemic, Chemicals Business has introduced a flexible hybrid workplace as well as provided technological support and taken care of the quality of life of employees, such as through online health services and follow-ups. Chemicals Business has also offered recommendations to its suppliers and customers regarding COVID-19 prevention and conduct for those infected as well as donated equipment for field hospitals and community isolation facilities in Rayong.
- Developing innovative health and medical products in collaboration with medical professionals and experts, such as Mobile Isolation Units, Varogard masks, smart medication carts, and sharps disposal bins.
- Fostering involvement of the government and public sectors in applying principles of circular economy to waste management, such as in the Waste-free Community Project, which has been carried out continuously and expanded to independent recyclers and communities, the Upcycling Milk Pouches Project, in which used milk pouches are transformed into recycled chairs for six schools in Rayong and over 1,300 schools nationwide, and the SCG-DMCR Litter Trap Generation 2 Project, where 47 floating litter traps featuring UV-resistant and recyclable HDPE-Bone were installed in 17 provinces across the nation; they have trapped over 71 tons of waste thus far.
- Supporting community enterprises by co-developing products with innovation and highlighting the unique identity of Rayong. The company has also assisted with marketing communications and established additional offline and online sales channels to enhance opportunities for its partner stores, which generated income for local communities over 40 million baht per year.



G Governance

- Chemicals Business places emphasis on good corporate governance as part of its policy on responsible, transparent, and fair business conduct.
- Introducing a Compliance Management System (CMS) both in Thailand and abroad to oversee compliance with relevant laws in those countries. A CMS handbook has also been compiled for used in communication and as guidance for compliance operations in the future.
- A dedicated committee has been appointed to monitor IT and cyber threats, conduct emergency drills in collaboration with the Security Operation Center (SOC), as well as develop a knowledge development program and an employee phishing simulation test.

SCGP (Packaging Business)

To be a Leading Multinational Consumer Packaging Solutions Provider Through Innovative and Sustainable Offerings.

Greenhouse Gas Emissions

4.87
million ton CO_2

Energy Consumption

64.67
Petajoules

Water Withdrawal Reduction

26.3%
compared with BAU
at the base year of 2014

Lost Time Injury Frequency Rate for Employees and Contractors*

0.263
cases/1,000,000 hours worked

*For Thailand operations

Challenges and Goals

In 2021, the COVID-19 pandemic has delayed the recovery of the consumer sector in the region. This was compounded by the increasing raw material and freight costs due to the disruption of the global supply chain. Despite this, demand for packaging essential to daily life continued to grow. SCGP (Packaging Business), therefore, continued in stable growth and moved forward as the leading multinational consumer packaging solutions provider to strive towards developing solutions, products, and services under circular economy principles; achieving excellence in operation and cost management throughout the supply chain; creating sustainability in line with ESG guidelines; and set a target in greenhouse gas emissions to be Net Zero by 2050.

ESG-Related Actions for Sustainable Business

E Environmental

- Setting the target of reducing greenhouse gas emissions 20% by 2030 compared to the base year 2020 and achieving a net-zero target by 2050 both Thailand and abroad in an effort to keep the global temperature rise under 1.5 degrees celsius in accordance with the Paris Agreement.
- Establishing the target of reducing external water use -35% by 2025 compared to the base year 2014.
- Adopting technology, such as automation and artificial intelligence (AI), to analyze, predict, and increase efficiency and productivity in the industrial sector for sustainable operation.
- Reducing industrial waste and increasing the proportion of recycled paper used in the production process as well as the proportion of recyclable plastic packaging towards the goal of achieving 100% recyclable, reusable, or compostable packaging by 2025.

S Social

- Developing the creative design for social innovation “SCGP paper field hospital bed” from recycled paper to help alleviate the scarcity of beds for COVID-19 patients as well as to promote participation among organizations and the general public in simultaneously caring for the environment and helping society through the project “Unite to Fight Against COVID: Transform Used Paper Into SCGP Paper Field Hospital Bed.”
- Collaborating with Chulalongkorn University in designing and production the “CUre AIR SURE” respirator mask, an alternative solutions for COVID-19 protection, designed for comfortable everyday usage, suited facial structures. The product also won the 2021 Gmark Award 2021 from the Japan Institute of Design Promotion in the category of Accessories and Personal Items for Professional Use.

- Collaborating with Ban Pong District and its 17 local government organizations in Ratchaburi province for the 3 consecutive year to expand the implementation of the “Ban Pong Model” to promote principles of circular economy by creating a role model district with effective waste management. In 2021, 17 communities joined this program, bringing the total communities for waste management at 58. SCGP aimed to continue expanding the program to encompass the entire Ban Pong District, a total of 183 communities, by 2023. Among the existing communities member, the Ban Nong Song Hong Community, won a Zero Waste Community national award from the Department of Environmental Quality Promotion (DEQP) in 2021. In addition, SCGP has expanded the concept to a total of 13 communities in other provinces where its manufacturing facilities are located, namely Prachinburi, Kanchanaburi, and Khon Kaen.
- SCGP hosted the SCGP Packaging Speak Out for the new generation (Gen Z) to present creative packaging ideas under two topics, Packaging Design and Packaging Solutions, with the goal of providing them with a showcase platform for their designs, increase their knowledge, and participate in advancing the packaging industry in Thailand and ASEAN to international standards.

G Governance

- The Board of Directors has regularly reviewed the Company’s policies as well as the guidelines of corporate governance action plans such as governance, risk management, comprehensive communication with employees and contractors including the promotion of CSR activities.
- SCGP was selected on the 2021 Thailand Sustainability Investment THIS) by the Stock Exchange of Thailand and received a Rising Star Sustainability Award for conducting business in line with sustainable development guidelines.
- Promoting human resource development continuously in accordance with the SCGP Learning Framework, both in terms of functional competency and leadership competency as well as empowered employees to design their own career paths. SCGP has also organized online and offline educational programs and workshops, administered project assignment and employee potential assessment, and established a mentoring system and a business succession plan.

SCG's Commitment
to Sustainable Development Goals

SCG has committed to becoming a role model of sustainable development to foster economic growth alongside the conservation of natural resources and environment for the quality of life of people in society. The Company also strives to develop and elevate all stakeholders with leaving no one behind as it believes that the business sector plays a critical role in driving society as a whole towards achieving the United Nation's Sustainable Development Goals (SDGs).

SCG analyzed its activities across the value chain n order to prioritize SDGs, taking into consideration business drivers, key risks and business opportunities towards environmental, social and governance (ESG), and sustainability material issues, as well as linking SDGs to SCG's operational targets in all operations so to accelerate the achievement of such goals and maximize positive impact on economy, society and environment.

SCG Sustainability Target

0
Target of transportation fatality case among employees and contractors

0
Target of fatality case in workplace

0
Case/1,000,000 hours worked
Target of lost time Injury Frequency Rate among employees and contractors*

0
Target of human rights violation case

2%
Target of R&D spending compared to the total revenue from sales

50%
Target of revenue from High Value-Added products and services compared to the total revenue from sales

66.7%
Target of revenue from SCG Green Choice products, services and solutions by 2030 compared to the total revenue from sales

33.3%
Target of revenue from the sales of products, services, and solutions with a SCG Green Choice label, which offers direct value to customers, by 2030, compared to the total revenue from sales

8 million tons/year
Target of the use of recyclable and reusable materials by 2025*

0
Target of hazardous and non-hazardous waste to landfill every year

70%
Target of reduction of waste disposal per ton production by 2025 compared to the base year of 2014*

23%
Target of reduction of water withdrawal by 2025 compared with BAU at base year of 2014

8%
Target of emissions of dust to the air by 2025 compared with BAU at base year of 2020*

200,000 tons/year
by 2025
1,000,000 tons/year
by 2030
Target of sales volume of SCG GREEN POLYMER™

100%
Target percentage of the SCGP's products to be recyclable, reusable or decomposable by 2025

0
Net Zero GHG emission by 2050

20%
Target of greenhouse gas emissions reduction by 2030 compared to the base year of 2020

13%
Target of energy consumption reduction by 2025 compared to BAU at the base year of 2007

3 million rais
Target number of forestation areas by 2050 to capture greenhouse gases and restore ecological balance

* For operations in Thailand

Action Towards Achieving UN Sustainable Development Goals

SDGs	Targets most relevant to SCG	Actions by SCG
 SDG 3.6	SCG's business operations involve manufacturing, services, and transportation and may therefore pose safety risks related to such activities as well as impact the health and safety of its employees, suppliers/contractors, communities, and relevant parties. Therefore, SCG places emphasis on fostering a total safety culture in order to ensure healthy lives and promote well-being for all at all ages.	• Health and Safety • Community and Social Involvement 
 SDG 8.4 8.5 8.8	SCG strives to promote inclusive and sustainable economic growth, places emphasis on equitable and fair employment and decent work for all, as well as consistently plans its production and improves its operations to reduce impact on the environment and global resources.	• Health and Safety • Human Rights • Employee Caring and Development 
 SDG 9.4 9.5	SCG puts a premium on applying innovation and technology to all business activities as they are critical to the enhancement of operational efficiency, business value, and competitiveness, all of which will create resilience in the long term and promote inclusive and sustainable industrialization.	• Innovation and Technology • Product Stewardship 
 SDG 12.2 12.4 12.5	SCG has applied the principles of circular economy to its business operations to enhance resource efficiency, mitigate risks of resource scarcity in the future, and minimize environmental impact, consistent with its production targets and the sustainable consumption trend.	• Circular Economy • Water Management • Waste Management • Air Quality Management 
 SDG 13.1 13.3	SCG has committed to adapting, taking action across the operations to reduce greenhouse gas emissions, and joining forces with all sectors to enhance society and communities' adaptability and capabilities to respond to climate change and its potential impacts.	• Climate Resilience • Partnership and Collaboration towards Sustainability • Growing Trees to Mitigate Global Warming 

Sustainability Performance in 2021

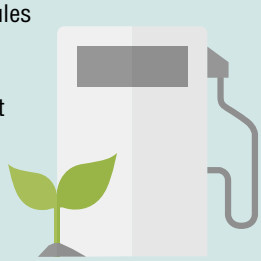
ENVIRONMENTAL

GHG Net-Zero Emissions

GHG

GHG Emissions Reduction
(compared with the base year of 2020)
0.90
million tons carbon dioxide
2.66
percent

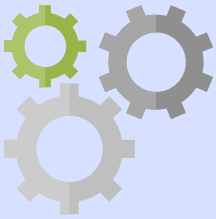
Energy Consumption Reduction
(compared with BAU at the base year of 2007)
19.75
petajoules
7.1
percent



Alternative Fuel
14.8
percent

SOCIAL

Number of **Fatality Work-Related Injury** from Workplace, Travelling and Transportation
Employee/Contractor
2/8
cases



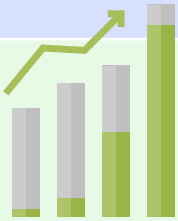
Lost Time Injury Frequency Rate
Employee/Contractor
0.175/0.192
cases/1,000,000 hours worked

Occupational Illness Frequency Rate
Employee
0.000
cases/1,000,000 hours worked

GOVERNANCE & ECONOMIC

"SCG Green Choice" Products and Services
40.7
percent of revenue from sales

SCG GREEN CHOICE



High Value Added Products and Services
HVA
34.5
percent of revenue from sales

Research and Innovation Spending
7,215
million baht
1.4
percent of revenue from sales

Water Withdrawal Reduction
(compared with BAU at the base year of 2014)
38.03
million cubic meter
22.6
percent

Recycled Water
11.9
percent

Hazardous Waste to Landfill
0.0000
percent

Non-Hazardous Waste to Landfill
0.0107
percent

Environmental
Expense and Investment
4,300
million baht
0.8
percent of revenue from sales

Logistics Drivers
Trained from "SCG Skills Development School"
8,969
persons

Females in all Management Positions
24.8
percent

Human Rights Violation
0
cases

Number of **Check Dam**
110,000
units

Promoting Community **Water Management**
14,000
households

Creating **in-demand Jobs**
3,000
persons

Social Contribution
700
million baht

Circular Economy
Products
19.6
percent of revenue from sales

Carbon Label Certified
542
items

Green Procurement
Purchased
9,548
million baht

Suppliers Being Conducted Environment Social and Governance Risk Assessments
ESG
100
percent of suppliers with procurement spending over million baht

Contributions to Organizations
11.31
million baht


SCG
SCG

OUR PASSION

Sustainability
Strategy

SCG has continuously implemented and reviewed sustainability strategy while integrating ESG (environmental, social, and governance) practices into business operations across SCG. Serving as a role model of sustainability leading practices on the principles of circular economy through SCG Circular Way. SCG seeks to deliver "better" products, services, and solutions that are eco-friendly and create sustainable value to all stakeholders. With challenges and risks resulting from the fast-paced business circumstances of volatility, uncertainty, complexity, and ambiguity, SCG has embraced change and quickly adapted itself to seize a new opportunity during the new normal of COVID-19 pandemic, which has been the "heart" of sustaining long-term business growth.

SCG has thus formulated strategies that can foster and maintain its competitiveness for sustainable business growth by encompassing its commitment in three strategic areas, which are Passion for Integrity, Passion for Better Solutions and Passion for All.

Passion for Integrity
Dedicating to foster good citizenship behavior guided by integrity and fairness

Passion for Better Solutions
Committing to business development to innovate "better" products, services, and solutions

Passion for All
Striving to take care of all stakeholders and relevant parties across business value chain

Sustainability Strategy	Strategy	Principles and Relevant Sustainability Issues
Strategy 1  Passion for Integrity	SCG emphasizes highest priority on being good citizenship and embedding SCG's 4 Core Values: Adherence to Fairness, Dedication to Excellence, Belief in the Value of the Individual, and Concern for Social Responsibility, among employees at all levels; including the board of directors, executives, and employees, serving as role models passed down from generation to generation and promptly focusing on good governance according to international principles which finally becomes a corporate culture expressed through general practices of SCG employee behaviors.	• Corporate Governance • Sustainable Development Structure • Business Ethics
Strategy 2  Passion for Better Solutions	SCG responds to relentless customer needs along with creating a livable world together through development of innovative products, services and solutions to promote well-being and safety of consumers by taking advantage of cutting-edge technology in order to address the challenges of resource use and energy efficiency as well as to maximize resource value. SCG also strives to minimize pollution and waste disposal while increasing the recirculation of waste into the production process to maximize resource efficiency in accordance with the principles of circular economy as well as restore natural resources and ecosystems in order to combat climate change and other crises that may arise in the future.	• Innovation and Technology • Climate Resilience • Circular Economy • Health and Safety • Product Stewardship • Customer Experience Creation • Water Management • Waste Management • Air Quality Management • Biodiversity and Ecosystem
Strategy 3  Passion for All	SCG seeks to improve the quality of life in every community and society where we operate. SCG also strives to serve as a role model and a strong member of society at local, national, and international levels to foster engagement with all related parties and create a network of collaboration across the value chain. In addition, SCG seeks to support key strategic alliances and foster collaboration to mutually elevate operational excellence towards sustainability and deliver tangible and scalable outcomes.	• Sustainable Value Chain • Stakeholder Engagement • Partnership and Collaboration towards Sustainability • Sustainable Value Towards Suppliers • Human Rights • Employee Caring and Development • Community and Social Involvement

Risk Management

In 2021, SCG conducted risk assessment related to ESG risk, which cover the environmental, social, and governance dimensions.



Climate Change

Physical risks caused by global warming, which exacerbate climate disasters around the world such as droughts, floods, storms, wildfires, and extreme weather, may affect the operations and cause business disruptions.

Management

- Formulating business continuity management plan to ensure all operations maintain normal business operations during a disaster.
- Closely monitoring water situation by the global acknowledged tool with water stress area identification and mitigation plan in place.
- Collaborating with government and industry sectors to manage water and push water storage expansion.
- Adhering strictly to water management policy by minimizing water consumption (Reduce), treating and reusing wastewater (Reuse/Recycle), and replenishing its water sources (Replenish) in the production process.

Health and Safety

Risks arising from work and transportation that may negatively impact the health and safety of employees, contractors, communities, and relevant parties.

Management

- Fostering safety culture and promoting the reaffirmation and heightening of commitment through self-assessment.
- Developing occupational health and safety standards to establish uniform practices across the organization.
- Enforcing Life-saving Rules, which include disciplinary actions for violators.
- Promoting and expanding the adoption of an occupational health and safety system among contractors through contractor safety management.
- Developing road safety standards using ADAS/DMS systems.
- Developing a transportation contractor assessment system to elevate the professional standard of the contractors and promote mutual growth alongside SCG.

COVID-19 Pandemic

Risks towards the health and safety of employees and contractors and risks towards business continuity, which are considered urgent risks and required heightened and strict management.

Management

- Monitoring and analyzing the COVID-19 situation and communicating with internal and external stakeholders.
- Preparing key resources to ensure business continuity, such as occupational health and safety equipment, information technology, temporary shelters, and shuttle vehicles.
- Introducing a hybrid workplace system and arranging a COVID-free setting in offices and manufacturing facilities through, for instance, the Bubble & Seal measure, zoning, access control, as well as by procuring vaccines for workers, administering ATK tests occasionally, establishing protocols for when COVID-19 infections are detected, as well as encouraging customers to comply with state measures.

Low-carbon Economy

Risks arising from GHG control regulations and consumer behavior changes towards low-carbon and eco-friendly products, necessitating investment in green and low-carbon technology, which, however, present long-term business opportunities.

Management

- Setting a target to reduce greenhouse gas emissions 20% by 2030 compared to the base year of 2020 and working towards achieving a Net Zero goal by 2050.
- Establishing an action plan according to the TCFD framework and introducing internal carbon pricing.
- Increasing the use of renewable and alternative energy.
- Developing products and services that reduce greenhouse gas emissions and meet eco-friendly standards, such as floating solar farms, SCG solar roofs, and eco-friendly cement.
- Collaborating with the government sector and communities in reforestation and the revitalization of forests, coastal forests, and seagrass for biodiversity and carbon sink.

Plastic Waste Management

Risks from the environmental impact of land and marine plastic waste, which may reduce demand for plastic resin and products which, however, turn into new opportunity for green business and products.

Management

- The Chemicals Business has set a goal of selling 200,000 tons of SCG Green Polymer™ products per year by 2025, and 1,000,000 tons per year by 2030.
- SCGP (Packaging Business) has set a target of increasing the sales of recyclable, reusable or decomposable packaging to 100% of the total sale of packaging by 2025.
- Researching and developing innovative plastic resin and solutions according to the principles of circular economy, such as the transformation of used plastics as raw materials.
- Fostering collaboration with communities and society to promote resource circularity and resource efficiency.

Cyberthreats

Risks towards SCG's reputation and credibility from loss or leakage of vital data and potential loss of revenue and profit.

Management

- Appointing SCG IT Governance Committee to establish IT related policy and regulations including SCG e-Policy.
- Appointing Cybersecurity Governance Committee to oversee SCG's information technology security practices.
- Raising technological awareness among employees on a regular basis.
- Assessing cybersecurity risks and formulating management plans for such risks.
- Auditing the performance of each division under SCG and introducing data protection tools.
- Preparing response plans against cyberthreats, such as disaster recovery plans, and carrying out drills on a regular basis.

Materiality

Process of Materiality Assessment and Prioritization

Based on the Global Reporting Initiatives (GRI) Standards

1. Analyze sustainability issues along the value chain, covering the phase of raw material procurement to production, transportation, distribution, utilization of products and services, together with the analysis of changes in key trends.
2. Analyze the issues that matter to the stakeholders through various means comprising survey, panel discussion.
3. Analyze the alignment with the enterprise risk management framework.
4. Assess and prioritize sustainability issues with respect to importance to SCG and stakeholders and define materiality.

2021 Materiality Assessment

SCG reviews enterprise materiality on a yearly basis through the SCG Sustainable Development Committee, taking into consideration both internal and external factors.

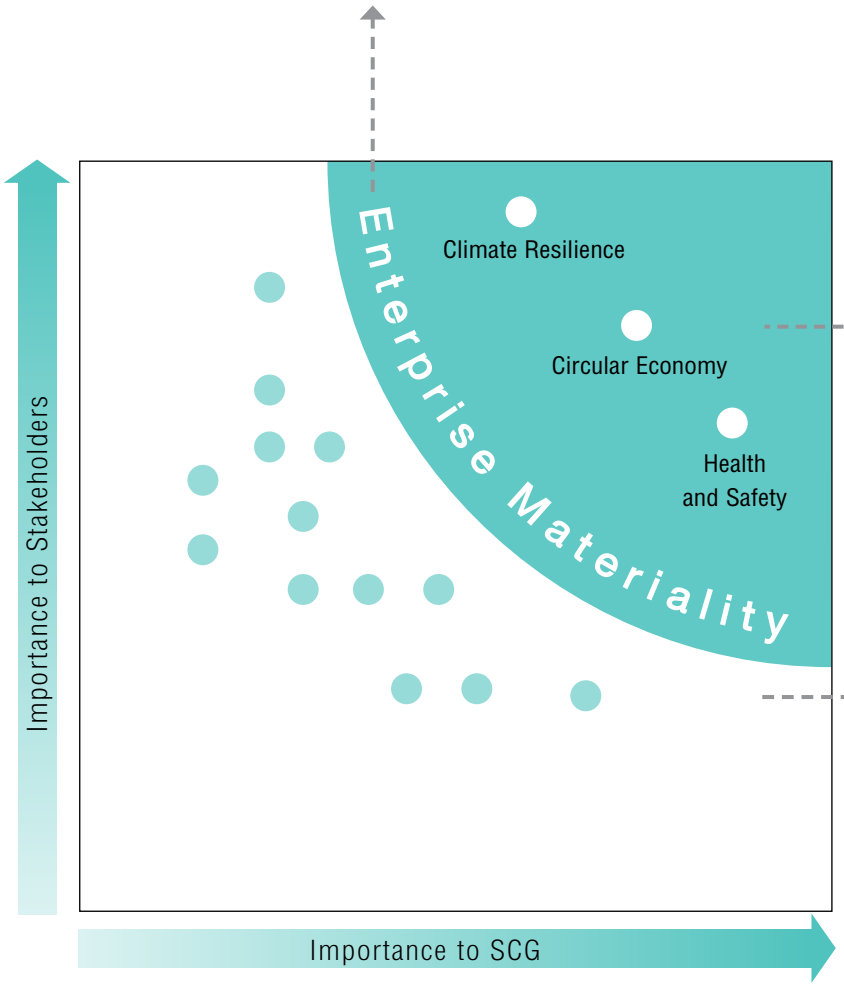
External factors consist of major global, regional, and national trends, opinions of key stakeholders, ESG assessment criteria of leading assessors, and sustainability issues in the same industry.

Internal factors consist of the impacts of risks and opportunities that may arise across the value chain on SCG's operations and its economic, social, and environmental targets.

- Review of materiality by various committees under the supervision of the SCG Sustainable Development Committee, as shown on page 39.
- Opinions of a stakeholders on materiality, as shown on page 50.
- Verification of materiality performance, as shown on page 152.

Enterprise Materiality

- High impact on economic, environmental, and social dimensions.
- High impact on stakeholders' assessment, decision-making, or confidence.
- Fully integrated in SCG's short-, medium- and long-term business plans.



Enterprise Materiality

Climate Resilience

Climate resilience includes the reduction of greenhouse gas emissions and the enhancement of adaptability to the hyper velocity changing of business circumstances in volatility, uncertainty, complexity, and ambiguity (VUCA) world. (See page 42)

Risk

The ongoing climate change crisis has triggered natural disasters in many areas across the world. Thus, stakeholders would like to be informed of related risks that can impact business continuity and lead to higher production costs or compensation for potential damage. In addition, climate change has prompted a shift in consumer behavior towards environmentally friendly products and services, accompanied by an expectation for a collaboration to reduce greenhouse gas emissions according to the Paris Agreement to keep a global rise in temperature under 1.5 degrees Celsius and achieve a net zero target by 2050.

Opportunity

Adopt international standards to foster sustainability in activities and plans related to GHG emission reduction and the development of low-carbon products and services; support GHG emission reduction projects by introducing internal carbon pricing (ICP), increasing the use of alternative fuels and energy, implementing GHG emission reduction and energy efficiency projects, and revitalizing ecosystems for carbon sink, in line with the Paris Agreement; and set a long-term target of reducing GHG emissions by 20% by 2030 compared to the emissions at the base year of 2020 and achieving a net zero GHG emissions by 2050.

Circular Economy

The manufacturing of products and the development of services and solutions with maximizing energy efficiency and resource use across the value chain to reduce the consumption of natural resources and create a sustainable, closed loop of resource circularity. (See page 44)

Risk

The ocean and land waste crisis across the world has caused widespread environmental impacts. As such, stakeholders, investors, non-profit organizations, and shareholders are advocating against single-use plastics and inefficient waste management. Many governments around the world have introduced a plastic bag ban, with taxes on plastic packaging manufacturers imposed in Europe. At the same time, consumers are increasingly drawn to products and services that maximize resource efficiency and use less resources, in which waste can be recycled into material for production again.

Opportunity

Offer products, services and solutions according to the principles of circular economy; reduce resource consumption in production and usage; design for a longer life span and recyclability; improve manufacturing to minimize waste or scraps; collect and manage waste for reuse; create added value to waste by recycling and processing them into products or substituted material; develop a business in line with the principles of circular economy to promote shared resource consumption; foster cross-sector collaboration to drive the circular economy; and expand best practices of SCG circular way to communities for wider-scale adoption and be a role model in both Thailand and ASEAN.

Health and Safety

Caring for the health and safety of employees, contractors, and stakeholders who may be directly and indirectly affected by SCG's business operations. (See page 46)

Risk

The COVID-19 pandemic has quickly and severely impacted business operations, the overall economy, and lifestyles. It may affect business continuity as well as health and safety of SCG's employees and contractors and SCG's ability to ensure the safety standards of its overseas businesses. The logistics and business expansion, both domestic and abroad, can also pose safety risks with regard to operations, transportation, and traveling and ultimately affect the safety of SCG's employees and contractors as well as communities and society.

Opportunity

Accelerate the development of health- and well-being-related innovations to produce products, services, and solutions that meet consumer needs during the COVID-19 pandemic; develop organization's operational standards to control risk behaviors and ensure its proactive approach and continuous improvement, elevate the occupational health and safety management system and the effectiveness of safety assessment system, encouraging executives and supervisors to serve as safety change agents, strive towards an operation driven by the pledge and commitment of the executives of each company; introduce technology in order to enhance the efficiency of safety management to create a safety culture across the organization; as well as promote and expand the practices to contractors, communities, and society.

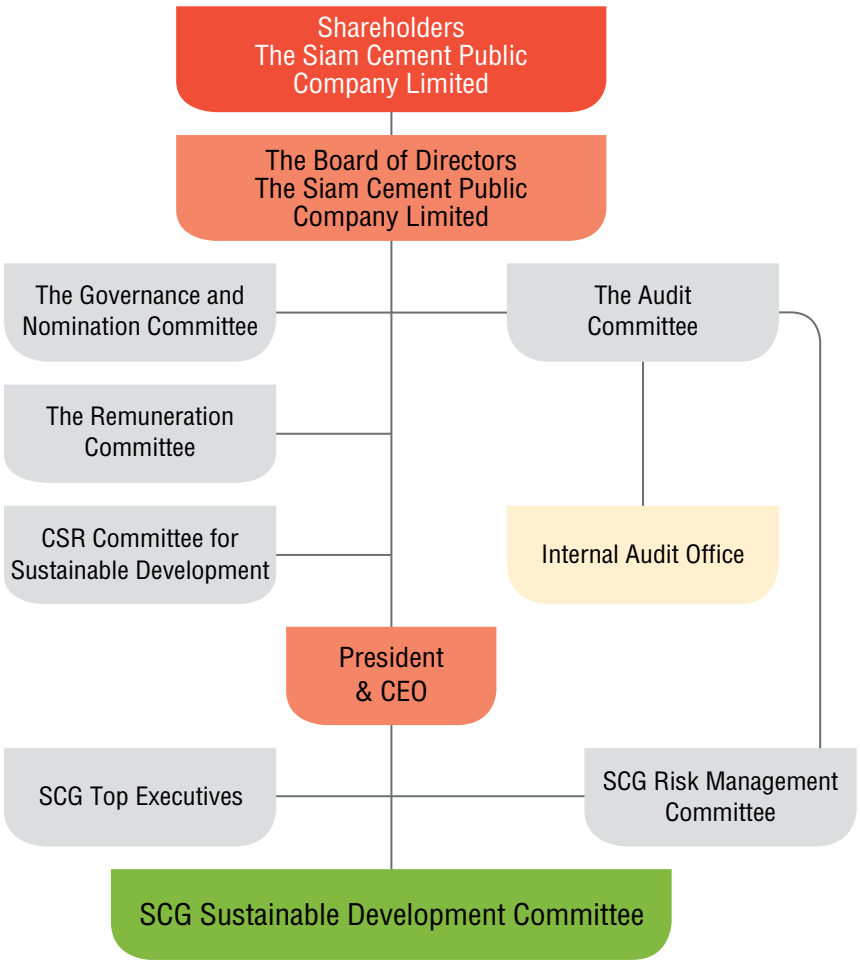
Sustainability Issue	Climate Resilience	Circular Economy	Health and Safety
Corporate Governance	•	•	•
Innovation and Technology	•	•	•
Business Ethics	•	•	•
Product Stewardship	•	•	•
Customer Experience Creation		•	
Sustainable Value Chain			•
Water Management	•	•	
Waste Management	•	•	
Air Quality Management	•	•	•
Biodiversity and Ecosystem	•		
Human Rights	•	•	•
Human Capital Development			•
Social and Community Involvement	•	•	•

Corporate Governance

SCG has committed to its long-standing business philosophy and believes that organizational management with responsibility, fairness, and transparency according to the principles of corporate governance constitutes the foundation of the creation of long-term returns and value, promotes competitiveness and growth, and fosters confidence among all stakeholders, with the Board of Directors serving as governance champions.

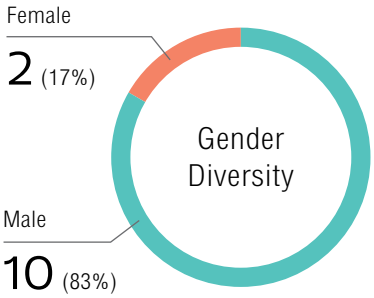
Governance Structure

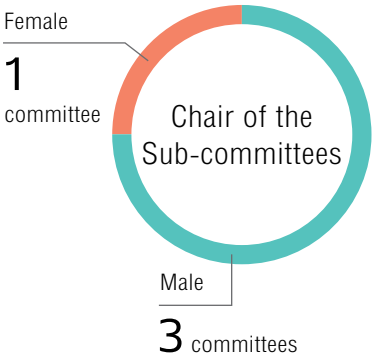
Within a complex, volatile, and ever-changing business context, SCG's governance structure has been designed to promote operations according to the principles of corporate governance and decision making on the basis of effective and sufficient information. This is to ensure that all directors and executives fulfill their duties with responsibility, prudence, and integrity in compliance with laws, regulations, and shareholders' resolutions as well as any other prescribed policies and guidelines to advance the best interests of the organization, shareholders, and relevant stakeholders. SCG Corporate Governance Handbook, which compiles ethical and socially responsible practices, serves as a framework for organizational management and business development towards becoming a corporate governance role model according to SCG vision.

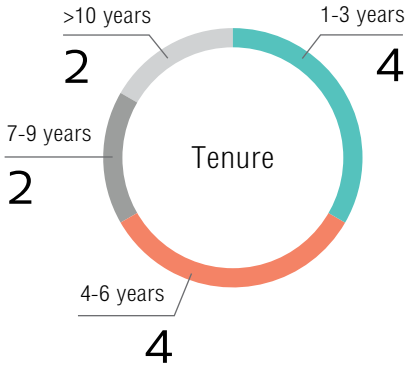


Structure of the Board of Directors

SCG's Board of Directors consists of individuals with a diverse range of knowledge, competency, expertise, and experience consistent for SCG's business operations. They play a key role in establishing SCG's vision, missions, and business strategies to create sustainable value for both SCG and stakeholders.

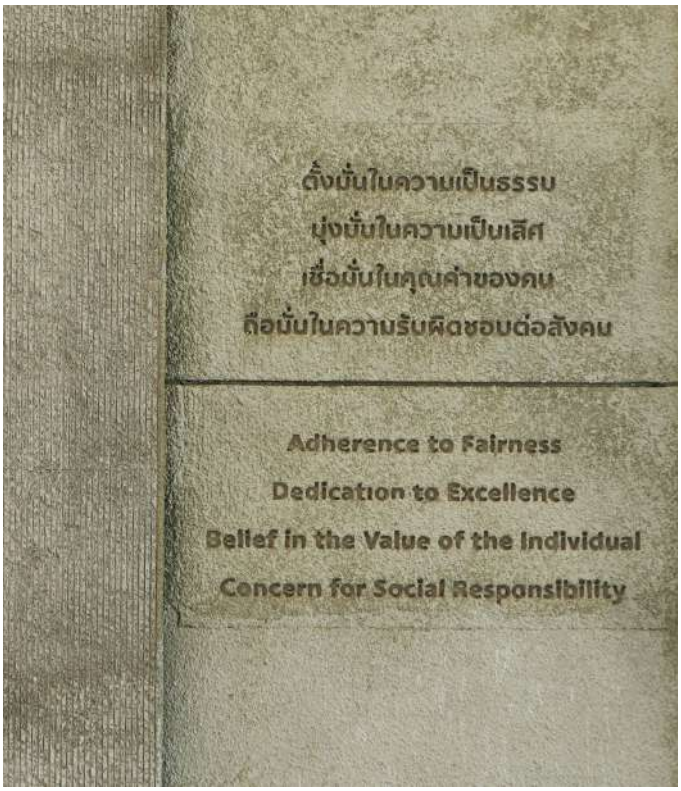






Governance Activities of the Board of Directors

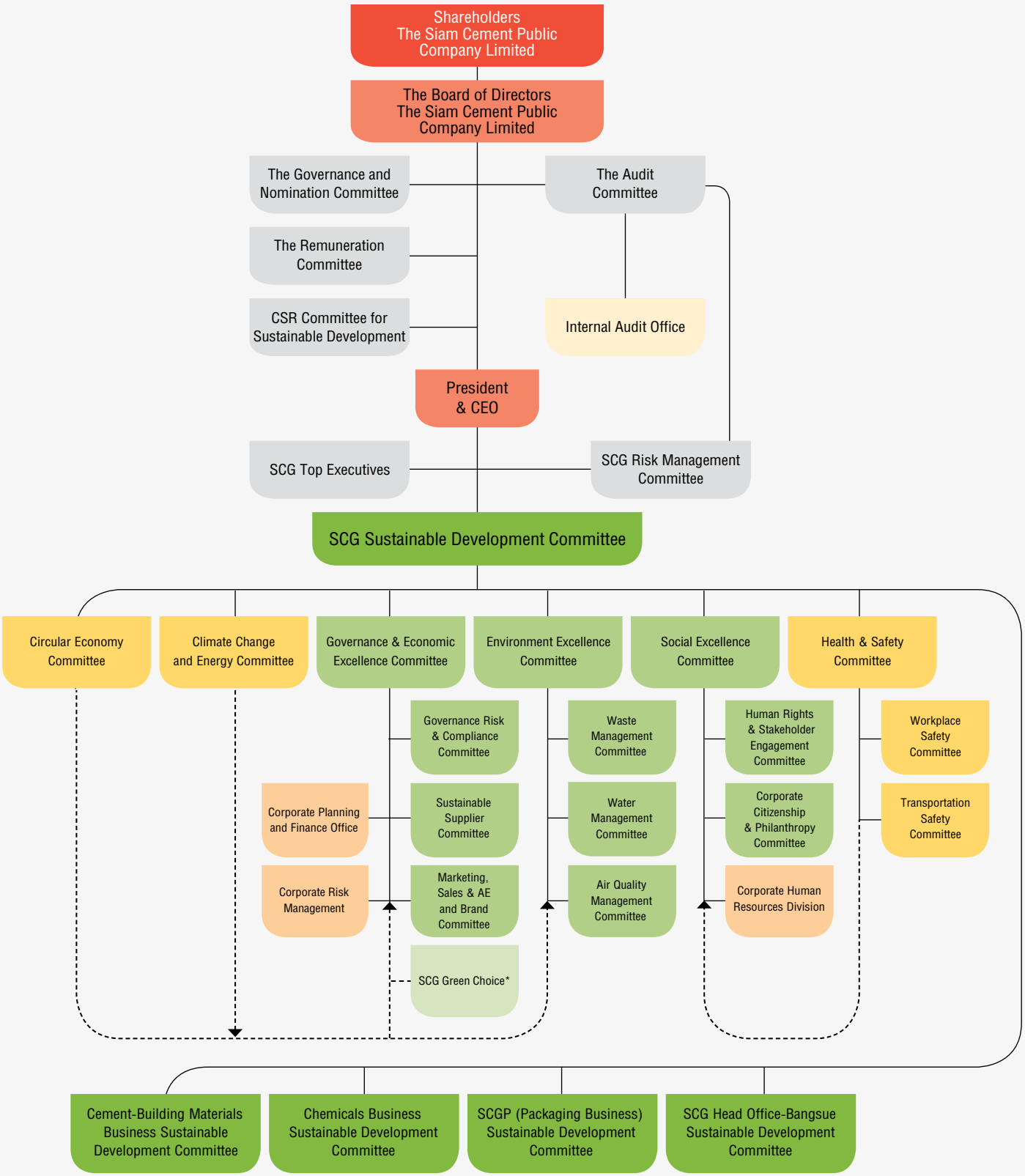
The Board of Directors, together with the top executives, establishes strategies, short-term, medium-term, and long-term operational policies, and financial policies, oversees risk management and the overview of the organization, reviews SCG's key policies and action plans on a yearly basis, and steers the allocation of vital resources for the achievement of the established goals. The Board of Directors is also responsible for overseeing, monitoring, and assessing SCG's operations and the performance of the top executives against the prescribed plans while maintaining independence.



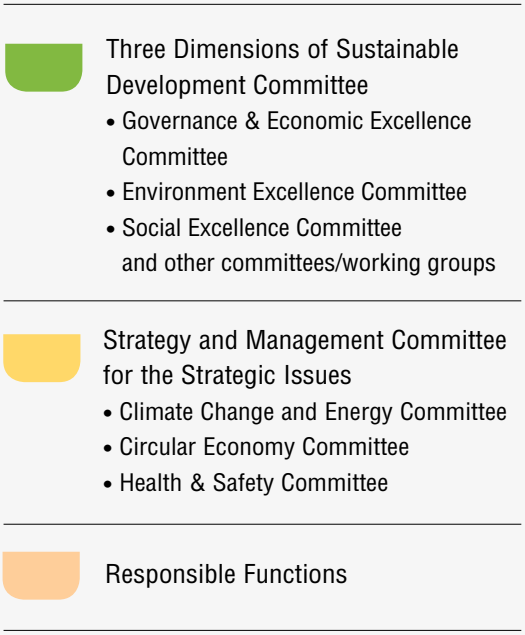
Governance Activities of the Board of Directors and the Sub-committees in 2021

Key Topics	The Board of Directors	The Audit Committee	The Governance and Nomination Committee	The Remuneration Committee	CSR Committee for Sustainable Development
Corporate Strategy and Business Direction	•				
ESG and Long-term Strategy	•				•
Risk Management	•	•			
Tax	•	•			
Data Privacy and Security	•	•			
Business Ethics	•	•	•		
COVID-19 Response	•				•
Human Capital	•			•	
Stakeholder Engagement	•				•
Board and Executive Succession	•		•	•	

Sustainable Development Structure



SCG's Management Approach for Sustainability



SCG has established the Sustainable Development Committee (SDC), whose members consist of the President, the Executive Vice President and the Vice Presidents of each business unit and the corporate unit. The Committee is accountable for proposing action plans and presenting the performance to the Board of Directors and relevant sub-committees.

The Sustainable Development Committee has divided its sustainability management into three levels.

Dimension Level

The Committee oversees the overall operations in governance and economic, environmental, and social dimensions, drives the incorporation of key sustainable issues into business operations, as well as provides suggestions on operations and practices as well as the determination of performance indicators.

Strategic Issue

This includes Climate Resilience, Circular Economy, and Health and Safety.

Issue-based Level

The Committee and working teams oversee the management, from the formulation of policies, strategies, goals, indicators, and guidelines all the way to performance tracking so as to achieve the set goals as well as report progress to the Dimension and Strategic Issue Committees.

CEO Forward Looking

How were SCG's operations in the previous years?

Throughout 2021, SCG continued facing with a number of challenges. However, thanks to our efforts to maximize the adaptability and resilience of our business operations, we were able to maintain a strong financial position. We posted 530,112 million baht in revenue from sales, or a 33% year-on-year increase, and 47,174 million baht in profit, a 38% year-on-year rise.

What were some of the highlights in 2021?

We were able to manage risk excellently through our plans to reduce energy costs in the production and transportation processes and introduce innovation to the manufacturing of our products to truly meet consumer needs, such as eco-friendly and well-being products, which cater to the post-COVID-19 market and the rising eco- and health-consciousness. We invested substantially in technology and prototype on recycling and green polymer, including products under SCG Green Choice label which accounted for 41% of the total revenue.

How can SCG's announcement of its ESG commitment help strengthen the organization?

Business operations guided by concerns for the Environmental, Social, and Governance (ESG) is the pathway to ensure sustainability of the organization. The current COVID-19 pandemic and environmental crises have raised eco-consciousness among the general public and triggered a behavioral shift towards greener products and services. At SCG, we have strongly committed to carrying out ESG efforts through corporate governance principles. We welcome opinions, suggestions, and recommendations from stakeholders in order to improve the performance and place emphasis on accurate disclosure and accountability in accordance with reporting standards and frameworks.

What are the challenges towards achieving Net Zero target by 2050, or in about the next 30 years?

The key challenge is to manage the transition and foster cooperation with all parties in the value chain as well as the other sectors on the macro level to achieve a balance during the transition period and jointly produce tangible changes. This will involve the development of technology and innovation that meets the needs of the market in a timely manner at a reasonable cost and the continuous enhancement of competitiveness for businesses. On top of that, the key success factor is the cooperation of all employees in integrating net-zero practices into their work and daily life.

What are SCG's key initiatives in 2022?

Our main goals are the transition towards net zero greenhouse gas emissions by 2050, which needs the adjustment of our business strategies, investments, and activities towards a low-carbon economy. To this end, we will be accelerating investments in clean energy and the use of alternative energy in place of coal as well as investments in low-carbon businesses, such as SCG CLEANERGY and SCG GREEN POLYMER™, all the way to the use of digital technology to develop retail and solutions to enhance our competitiveness and capability for the reduction of greenhouse gas emissions and foster a better quality of life for posterity.

What will SCG's medium-term growth look like?

Every business is striving towards an ESG pathway model in order to create sustainable growth. The Cement-Building Material Business is increasing biomass fuels for coal substitution and using BIM Technology to reduce waste from construction. Chemicals Business is expanding its business through SCG GREEN POLYMER™, while also applying the principles of circular economy to every process, from designing and manufacturing for recyclability to advanced recycling. SCGP (Packaging Business), is increasing the production capacity of its packaging from high-performance materials and has adopted the T-Model to achieve regional leadership in integrated circular packaging solutions.

What will SCG's sustainable development operations be like once all business units are listed on the Stock Exchange of Thailand?

The value that SCG's three core business units share is SCG People. The Sustainable Development DNA (SD DNA) has been cultivated among SCG employees at all levels to foster the desired mindset and practices. As such, although there may be spin-offs, what they will all share is the ESG strategy. We believe that sustainable development must encompass business, the environment, and society at the same time and must be guided by corporate governance to ensure transparency, fairness, and accountability. All of this is ESG integration, which is a shared business practice for all business units.

“Our main goal is adjusting our business, strategy, investment and activities towards decarbonization and Net Zero GHG emissions by 2050.”

Roongrote Rangsiyopash
President and CEO, SCG

Roles of Sustainability-Related Committees in 2021

Governance and Economic Excellence Committee

"Our goal is to create mutual benefits with customers and business partners throughout the value chain. At the same time, we are also recalibrating our businesses, strategies, and investment towards a low-carbon economy and transition towards becoming a net-zero organization by 2050 by accelerating investment in clean and alternative energy to replace fossil, promoting low-carbon businesses, such as SCG GREEN POLYMER™ as well as enhancing competitiveness by developing a comprehensive array of eco-friendly products, services, and solutions under SCG Green Choice label. Balancing economic, social, and environmental capitals is the key to achieve synergy that will drive sustainability and improve the quality of life for the future generations."

Thammasak Sethaudom
Executive Vice President
and in charge of Finance and
Investment & CFO
Governance and Economic Dimension Leader

Environment Excellence Committee

"SCG continued its pursuit for operational excellence by announcing SCG Environmental Management Framework as well as applying various international sustainability and environmental frameworks, such as UN SDGs, TCFD and CDP, to policy and strategy formulation and the operations. Furthermore, SCG established a working group for air quality management, responsible for formulating air quality management strategies, goals, and action plans to better align with international guidelines.SCG attaches great significance to the improvement and development of innovations across the manufacturing processes as well as low-environmental footprint products, services, and solutions, such as water consumption reduction through the 3Rs process, hygiene control, and waste recirculation into production to reduce waste and the use of natural resources."

Suracha Udomsak, Ph.D.
Vice President & CTO-Innovation
and Technology
Chemicals Business
Environment Dimension Leader

Social Excellence Committee

"One of the challenges in terms of social sustainability is how to foster engagement with communities and society. We believe that the optimal strategy is to integrate social issues into business strategies. SCG persists in improving our operational systems to amplify positive impacts on society in accordance with international frameworks. Relevant initiatives include pursuing our human rights policy, promoting diversity & inclusion and the quality of life of stakeholders to ensure living and growing together in harmony, especially during a tough time of the COVID-19 pandemic across the country. Examples of SCG's support to communities and society are in-demand jobs development and community enterprise promotion."

Paramate Nisagornsen
Vice President-Regional Business
Cement-Building Materials Business
Social Dimension Leader

Climate Change and Energy Committee

"To achieve its net zero GHG goal by 2050, SCG has announced that it will reduce its GHG emissions at least 20% by 2030 compared to the base year of 2020 both Thailand and abroad operations through planning and budgeting, which included increasing the use of biomass and clean energy, utilizing economic instruments such as internal carbon pricing, as well as reforestation and revitalizing forests for carbon sink. We have identified an assessed both risks and opportunities in relation to business according to international frameworks, the Task Force on Climate-related Financial Disclosures (TCFD) which help SCG to mitigate, resilience plans to achieve the challenge target."

Mongkol Hengrojanasophon
Chief Operations Officer and Executive Vice President-Thailand Olefins Chain Chemicals Business
Chair of the Climate Change and Energy Committee

Circular Economy Committee

"The Committee pushed for the integration of circular economy principles into business operations in a tangible manner such as the reuse of pile waste as building material and the development of PaperX platform into SCGP reXycle. SCG has played a vital role in fostering networks on the local level ex.the youth and schools participating in the Milk Pouch for a Greener World Project and the Waste-free Community Project; on the national level ex.CECI and PPP Plastic; and on the international level ex. the Ellen MacArthur Foundation, WBCSD Circular Plastics & Packaging, AEPW, and CEFLEX. SCG also announced the implementation of its Circular Economy Guideline (CE Guideline) and began assessing its circular economy performance with clear indicators with the goal of becoming a role model in circular economy."

Yuttana Jiamtragan
Vice President-Corporate Administration, SCG
Chair of the Circular Economy Committee

Health and Safety Committee

"SCG strives to foster a safety culture and eliminate unsafe behavior through line walks, where it can observe the operations, in order to demonstrate care and encourage involvement in the promotion of safety for all. SCG also seeks to introduce digital technology in order to reduce risks and control operations to ensure maximum safety as well as expand its transportation standards to its overseas businesses and across its business networks. SCG has also implemented ADAS (Advanced Driver Assistance Systems) and DMS (Driver Monitoring Systems) under G7 platform to cultivate safe driving behaviors."

Chana Poomee
Vice President-Cement and Green Solution Business
Health and Safety Leader

Voices of Female Executives and New Generation Managers

SCG promotes equality and the elimination of unfair gender discrimination. To this end, the Company encourages the nomination of individuals regardless of gender and expression of gender to be eligible for managerial position at all levels.

"SCG's 4 Core Values are applied not only to business operations but also to employee diversity. The recruitment of morally upright talents, employee care, employee development, as well as systematic, continuous, and equitable career advancement planning without gender discrimination or other factors testify to SCG's sincerity in promoting equality and gender diversity. My role in driving innovation and related business is derived from the merit of my expertise, not because of gender. Having more high female executives will motivate new generation of female employees to develop their capabilities and become a vital creative force of the organization in the future."

Pongsuda (Phumathon) Pongtanya, Ph.D.
Deputy Managing Director – Deltalab, S.L. Spain
SCGP (Packaging Business)

"At present, businesses are changing rapidly. Therefore, companies need to have diverse and well-rounded perspectives to ensure sharp and accurate business decisions. Female executives not only can discharge their duties excellently but can also provide different perspectives that reflect the view of another large segment of people in society. Especially in SCG's business expansion overseas, employee diversity and teamwork are key strengths that will create growth and ensure the achievement of future goals. Throughout my time working with SCG, it is evident that the company places emphasis on employee diversity regardless of their gender, religion, age, or ethnicity. All employees are embraced and have equal advancement opportunities."

Chantanida Sarigaphuti
Corporate Planning and Finance Director
SCG

"Key advantages of younger executives are our understanding and insights into the new context of the market and society and our adaptability to new ways of working and new business paradigms. We also play a vital role in connecting with younger employees, bridging the generation gap in the organization, and fostering cooperation and harmony among all both in terms of culture and attitude. As such, we serve as a vital force that will drive changes in a large organization such as SCG, so that it can be a leader of change that could address business and social challenges quickly and sustainably."

Kitikun Prasithrathsint
Head of Planning
Chemicals Business

"The creation of a sustainable future for posterity is a mission of everyone in society regardless of their age and gender. SCG has cultivated the notion of sustainable development regularly from our first day of work, which is especially relevant to my current responsibility, which is to develop new businesses that help reduce the burning of agricultural waste and converting it into fuels. This exemplifies the development of innovation for sustainability in a practical. I am very proud to be able to use my knowledge and experience in the business sector to solve social problems, and I believe that we will be able to pass on a sustainable world to next generation."

Sirin Atsawapattananon
Agricultural Waste Business Manager
Cement and Building Materials Business

Meetings of Sustainability-Related Committees in 2021

Committee	Number of Meetings (times/year)	Key Matters
CSR Committee for Sustainable Development	4 (every quarter)	• Provision of COVID-19 relief for society and communities • 2021 performance and 2022 action plans for CSR projects and activities related to key ESG issues, namely climate crisis, nature crisis, and mounting inequality • Driving ESG projects through three principles: multilateralism, multigenerationalism, and multidisciplinary
SCG Risk Management Committee	4 (every quarter)	• Key risks: Climate change, health and safety, human rights, and pandemic and variants of COVID-19 • Emerging risks: Rapid and severe changes in the business landscape, low-carbon economy, inefficient plastic waste management, and cyberthreats
SCG Sustainable Development Committee	4 (every quarter)	• Management of ESG issues across the value chain for practical implementation and change leadership • Review of materiality and integration into business strategies • Engagement of national and international stakeholders, such as WBCSD, UNGC, Ellen MacArthur Foundation, TBCSD, the Federation of Thai Industries, The Thai Chamber of Commerce and Board of Trade of Thailand and government agencies
Governance and Economic Excellence Committee	4 (every quarter)	• Corporate governance, enterprise risk management, business ethics, and disclosure and transparency • Adaptations of businesses, strategies, investments, and activities in pursuit of a low-carbon economy and a transition towards target of net zero greenhouse gas (GHG) emissions
Environment Excellence Committee	4 (every quarter)	• Climate change and energy, eco-efficiency, and biodiversity and ecosystem • Circular economy, product stewardship, waste management, water management, and air quality management
Social Excellence Committee	4 (every quarter)	• Promotion of the health and safety of employees and contractors • Human rights and diversity and inclusion • Reduce Inequality
Climate Change and Energy Committee	4 (every quarter)	• GHG emissions inventory and reporting across the value chain • Establishing GHG reduction targets in accordance with science-based targets (SBT) and the Paris Agreement • Business risk and opportunity assessment according to an international framework (TCFD)
Circular Economy Committee	4 (every quarter)	• Formulation of strategies and plans, development of products, services, and solutions in accordance with the principles of circular economy • Fostering national and international collaborations
Workplace Safety Committee	4 (every quarter)	• Monitoring strategy implementation and driving the implementation of SCG Safety Frameworks in both Thailand and abroad • Reporting and analyzing root causes, trends, solutions, and preventive measures for scaling up
Transportation Safety Committee	4 (every quarter)	• Monitoring the implementation of short-, medium-, and long-term plans and expanding practices to abroad operations • Building collaborative networks with relevant parties at all levels across all sectors to promote transportation safety

Innovation and Technology

One of the key factors in SCG's delivery of "Better Solutions" is the ability to deploy innovation and technology to drive all aspects of enterprise in adapting to change and managing crisis with agility. This enables SCG to turn crisis into opportunity through delivery of products, services and solutions in a timely manner for better living of the society while promoting the environment conservation in accordance with the principles of circular economy and GHG emissions reduction strategy.

In implementing Digital Transformation policy, SCG enlists technology to enhance efficiency throughout supply chain. SCG promotes internal culture of innovation to harness employees' strength, while at the same time open to external collaboration to accelerate the ability to cope with change. The latter aspect is achieved through collaboration with research and other entities, investing in startups and in new business models globally to speed up adoption within SCG. As a result, SCG stays at the forefront of innovations to deliver "better solutions" to stakeholders in a sustainable manner.

Management Approach of Innovation and Technology Development

1 ..... 2 3

Internal R&D and Innovation Culture

- **HATCH-WALK-FLY Internal Startup Project**: Incentivizing employees to come up with new business

HATCH 87 teams

WALK 16 teams

FLY 8 teams

- **Data Springboard Project**: upskilling employees on adoption of Data Analytics 2020-2021

150 participating teams

450 employees engaged in data for decision making

100 Dashboard

Open Innovation: Collaboration and Co-investment with External Partners in Thailand and Beyond.

- **AddVentures by SCG**: Invests in tech startups

In 2021,

investing through

5 funds

646 million baht

Investing directly in

15 startup companies

612 million baht

- **SCG Deep Tech**: invests in Deep Technology startups

3 funds

605 million baht

Investing directly in

10 startups

510 million baht

Strengthening Innovation and Tech Portfolio Through Asset Acquisition

- **Ignitor Digital and Deep Tech**: Matching needs of internal units and problem diagnosis with startups that can offer solution

In 2020-2021

Proof-of-Concept: Digitalization

100 projects

Deep Technology

33 projects

Upscaling:
Deep Technology

4 projects

Adoption:

41 digitalization projects

AddVentures during the COVID-19 Pandemic

AddVentures by SCG, the corporate venture capital arm in charge of tech-startups to complement existing business while expanding new opportunity, invests through funds in China, India and Southeast Asia, and United States. In 2021, it invested in a leading India-based startup Bizongo, B2B market platform. In Thailand, it joined Validus to establish Siam Validus to operate P2P Lending Platform for SMEs. With travel and mobility restrictions brought about by the pandemic, AddVentures adjusted its strategy by work directly with startups to explore opportunity for investment and engage with startups through VC funds and existing networks.

Ignitor Project to Accelerate Connecting SCG with Startups

This One-Stop-Service platform integrates search from external sources of innovations that solve problems for over 300 companies within SCG, focusing on energy technology, AI machine learning, computer vision and hyper automation. After the project utilized innovations from external sources, proof-of-concept period is found to have been shortened by up to 50 percent compared to in-house effort at fostering innovation: from over one year to less than one year. Successful test cases include the use of AI Machine Learning to improve efficiency of solar cell power generation. On the Hyper Automation front, Workflow Automation Virtual Assistant has been deployed to manage resource and track performance. Telemedicine has been adopted to care for employees in Thailand and overseas to ensure prompt medical access during pandemic.

B2P BLOCKCHAIN ECOSYSTEM NETWORK

B2P Blockchain Solution for Procure-to-Pay

Procurement, invoicing and payment are paper-intensive processes from end to end to allow for human inspection. As such it is time-consuming and costly and difficult to track status. SCG collaborated with partners with expertise in using blockchain technology to develop the world's first integrated procurement platform. Work started in 2017 and in 2018 several companies adopted it for actual utilization as efforts continue for systems improvement. In 2021, a total of 39 companies adopted this B2P platform, with over 5,900 active users who are suppliers and contractors. The platform is now processing an average of 15,000 invoices per month. The solution is proven to shorten processing time and reducing mistakes through automated processes of validation and approval authority instead of manually. Data security provides for transparency and credibility, cutting cost per item by 25% and shortening processing period by 50% compared with the legacy system.

HATCH-WALK-FLY Internal Startup

SCG has committed to emboldening employees to innovate and think like entrepreneurs, by adapting startup work culture in the organization with a view to expanding business opportunity. SCG Internal Startup Project consists of three stages: HATCH to zero in on client's problem and need, WALK features research, development and piloting solutions and exploring market feasibility, and FLY aims at expanding customer's base to grow the business. In 2021, a total of 8 teams have entered into FLY stage including: Roots, an industrial goods trading platform; Rudy, client management system and sales tracking for construction materials shop; DezpaX, food and beverage packaging platform for delivery; NaYoo, residential rent and sales platform; Urbanice, condo-living management platform; ZUPPORTS, transnational freight management platform.

Climate Resilience

Promoting Energy-Efficient Technology and Cutting GHG Emissions

SDGs 7 9 12 13 15

Target and Performance

2050
Net Zero Emissions

2030
20%
greenhouse gas emissions reduction from base year 2020

2021
2.66%

2030
13% energy consumption reduction compared with BAU at the base year 2007

2021
7.13%

Strategy

1. Increase the share of biomass and renewable energy that substitute fossil fuel.
2. Improve or modify processes and equipment to enhance energy efficiency.
3. R&D of technology to drive Net Zero emissions target in 2050.
4. Develop products, services and solutions that reduce GHG emissions across the value chain.
5. Apply economic tools to promote greenhouse gas emissions reduction.
6. Reforestation and rehabilitation of terrestrial forest, mangrove and seagrass as carbon sink.
7. Awareness raising on energy conservation and climate resilience among employees and contractors.

Management

1. Set emissions reduction target in line with the Paris agreement and goal to keep global warming to below 1.5 degrees Celsius and Net Zero by 2050.
2. Prepare measures to enhance and drive energy efficiency across all business units.
3. Prepare and disclose climate-related issues according to TCFD and SBTi.
4. Monitor and regulate climate resilience agenda by Board of Directors and top executives on quarterly basis.
5. Advocacy and action by the Climate Change and Energy Committee which meets quarterly.

Climate resilience is a prominent global issue this past year, resulting in law enforcement risk and opportunity towards low carbon economy. SCG sets Net Zero target in 2050 and its science-based targets initiative is under validation process, while continuing to implement the strategies and measures towards achieving Net Zero target.

Boosting Energy Efficiency Through Automation

Chemicals Business applies digital technology to automate its measuring and control system, resulting in higher efficiency of the production at its Rayong Olefins plant through:

- Integrated Steam Optimization. Digitalization of highly complex control and calibration of steam system by using Data Analytics for automated adjustment of appropriate steam function.
- Unlock Furnace Gap by Data Analytics. The objective is to improve performance of furnace, which is the most energy-intensive equipment in the plant, by using Data Analytics conduct auto mated Decoke and Heat Distribution management with Machine Learning that studies and accurately forecasts Furnace behavior.

These two projects contributed to reduce energy consumption and GHG emissions by a total of 8,030 ton CO_2 per year.

In 2021, Rayong Olefins Co., Ltd. received an Industry 4.0 Award, Smart Energy Category, and Smart Factory and Eco Factory Award from the Industrial Estate Authority of Thailand.

SCGP (Packaging Business)

applies digitalization and automation of equipment and machinery in paper production at Siam Kraft Industry's factory, aiming at process optimization and energy efficiency.

- Hood & Ventilation Balance Control System, using Data Analytics process online in Dryer Part, to replace the manual control which requires four hours adjustment process to hit the target. Finally, this results in a quick response and an efficient balance to control the system.
- Pulper Consistency Control System, this project seeks to improve production efficiency in the Pulper Section, which is most energy intense, by installing radar sensors and programs to control the intensity of pulper to achieve higher stability resulting in higher productivity and less energy use per production unit.
- Aeration Optimization automates the switching of the wastewater treatment system based on online wastewater quality monitoring.

Altogether, these three projects save energy use totaling 53,413 gigajoule per year and reducing GHG emissions by 7,762 ton CO_2 per year.

Scaling Up Solar Energy and Biomass

Cement-Building Materials Business

has scaled up rooftop solar energy generation internally and externally, bringing total installed capacity to date of 18,923 megawatt-hours per year, reducing GHG emissions by 9,460 tons CO_2 per year. It has increased the share of biomass from agricultural waste through implementation of its Energy Pellet project and from other sources, cutting 3.25 million ton CO_2 per year of emissions.

RIL 1996 Company Limited, Chemicals Business

scaled up its solar energy operation by providing rooftop solar solutions to office and factory rooftop space of five companies located in Map Ta Phut Industrial Estate namely: Thai Polyethylene Company Limited, Map Ta Phut Olefins Company Limited, Grand Siam Composite Company Limited, Thai MFC Company Limited and Map Ta Phut Tank Terminal Company Limited. Altogether the installed capacity is up to 1.78 megawatts of outputs to supply electricity demand inside building, cutting GHG emissions by 1,301 ton CO_2 per year. At the same time these efforts contribute to the Eco Industrial Town drive towards sustainability.

SCGP (Packaging Business)

has expanded its solar energy capacity to 11.78 megawatt, reducing GHG emissions totaling 8,757 ton CO_2 per year. It also boosts the biomass utilization through a sugarcane leaf buying scheme from farmers to meet the increasing demands of machineries that have been improved to use the biomass. The effort helps bring down GHG emissions by 277,440 ton CO_2 per year.

Indoor Air Pollution Treatment System

This system uses AI technology to improve indoor air quality and ventilation in building through HVAC Air Scrubber innovation that absorbs more than 30 types of toxic substance, reducing the burden of air conditioning units, energy sufficiency, and cutting GHG emissions by at least 8 kg CO_2 per square meter per year, and absorbing carbon dioxide in the building to less than 750 ppm. The system is chosen one of the nine outstanding Innovations, Smart Heat & Air category by The Clean Fight 2020 New York, USA.

Circular Economy

Collaboration and Innovation for Sustainable Recycling of Resource

SDGs 8 9 12 13

Target and Performance

8 million tons of recycled material and renewable material per year in 2025*

2021
3.76 tons

Zero
Waste to Landfill from Bang Sue Head Office in 2021

2021
9.9 tons

Share of recyclable, reusable or compostable packaging of SCGP achieve 100% in 2025

2021
99.5%

Sales volume of SCG GREEN POLYMER™ of Chemicals Business
200,000
tons per year in 2025
1,000,000
tons per year in 2030

2021
20,100
tons per year

*For Thailand operations

SCG prioritizes circular economy and its principle of “make-use-return” to manage and respond to challenges of waste, world’s resource scarcity and climate change through the SCG Circular Way. SCG collaborates with all sectors and actors in earnest and uses innovation to optimize resource and to efficiently manage waste.

From Pile Waste to Value

In construction activity, concrete pile waste is the weightiest, and inevitable in the process. The typical approach is disposal to landfill under the charge of project owner. Cement-Building Materials Business adopts circularity to construction industry through a new approach of “Pile Waste Module.” In “Pile Waste Module”- instead of sending to landfill - these process scraps are to be crushed, and then used as substitute material in a range of construction work such as road paving material, parking lot ground, or to make concrete sheets. The outcome yields property equivalent to normal concrete. Yet it helps reduce use of virgin material, pollution, transport to landfill and cutting GHG emissions at every step of waste management process, setting a new standard of pile waste the circular way.

Strategy

- Develop products and services aligned with circular economy principle to generate and retain maximum value of materials.
- Collect and manage wastes for recycling.
- Transform new business model according to circular economy principles.

Management

- Establish a Circular Economy Committee to steer and facilitate success factors of CE in five dimensions: awareness raising, collaboration, regulation, innovation and a management and evaluation system.

"Pile Waste Module" is a collaboration between Cement-Building Materials Business and project owners, developers and construction contractors. In 2020-2021, "Pile Waste Module" counts participation of 22 building construction projects of 11 companies. Notably in 2021, this approach is applied in the pile waste aggregation and crushing to yield material for construction of parking lot of Covestro Thailand, and pavements of Central Department Store in Chantaburi province. Materials recovered and recycled total about 14,096 tons, equivalent to emissions cut of 1,397 ton CO_2.

Structure Solution

Making beam column using wood model installed at construction site is a step that generates waste including the wood model itself, concrete scraps. This run-of-the-mill step is time consuming and challenging for quality control. Cement-Building Materials Business came up with a Structure Solution to reduce complication, manhours and use of wood model by at least 90%. The solution helps reduce waste generation, while ensuring outcome with the desired quality which extends the lifespan. While optimizing resource use, the solution offers customer's satisfaction.

SCG GREEN POLYMER™

Chemicals Business developed an innovative solution of making plastic pellets under 4Rs and Circular Economy principles. This solution is presented as SCG GEEN POLYMER™ which is plastic pellet that is eco-friendly across its lifecycle from design, production, marketing, transport, storage and delivery, product use, recycling and disposal upon end of product life. This is the proposition to consumers keen on eco-product. It enhances the competitive edge of Chemicals Business in the world market.

Key attributes of SCG GREEN POLYMER™ line consist of Reduce -use of plastic material while still retaining strength with SMX Technology. Recyclable – by design for plastic packaging upon expiry to be recyclable through use of mono-material polymer. Recycle – used plastics from households are crushed and returned as feedstock in production process. Renewable – resource can regenerate itself naturally and is biodegradable via development of Bioplastic.

Paper Innovation for Less Resource Use

SCGP (Packaging Business) is committed to development of paper and packaging in line with Circular Economy principle by using used material as feedstock to make new products under rigorous quality control. Outputs from such circularity reduce resource use while retaining quality according to standards. Examples include:

- **Spring and Idea Green** premium 80 gram-photocopy paper made from 50% Ecofiber pulp. These products are TISI Green Label certified and belong to the range of SCG Green Choice.
- **TS - Kraft Liner** is light weighted, made from 100% recycled wastepaper, certified SCG Green Choice.
- **Honeycomb Paper Band**, SCG Green Choice, is used as inner cushion of packages, allowing less use of paper use per volume at least 30%.

Expanding Partnership in SCG Circular Way

- **SCGP reXycle Drop Point**. SCGP collaborates with partners in this undertaking. In 2021, a network of over 50 such Drop Points are active, for example, UOB's Waste to Wisdom, the paper recycling project joined by 5 hospitals of the Phyathai Hospital Group. With PTTG Energy Pcl, the partnership set up drop points in five PT service stations to aggregate paper waste and PET bottles from 1 July 2021. To date, 500 kgs of papers have been collected along with 150 kgs of PET bottles.

- **Tor Toong Ton Tan**, **Closed-loop Recycling Model** Chemicals Business and CP All Pcl jointly developed a strong and durable type of plastic bag using plastic waste from CP All's logistics process as feedstock for recycling process to yield material to make new bags. This guarantees no leak of plastic outside of the process. It is internal circularity practice, deemed a Closed-Loop Recycling Model according to Circular Economy principle. It helps reduce volume of plastic waste, use of virgin material and cut GHG emissions. Chemicals Business is hoping to scale up this model in partnership with other organizations going forward.

Health and Safety

Innovating Digital Technology for Safety

SDGs 3 8

Target and Performance

Zero fatality of employees and contractors

2021

2 cases of fatality of employees

8 cases of fatality of workplace contractors

0 case of fatality of direct transportation contractors

0 case of fatality of other transportation contractors

Lost time injury frequency rate of employees and contractors in 2021

0.025 cases/1,000,000 hours worked

2021

Employee: 0.175 cases/1,000,000 hours worked

Contractor: 0.192 cases/1,000,000 hours worked

Zero occupational illness frequency rate of employees

2021

Employee: 0 case/1,000,000 hours worked

Contractor: 0 case/1,000,000 hours worked

All companies under SCG pass the Safety Performance Assessment Program (SPAP) at the Standard level or higher.

2021

59%

SCG places great emphasis on the health and safety of worker at all levels and strives to achieve zero fatality of injury and occupational illness by introducing digital technology to improve the effectiveness of its safety prevention and monitoring in the workplace, travelling and in transportation.

Technology for Risk Elimination in Factories

Every business unit of SCG promotes risk identification and elimination by utilizing digital technology to rectify and prevent accidents from the pre-operation and during operation phases to safety observation. This increases safety reporting and involvement from workers at all levels.

Strategy

1. Implement occupational health and safety standards for workplace and transportation effectively both Thailand and abroad.
2. Create engagement, promote risk identification and management by individual employee, and apply Safety Performance Management System (PMS) in order to foster an organization-wide safety culture.
3. Utilize digital technology to improve efficiency and accommodate the new normal of work to reduce risks of accidents, injuries, and occupational illnesses and diseases.

Management

- The Workplace Safety Committee and the Transportation Safety Committee establish policies strategies, short, medium, and long-term plans, targets and indicators as well as monitor target achievement and plan implementation and analyze outcomes to improve effectiveness.
- Establish an accident investigation team consisting of experts from each business unit, who are responsible for analyzing causes of accidents, formulating corrective and preventive measures, and lessons learned sharing.
- Foster a network for management collaboration and develop experts in each business unit for the exchange of knowledge and technology for collaborative risk management.

The Highlights

- SCG was able to make delivery to all customers, and no drivers of SCG and its contractors contracted or passed on COVID-19 during operations.
- SCG set up isolation centers for green-level COVID-19 patients, consisting of 954 beds, thus helping to lighten the burden of the government.
- SCG initiated the “Professional Roof Installer” Project to elevate the skills of 1,560 participating technicians to meet safety standards and promote hiring during a recession.

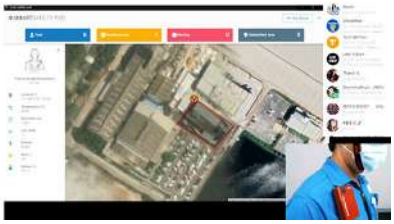
Examples of the technologies that have been developed and adopted are as follows:

Screening Before Entering Workplaces

- **Smart Access Control**: The digital AI system of Cement-Building Material Business includes cameras that detect safety equipment on workers entering the manufacturing facilities and the construction sites, such as helmets, high-visibility safety vests, and face mask as part of access control and monitor safety behaviors during operations. The system also raises real-time alerts summarize and show the status on dashboard in each area.

Anomaly Detection During Operations

- **Smart Safety Pod**: This equipment continuously monitors workers in operational sites. It detects, for instance, bodily movements and workplace environments and notifies the workers and related parties of any relevant risks so that they can be managed promptly. The equipment also enables precise and correct evacuation of personnel in an emergency and efficiently controls entry into restricted areas.



Safety Observation (Unsafe Action, Unsafe Condition, Near Miss Report)

- **Observation or Caring Program**: This safety activity raises safety awareness among employees and contractors through reports of plant and work site. This program of Cement-Building Materials Business accessible via online platform both Thailand and abroad and use for communicate in pre-operation through morning meeting includes improve effectiveness of problem analysis corrective and preventive measures in systematically and reduce the time needed for report preparation of workers at all levels.

Safety Management Technology and System

- **SAFEsave**: Developed by SCGP (Packaging Business), this technology strives to elevate safety and security management to a digital platform in order to improve time and documentation efficiency as well as the accuracy and speed in data acquisition and analysis. With this technology, databases are centralized into a single platform and alignment with SCG Safety Framework.

COVID-19 Related Technology

- SCGP has developed a contactless safety management system equipped with a facial recognition and temperature screening technology in tandem with an online self-declaration system for health screening before entering the workplace.
- Cement-Building Materials Business has employed a vaccine passport for entry into its manufacturing facilities in conjunction with a smart access control system. In addition, the AI system has been deployed to temperature screening and detect the use of safety equipment, such as face mask and PPE suits, as well as stickers on the helmets, which come in different colors and are used to categorize workers into groups in order to maintain physical distancing and access control as necessary.

Transportation Safety Technology

The year 2020 marked the first step of the implementation of SCG’s medium-term plan to become Southeast Asia’s safe transportation leader. To this end, SCG has implemented the goods transportation safety standard across all business units and encouraged transportation contractors to manage their own safety. That is, every transportation vehicle must be equipped with a two-way camera and tracked throughout 24 hours by SCG’s Logistic Command Center (LCC). In 2021, the Advanced Driving Assisting System (ADAS) and the Driving Monitoring System (DMS) were introduced to G7 Platform to operate in tandem with the GPS device in the transportation vehicle to adjust drivers’ behavior for greater safety. SCG has aimed to install such systems in around 3,000 transportation vehicles by 2022 and has already begun installation in a number of staff transportation vehicles.

- **Driver App and Smart Delivery Application (SDA App)**: Developed by SCG Logistics and Chemicals Business respectively, these applications oversee goods transportation, from appointment, pick-up and drop-off locations, and driver readiness assessment to vehicle health and goods delivery at the destination.

Sustainable Value Chain

Transitioning towards the low-carbon business, SCG incorporates principles of circular economy into the entire value chain, from the stage of designing, procurement, manufacturing, sales and transport, usage up to recycling. It also maximizes the utilization of finite energy and natural resources throughout the value chain through reduction, reuse, and recycling, as well as by using alternative energy and minimize waste to maximize value for stakeholders.

E

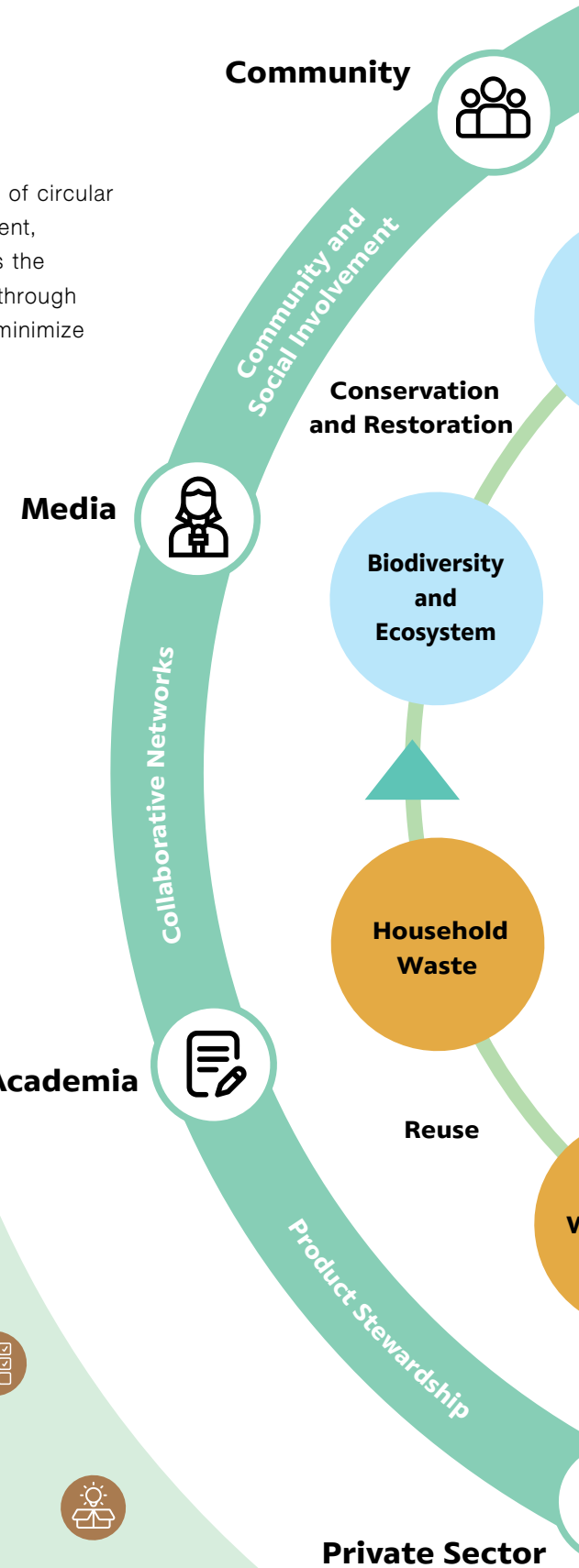
Environmental
Resource efficiency, reduction of greenhouse gas emissions, energy consumption, waste management, commitment to environmental conservation and ecological balance.

S

Social
Placing importance on people, employees, suppliers, contractors, communities, and stakeholders and fostering collaboration with all sectors during crises to reduce social inequality and create fairness.

G

Governance
Good corporate governance, transparency, regulatory compliance, anti-corruption, risk management, and protection of interests.



Resource and Raw Material Management

SCG reduces upstream consumption of resources and raw materials through the research and development of renewable energy, reduction of raw material consumption, and increasing the proportion of material recovery according to principles of circular economy.

Innovation and Solution Development

SCG has strived to the research and development of innovation and technologies in order to develop products, services, and solutions that meet the needs of its consumers and are eco-friendly through the entire process, from designing, procurement, production, sale and transportation, all the way to usage and reuse.

Production Management

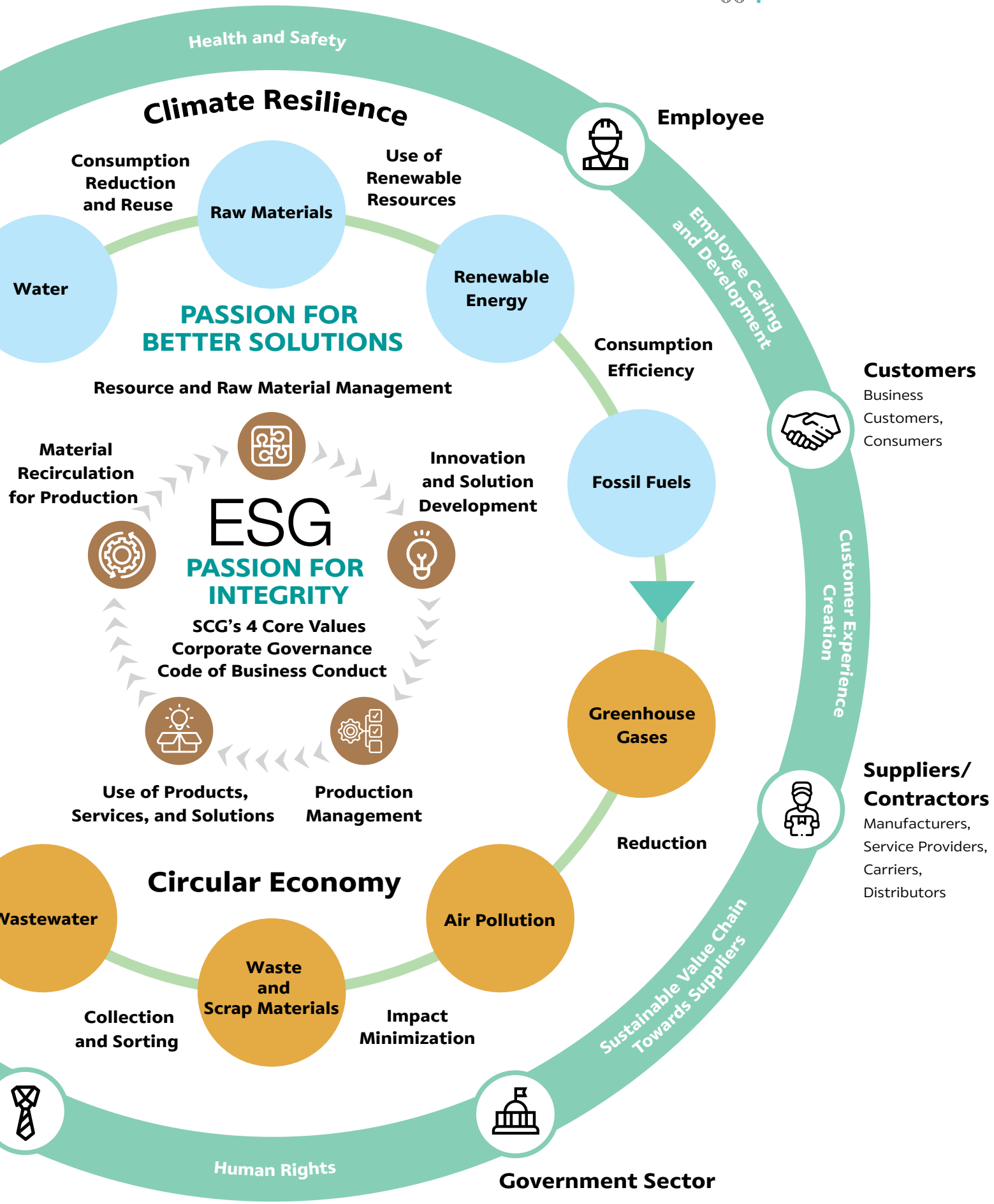
SCG seeks to enhance its production process, minimize the pollution and waste generated, including wastewater, greenhouse gases, and air pollution, as well as employ technology to regularly monitor, control, and assess the quality of the waste generated.

Use of Products

SCG promotes the use of products that are manufactured with reduced energy and water consumption and greenhouse gas emissions, have extended lifespans, are recyclable, contribute to health and good quality of life, and are given certified labels.

Material Recirculation for Production

SCG fosters collaboration with all sectors, including government agencies, private businesses, academia, the media, and communities, to bring about integrated waste management and generate economic value through recirculation of waste for reuse.



PASSION FOR ALL

Stakeholder Engagement Across the Value Chain

Stakeholder Engagement

SCG strives to develop and elevate its capabilities to appropriately respond to the needs and expectations of all stakeholders across the value chain for the sustainability and continuous growth of the business. To this end, it attaches significance to all stakeholder groups and promotes collaborative and inclusive operations in order to foster positive relationships and confidence and promote the mutual creation of value between SCG and its stakeholders. SCG has thus identified and prioritized stakeholders groups according to impact and expectations towards SCG as well as established the engagement approach and channels as well as response to potential risks for each group, the performance of which is monitored, assessed, and reported on a quarterly basis.

Stakeholder Group	Objective of Engagement	Engagement Approach	Needs & Expectations	Key Responses/ Detail	Page
 **Shareholders/ Investors**	• Disclose material and necessary information about SCG's performance. • Listen to opinions/ suggestions and use them to inform further developments and executions.	• Annual General Meeting of Shareholders. • Quarterly analyst conferences and press conferences to report performance. • A total 28 Non-Deal Roadshow & Conference (virtual conference) for Thailand and abroad investors. • A total 10 virtual roadshows for Thailand investors. • Two annual activities for SCG's Executives to communicate its business strategies and directions to Thailand analysts and institutional investors per year. • Communicate the Company's performance through the Annual Report, the Management Discussion and Analysis, the Sustainability Report, and SCG's website. • Regularly communicate the Company's activities and answer inquiries of investors. • Regularly one-on-one meeting/ group meeting and conference call with investors. • Quarterly Virtual NDR & Conference (Total 31 events). **Contact Channels** **SCG News Channel** https://scgnews channel.com/th/ **Corporate Secretary** Tel: 0-2586-6098 E-mail: corporatesecretary@scg.com **Investor Relations** Tel: 0-2586-4299 E-mail: invest@scg.com	• Disclosure of quarterly performance and quantitative figures so as to give investors an overview of development directions continuously. • SCG's plans and strategies towards short-term and long-term goals. • Information on SCG's COVID-19 innovations, which help protect medical professionals and all Thais and were given to hospitals.	• Annual Report 2021 • Sustainability Report 2021	All All

Stakeholder Group	Objective of Engagement	Engagement Approach	Needs & Expectations	Key Responses/ Detail	Page
 **Employees**	• Care for employees. • Developing and attracting employees with competency compatible with the business direction. • Recognize employees' needs to improve the efficiency and effectiveness of human resources management. • Disclose and communicate business activities so that employees are aware of developments in SCG's business operations. • Build a corporate culture and foster collaboration with other stakeholders.	• Annual meeting with CEO. • Quarterly meetings with Executives for updates. • Quarterly Leadership Forum. • Employee engagement survey - A survey conducted by an external consultant every two years - A survey conducted by the Corporate Human Resources Division every two years. • Conduct a focus group consisting of staff and Executives to identify employee needs to ensure happiness at work every two years. • Develop an annual engagement plan in each unit to foster employee engagement. • Activities that foster employee engagement and good experience with the workplace environment (mostly conducted virtually during the COVID-19 outbreak in 2021). • Communicate updates to employees through internal communication channels, such as e-mail, LINE Groups, and Employee Connect application. • Communicate updates to raise awareness of healthcare amid the COVID-19 pandemic through internal communication channels, such as e-mail, LINE Groups, and Employee Connect application.	• Promoting the value of employees. • Employee have a good quality of life and feel engaged. • Having an adequate number of qualified employee. • Developing the organization and operating the business continuously with the participation of employees.	• Innovation and Technology • Health and Safety • Industry 4.0 Smart Factory • Business Ethics • Human Rights • Employee Caring and Development	40 46 64 90 106 108

Contact Channels
E-mail: corpcomm-admin@scg.com

Whistleblowing System
https://whistleblowing.scg.com/

SCG News Channel
https://scgnews channel.com/th/

SCG Fanpage
https://www. facebook.com/ SCGofficialpage/

Stakeholder Group	Objective of Engagement	Engagement Approach	Needs & Expectations	Key Responses/ Detail	Page
 **Suppliers and Contractors**	• Promote and oversee safety of suppliers and contractors both in workplace and transportation. • Create value to the operation of suppliers and contractors. • Promote and advance the operation of suppliers and contractors and enrich knowledge to maximize operational efficiency. • Develop collaborative projects to deliver value to customers and society and create mutual business growth.	• Regularly visit contractors and suppliers to exchange ideas and listen to suggestions for improvement. • Foster safety awareness and promote behavioral change to create safety culture. • Share knowledge and new trends that may affect the operation of contractors and suppliers. • Elevate carriers by carrying out annual assessment and development initiatives under the Sustainability Program every year. • Develop operational standards for contractors and suppliers and implement digital technology to improve safety amid the COVID-19 pandemic. • Elevating contractors' safety standard in workplace and project sites to include services and solutions. • Elevate contractors' practices according to the sustainable procurement framework and extend the implementation to abroad. **Contact Channels** Tel: 02-586-4444 Website: www.scg.com	• Provide knowledge and serve as a mentor for contractors to enhance their transportation safety for mutual growth alongside SCG. • Provide knowledge on the Environmental, Social, and Governance (ESG) management to enhance the operation of contractors and suppliers and reduce operational and reputational risks. • Establishing safety measures and taking care of the health of contractors and suppliers during the COVID-19 pandemic.	• Circular Economy • Health and Safety • Business Ethics • Sustainable Value Towards Supplier • Waste Management • Human Rights	44 46 90 96 100 106
 **Customers**	• Understand customer needs to deliver products, services, and solutions that meet their needs. • Co-develop products with business customers and foster collaboration between them to develop products, services, and solutions that contribute to sustainability. • Receive suggestions, complaints, and consultations, and provide troubleshooting support for products, services, and solutions.	• Receive complaints, suggestions, and other feedback through various channels around the clock, such as via online channels, websites. • Co-develop products with business customers. • Provide consultation for home construction, repair, renovation, and extension to customers. • Develop collaborations with customers in projects that promotes social sustainability. • Conduct regular customer visits and meetups. • Annual customer seminars. • Annual customer satisfaction survey. **Contact Channels** **SCG HOME Contact Center** Tel: 02-586-2222 E-mail: contact@scg.com Line ID: @SCGBrand	• Integrate services and solutions to meet a comprehensive range of customer needs. • Provide online channels for customers during the COVID-19 pandemic in response to consumer behavior. • Provide products, services, and solutions in response to COVID-19. • Provide eco-friendly and safe products, services, and solutions. • Establishing guidelines for protecting customers' personal data.	• Climate Resilience • Circular Economy • CPAC Green Solution Towards Sustainable Pig Farming • Innovation for Health and Safety • Product Stewardship • Customer Experience Creation • Water Management	42 44 68 84 92 94 98

Stakeholder Group	Objective of Engagement	Engagement Approach	Needs & Expectations	Key Responses/ Detail	Page
 **Community**	• Be a part of community, respect community rights, and conserve the environment in the vicinity. • Enhance quality of life and promote integrity of society in Thailand and other ASEAN countries where SCG operates. • Listen to the opinion of communities. • Develop collaborative projects to enhance community competence for the benefit of society. • Foster an understanding of the circular economy and introduce innovations and new models for resource management to communities.	• Monthly dialogue with local community to listen to suggestions, feedback, and their needs. • Annual community satisfaction survey. • Serve as partner and consultant and leverage the Company's capability to help develop various aspects of communities. • Integrate the collaboration between communities, experts, the government, and related sectors to produce societal results. • Conduct site visits, develop models, launch awareness campaigns, and work with all sectors to foster positive behaviors through collaborative projects related to the circular economy. **Contact Channels** Tel: 02-586-4444 Website: www.scg.com **SCG Fanpage** https://www.facebook.com/SCGofficialpage/	• Prevent impact of SCG's business operations on communities and the environment. • Leverage SCG's competency to elevate the quality of life in communities. • Learning and development for job and income security. • Conduct resource management right from the source to reduce waste leakage into the environment.	• Circular Economy • Health and Safety • Growing Trees to Mitigate Global Warming Connecting Communities, Expanding Green Space • Reduce Inequality by Power of Community • SCG's Innovations in the Time of Crisis Against COVID-19 • Water Management • Waste Management • Air Quality Management • Biodiversity and Ecosystem • Human Rights • Community and Social Involvement	44 46 72 76 80 98 100 102 104 106 110

Stakeholder Group	Objective of Engagement	Engagement Approach	Needs & Expectations	Key Responses/ Detail	Page
 **Government Agencies**	• Conduct business activities in strict compliance with applicable laws and regulations. • Collaborate with government agencies in academic efforts and provide support to activities.	• Listen to opinions and suggestions from the government sector. • Offer opinions and suggestions towards the rules, regulations, and guidelines issued by the government. • Foster engagement and share good practices with the government sector to expand their adoption. • Serve on a panel or a working group of the government sector to propose rules and regulations. **Contact Channels** Tel: 02-586-4444 Website: www.scg.com	• Serve as a role model in management transparency and excellence for other organizations. • Cooperate with government agencies and propose good practices for sustainable development. • Participate in collaborative projects that seek to achieve sustainable development goals (SDGs). • Elevating operational measures to achieve the Sustainable Development Goals (SDGs).	• Climate Resilience • Circular Economy • Health and Safety • Growing Trees to Mitigate Global Warming Connecting Communities, Expanding Green Space • Reduce Inequality by Power of Community • SCG's Innovations in the Time of Crisis Against COVID-19 • Water Management • Air Quality Management • Biodiversity and Ecosystem • Human Rights • Community and Social Involvement	42 44 46 72 76 80 98 102 104 106 110
 **The Media**	• Communicate corporate news by conducting in-depth interviews and online surveys (media empathy) so as to prepare information that meets diverse media needs. • Establish online channels for communicating news and updates, such as SCG News Channel, to ensure information is disclosed fully, accurately, in a timely fashion, and in a manner that is convenient for the media. • Foster engagement and good relations with the media.	• Regularly disclose business information in various aspects, such as quarterly operating results announcements and business press conferences. • Occasional site visits or CSR activities. • Support press activities beneficial to society and consistent with SCG's guidelines as deemed appropriate. • Engage the media to listen to their opinions and suggestions once or twice every month so as to develop future communication to suit their needs and benefit the general public. **Contact Channels** Tel: 02-586-4444, 02-586-2974 E-mail: info@scg.com **SCG News Channel** Website: https://scgnewschannel.com/th/ Facebook: @scgnewschannel Line OA: @scgnewschannel Twitter: @scgnewschannel	• Serve as a role model of a large company that places emphasis on and actively implements sustainable development (economic, social, and environmental) in its business operations and successfully achieves tangible results.	• Annual Report 2021 • Sustainability Report 2021	All All

Stakeholder Group	Objective of Engagement	Engagement Approach	Needs & Expectations	Key Responses/ Detail	Page
 **Civil Society Sector, Academia, and Opinion Leaders, NGOs**	• Disclose information fully and transparently. • Listen to opinions and suggestions from the civil society sector. • Seek opportunities to create partnership and drive issues related to sustainability. • Foster public awareness and understanding on key sustainable development issues. • Leverage the expertise of specialists to support collaborative projects.	• Listen to opinions and suggestions from civil societies, scholars, and opinion leaders to improve the Company's operations. • Participate in projects that promote social sustainability. **Contact Channels** Tel: 02-586-4444 Website: www.scg.com	• Serve as a role model and a mentor on sustainable development for medium and small organizations. • Join forces with large organizations to create significant changes in terms of sustainability. • Cooperate with government agencies and propose good practices for sustainable development.	• Circular Economy • Health and Safety • Energy Transition Towards Net Zero • Growing Trees to Mitigate Global Warming Connecting Communities, Expanding Green Space • Reduce Inequality by Power of Community • SCG's Innovations in the Time of Crisis Against COVID-19 • Biodiversity and Ecosystem • Community and Social Involvement	44 46 60 72 76 80 104 110

Partnership and Collaboration
Towards Sustainability

SCG is fully aware that crisis gripping the whole world ranging from climate change, waste management, biodiversity loss, nature resource crunch, health and quality of life, cannot be resolved by any single entity on its own. That is why SCG has consistently reached out to forge partnership and collaboration with stakeholders in the public sector, businesses and civil society, to join up efforts, to do business equitably with economic, social and environmental considerations, because at the heart of these all is sustainability.

SCG ESG Pathway Start Together, For Us, For the World

SCG hosted the “SCG ESG Pathway: Start Together, For Us, For the World” in December 2021 to announce its commitment to drive business on the ESG pathway (Environmental, Social and Governance). The Forum brought together distinguished speakers and practitioners to share knowledge and experience on steering businesses along the ESG course. The event was live cast via SCG’s online platforms, with contents helping to inspire, motivate and shed light on sustainability in business among broad audiences. SCG itself is committed to lead private sector’s effort to build and strengthen public-private-civic partnership and collaboration in materializing the ESG pathway.

Circular Economy in Construction Industry (CECI)

SCG is a member of Circular Economy in Construction Industry (CECI) whose vision is to “enhance sustainability of construction industry by applying principles of circular economy and increase the ability to optimize resource for better living and social contribution.” In 2021, CECI membership expanded from 21 to 23 organizations. All the while, SCG remains committed to expanding the partnership while propositioning its circularity-innovations such as Pile Waste Solution Project in which concrete pile waste is crushed and recycled as concrete substitute used in pavement, parking lot and concrete sheets. In 2021, we counted 10 building construction projects by 5 developers pooling together over 2,854 tons of pile waste, which is equivalent to 283 tons of GHG reduction. Other building materials waste has been recovered and reused as substitute of virgin materials in cement production. We intend to keep growing this partnership.

Alliances to End Plastic Wastes (AEPW) A Regional and Global Joint Effort

SCG is a founding member of Alliances to End Plastic Wastes (AEPW) which came into being since 2020 to reduce and eliminate spill of plastic materials onto sea and environment. SCG is among 60 leading global companies that contribute the technical experience and knowledge, and resources to this end, focusing on the following four aspects: 1.) Infrastructure for proper waste management, 2.) Innovation focusing on waste-to-value approach with tech and business model, 3.) Education, raising awareness on proper waste management and 4.) Clean-up waste in waterways. SCG participates in project developments in Thailand, Vietnam, Indonesia and throughout Southeast Asia.

PPP Plastics Building Plastic Waste Database

In absence of database on plastic waste in Thailand, the Public Private Partnership for Sustainable Plastic and Waste Management –PPP Plastics in which SCG is a founding member collaborates with UN Environment Program (UNEP) and the Plastics Institute of Thailand, Chulalongkorn University initiated a project on data collection, research and analysis of volume and types of waste dumped into Thailand's five main rivers namely: Chao Phraya, Bangpakong, Tachin, Phetchaburi and Meklong. The database tracks properly-managed waste volume and spillage, and will be analyzed according to the approach of Japan's Plastic Waste Management Institute, in combination with baseline data of Water Resources Department and Pollution Control Department. Outcome of the study will inform plastic and waste management in Thailand in the future.

Expanding the Interceptive Network

SCG has worked with The Ocean Cleanup (TOC), a non-profit organization developing and scaling technologies to rid the oceans of plastic. headquartered in the Netherlands and Department of Coastal Resources to intercept and trap plastic waste before they spill into the sea. Interceptor™ is the solution. Using AI, it segregates waste types in waterways to collect data of waste volume. It is due to installed in major rivers in Thailand, piloted at Chao Phraya River. SCG actively supports public-business-civic collaboration to plan and address problems promptly and appropriately.

Circular Economy Standard

SCG has joined a public-private partnership to develop circular economy standards. Several projects are in progress, such as with the Thai Industrial Standards Institute (TISI), Ministry of Industry on CE standards for industrial goods. SCG collaborates with the Eco-Label Technical Sub-Committee to develop green packaging for plastic packaging to promote packaging that contains recycled materials of waste from production; on mono-material that can be recycled, packaging from bio-based material that is biodegradable, and precursor material from chemical recycling.

The "Upcycling Milk Pouches" Project

SCG partners with the Department of Environmental Quality Promotion, and Office of Basic Education Commission to scale up the "Upcycling Milk Pouches" Project from a pilot project in Rayong and Suphanburi to cover a total of 1,300 schools in 15 provinces in the central region. Under the project, school children are encouraged to collect and turn in milk pouches for recycling under the slogan "changing behavior of new generation to optimize resource, segregate waste at source, and recycle." Primary Education Area Offices and Regional Environment Offices of participating provinces join to set up 38 aggregation points, with SCG supporting "KoomKah" application to establish garbage bank to collect milk pouches for SCG to recycle as pellets to make plasticware such as desk, chair, plant pot. These items are distributed back to schools proportionate to their milk pouches contribution. This is deemed an effective collaborative partnership between the public, private and civic sectors, notably involving teachers and pupils nationwide.

Promoting Low Carbon Tourism Network

SCG and new generation entrepreneurs, Thai Chamber of Commerce organized a training on "Krabi Livable Green City" collaborating with Krabi Provincial Chamber of Commerce; and "Amphawa CE Model in Tourism" with Samutsongkram Chamber of Commerce to promote sustainable tourism the circular- way involving stakeholders in the whole tourism value chain including hotels, resorts, restaurant, community-based tourism operators, community, travel agents, shops, local government bodies. One of the key missions is to raise awareness on proper waste management, optimization of resource use, and to organize activities to realize Low Carbon Tourism practice.


SCGP

FEATURE STORY

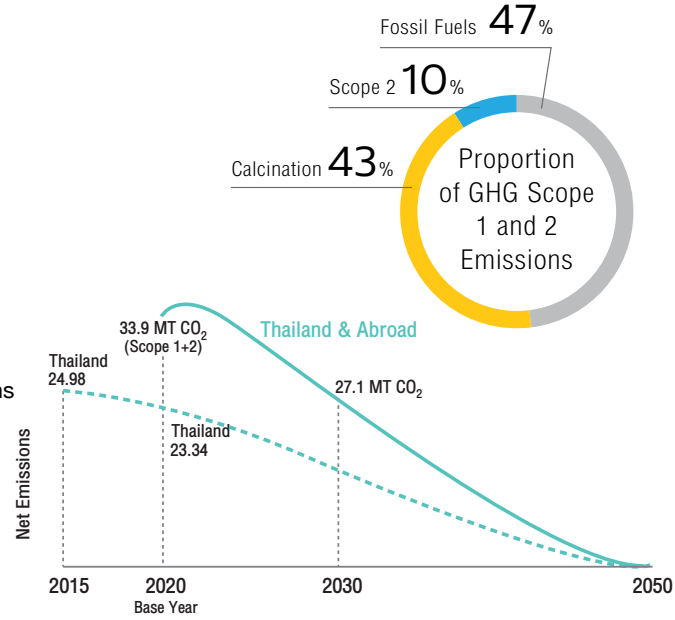
Energy Transition Towards Net Zero

Greenhouse gas emissions reduction is the key agenda of COP26 meeting by United Nations Framework Convention on Climate Change in Glasgow on 31 October to 12 November 2021.

At COP26, Thailand demonstrated its commitment along with the international members and its readiness to step up its efforts, by pledging to achieve Carbon Neutrality by 2050 and Net Zero GHG emissions by 2065.

On its part, SCG targets Net Zero GHG emissions by 2050 and reduction of net GHG emissions of scope 1 and 2 by at least 20% by 2030 compared to the base year of 2020 inclusive of its business activities in and outside Thailand.

SCG stands ready to collaborate with all stakeholders in addressing climate issues, central to national and global priorities.



20% net emissions reduction by 2030 against 2020 base line from business activities in and outside Thailand and moving forward to net zero emissions by 2050.

Greenhouse Gas Scope 1+2

SCG uses natural resources and energy in production processes, with direct emissions (scope1) at approximately 90% and indirect emissions (scope 2) at 10% from energy purchasing. Direction emissions originate from two parts namely chemical processes of cement production (calcination) and fossil fuel use.

From 1997 after state parties signed the Kyoto Protocol committing to emissions reduction, the international community recognized the urgency of climate change and the problem with limitation of energy sources. Against such backdrops SCG embarked on the path of renewable energy in earnest. From the first move in 2001 of turning used rubber tire into alternative fuel, SCG sought to consistently improve its ability to use alternative energy. These include from-agricultural waste to biomass using oil-palm shell, rice husk, straw, sugarcane leaf as material, Waste Heat Power Generation (WHG) in production process, and biogas production from waste-water treatment process.

Key achievement of SCG's renewables pursuit in 2012 is Refuse-Derived Fuel (RDF) undertaking. A waste segregation plant was built at community dumpsite, where material recovery process yield fuel bricks to be used to replace coal in cement kilns. The undertaking reduces emissions as well as waste generation, setting circular economy in motion for sustainability.

Energy efficiency through improvement of equipment and process efficiency forms another component of its backbone strategy. SCG supports employees to take part in thinking and developing energy-efficiency projects by submitting proposal to the Energy Award Contest.

SCG arrived at a milestone in 2016 on the solar energy front, with solar as renewable with high potentials across Thailand, and representing hopes for energy security in the future.

Solar

Thailand has the potential of high solar radiation intensity – at 18.2 megajoules per square meter per day. Notably in Saraburi province the intensity rate averages 18.5 megajoules per square meter per day – higher than national average. SCG has thus formulated policy and advocated for solar as clean energy source, and major contribution to emissions reduction and mitigation of global warming.

SCG consistently has installed and increased its solar energy output. To date, it reached total capacity of 114,176 MWh, reducing GHG emissions by 57,077 ton CO_2 per year. Solar power generation systems have been installed on ground, rooftop, and floating in reservoirs. Installation of "floating solar farms" utilizing wells and ponds around factories is most challenging so far of all types of surface, requiring innovation to accomplish the feat compared with working on rooftop or ground.

"Floating Solar Farms" originated from the observation of water surface as unutilized space. Tapping into Chemicals Business's expertise with plastic material, we invested in developing the appropriate type of plastic buoy to serve as foundation for solar panels. The buoys must withstand intense sunshine while staying buoyant accommodating the weight of panels.

Another key consideration is environment-friendliness, with lifecycle of 25 years and materials recyclable. Installation guideline prescribes 30% spacing between buoys to allow for adequate sunshine for water organism.

Chemicals Business pioneered innovation of buoys dedicated specifically to floating solar farms in Thailand. The pilot site was the reservoir of SCG Headquarters in 2018 and from there it served as prototype for other factories including Chemicals Business' factory in Rayong, Srisangtham Temple in Ubol Ratchathani province, Mae Than Mine in Lampang province, Amata City Industrial Estate in Cholburi.

The solar farm energy generation project expanded to cover other factories of SCG alongside the drive to install solar rooftop systems. The experience and expertise led to SCG Solar Roof Solutions as a service for residential and other buildings in 2019. In light of COVID-19 pandemic forcing most people to stay home, total demand for solar solutions in 2020 grew three folds from 2019.

With renewables in trend and in high demand, SCG sets up a new business called SCG Cleanergy Company Limited to offer integrated services built on SCG's knowledge, expertise and potentials, with a view to promoting clean energy and drive GHG emissions reduction.

BCG

Net Zero Emissions by 2050 is difficult but not impossible. Getting there takes commitment and determination, the need to have appropriate policy and implementation roadmap.

A key Thailand policy is the aspiration for Bio-Circular-Green Economy (BCG) which is recognized as the pathway towards resource and environment security and driving the Thai economy to grow sustainably.

Circular economy operates on make-use-return principle to maximize resource use, and SCG has long adhered to and practiced the circular way. This is also compatible with SCG's energy management to increase the proportion of refuse-derived fuel and waste-to-energy output. In the latest project, SCG operates a system to buy agricultural waste from areas around factories such as rice straw, sugarcane leaf, corn husk as materials to make energy pellet to substitute coal. The scheme generates income to farmers who previously disposed of farm waste by open burning which emitted greenhouse gas and harmful PM2.5 which emerged environmental challenge for Thailand in recent years.

Green Economy, conducting businesses with less harmful impact on earth, SCG focuses on research and development, and using technology and innovation to strike the balance of sustainable development, with economic, social and environmental consideration. These are demonstration in a wide range of SCG on renewables, solar energy, and technology to enhance energy efficiency in all aspects of factory.

From the time when technology assisted human, we are now in an era where technology can replace human through automation, robotics and AI Machine Learning that can ensure precision performance of machineries plus more energy efficient compared with human supervision.

Furthermore, green economy includes transition from fossil fuel to electrification, primarily electric vehicles. SCG pioneered Thailand's first EV Mixer Truck to deliver concrete. Running on clean energy, green and non-polluting, the truck reduces PM2.5 and PM10 by 45 grams per trip and reducing GHG emissions by up to 26.5 ton CO_2 per annum per vehicle. This is deemed advancing and enhancing the construction sector with green solutions in line with SCG's vision of business aligned with the ESG (Environmental, Social and Governance) principle and its commitment to reduce GHG emissions scope 3 – in upstream and downstream transportations.

The challenge going forward has to do with investment in GHG emissions reduction technology may affect short-term performance because of the high cost of technology. Equally challenging is multi-sectoral collaboration among the state, citizens and society to realize net zero goal collectively.

At COP26 in Glasgow, SCG President & CEO Roongrote Rangsiyopash expressed SCG's commitment. "At the heart of the matter is joining of forces of all sectors. We all must do our parts, gradually through actions and plans to reach different milestones, developing innovation and technology to transition from fossil fuel to renewables, which is extremely challenging."

The transition is not easy, but it is inevitable. SCG is ready to join everyone in facing up to the challenge.

Industry 4.0

Smart Factory

The world's industry is shifting to the direction of Industry 4.0.

Industry has constantly evolved driven by new technology, from labor-intensive start to mechanization, from analogue to electronic machinery, computerization, followed by robotic arms and semi-automation.

Yet still, with market demands expanding, complicated and diverse, plus intense competition, industry is undergoing this latest round of adjustment, to improve production efficiency, flexibility and speed in meeting the customers' need and serving the challenges of resource and energy, waste reduction, in light of global environmental concerns. Industry 4.0 is thus the future direction where the industries across the world are heading.

Cement-Building Materials Business which manufactures products for house and building construction is committed to transitioning its factories towards Industry 4.0 through the integration of technology and digitalization into all aspects of management and production. These include Smart Planning, Smart Operation and Smart Safety. No longer a factory full of workers and machineries, the new breed of factories is equipped with Internet of Things (IoT) connected devices, robots and automation systems operated and controlled by AI/Machine Learning and Big Data to optimize production efficiency while using less resource, energy, generating less waste, in compliance with standards and targets.

The transformation is to propel SCG factory into the world-class Smart Factory for a better society and environment.

Smart Planning

Cement-Building Materials Business serves many customers across Thailand, whose needs are different in terms of product types, volume and timing of delivery.

To respond to customer's requirement with in-time delivery, the production planning is the most crucial step. Previously, the process was carried out by staff using computer software to analyze data, factors and variables to make decisions on the production plan based on the available capacity of factories and machineries. The approach incurred risk of mistakes, time-consuming and lacked of flexibility to cope with customers' request to change orders.

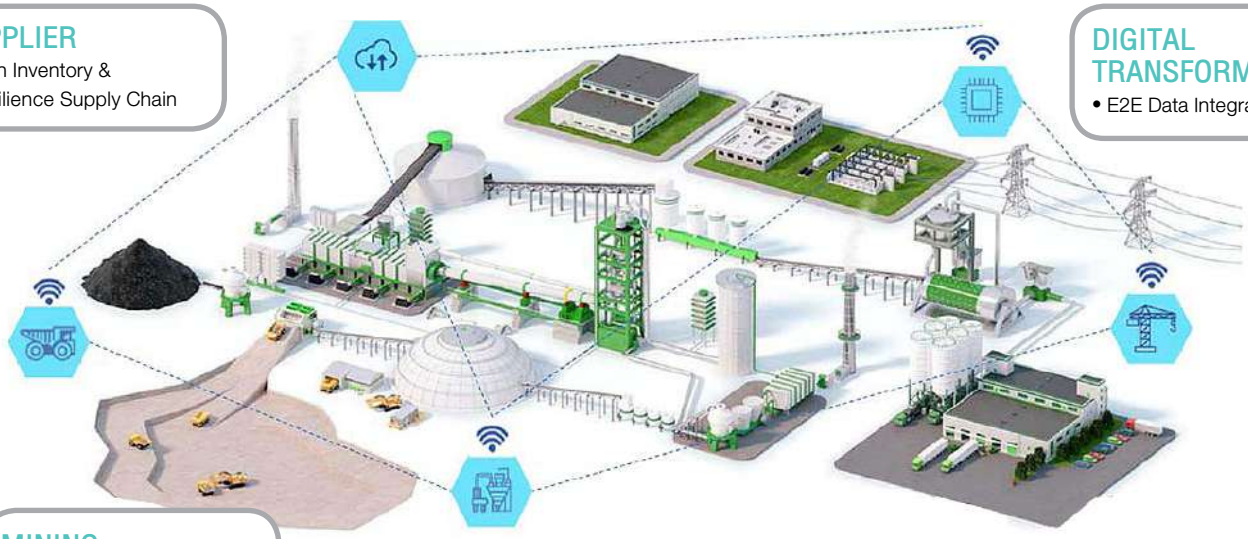
Cement-Building Materials Business collaborated with Department of Mathematics and Computer Science, Faculty of Science, Chulalongkorn University, in developing CAPOM — Cement Allocation and Planning Optimization Model for efficiency of cement production planning. As smart planning platform, CAPOM plans for efficient production, reduced energy cost and logistics cost as well as quicker planning period. The artificial intelligence system (AI) generates demand forecasting to optimize cement production, based on inputs of relevant data sets including stock and machinery status at the factories through cloud computing. The AI system enables Cement-Building Material Business to match customers' requirement with factory production capacity, reduce loss of production and logistics, and run operation continually while managing stock and inventory against deficit nor excess.

CAPOM assists in scheduling factory daily production, boosting precision and efficiency in every step along the way.

In 2021, CAPOM Smart Planning has been deployed at the cement plant, Kaeng Khoi, and help speed up the production plan by 75%. The plans are underway to scale up deployment of CAPOM Smart Planning to other cement plants of SCG while the system itself is being further developed to connect Smart Planning and Smart Operation for an end-to-end smart system.

SUPPLIER
- Lean Inventory & Resilience Supply Chain

DIGITAL TRANSFORM
- E2E Data Integration



MINING
- Digital Mine & Green Mining

CEMENT PLANT
- Smart Planning
- Smart Operation (Reliability & Efficiency)
- Agility & Adaptation

DISPATCHING
- Fast Response & Productivity

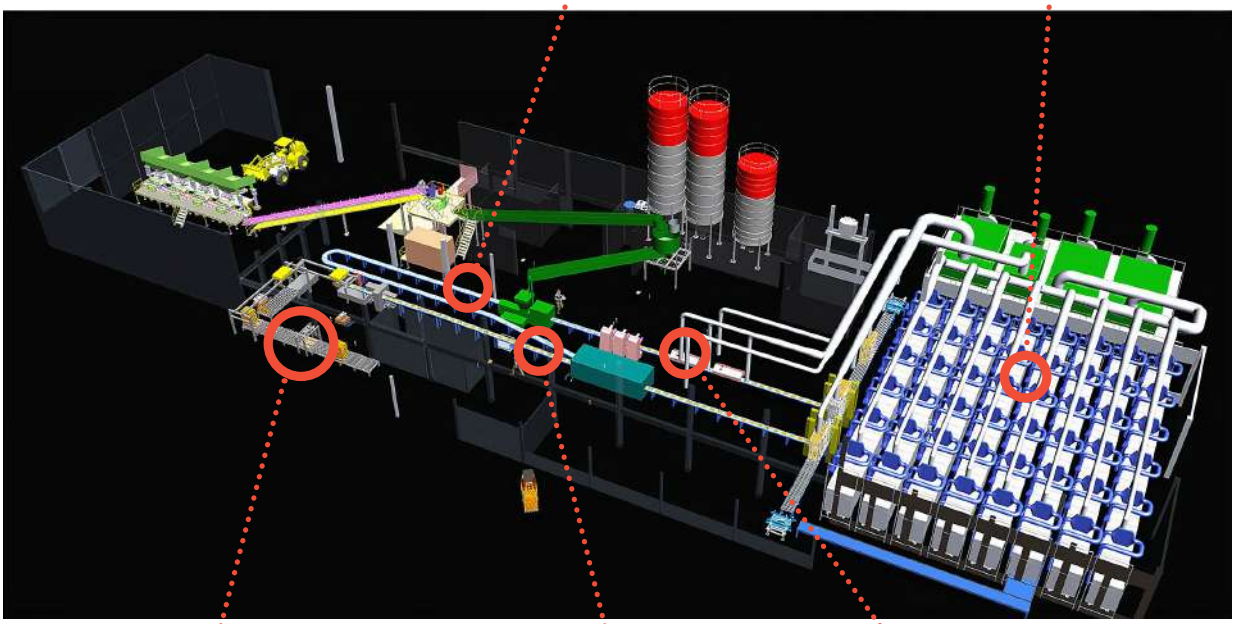
CUSTOMER VALUE CREATION
- Customer Fulfillment & Service Excellence

MES

Real-Time Manufacturing Execution System

Mold Oil Spray

Curing Process



Robot Packer

Inspection

GEP Coating Spray
Gross Efflorescence Protection

Smart Operation Precision, Speed, Higher Productivity, and Less Loss

Production process involves multiple steps through product lines that starts with processing of raw materials until the final outcome of beautiful and functional products.

In every single step, multiple variables need to be well managed, including precision control of machinery, inspection of product from each production unit for quality assurance before passing onto the next step to reduce loss from substandard outputs at end line. Complex production control undertaken by human is susceptible to risk of mistakes, machinery glitch and faults that may be unnoticed, resulting in damaged outputs or production shutdown from an unanticipated downtime.

Optimization of production efficiency inevitably needs Industry 4.0 automation technology, in tandem with upskilling of human resources to be capable of digital technology to support operations across production units.

Cement-Building Materials Business began developing Smart Operation in concrete roof factory by replacing the entire set of machinery and introducing AI/automation system, robot, IoT and AI devices. These machines and devices communicate via digital platforms to control machinery operation and production. Manufacturing Execution System (MES) in the VA Room (Visualized & Analytics Room) is the central operating system to enable the control of machines in every single production unit and manufacturing time. Efficiency is monitored from real-time data visualization dashboard. The system monitors the condition of machinery, data, temperature, humidity and other variables for production efficiency analysis and trouble shooting.

Furthermore, AI and Image Processing technology provide automated inspection system of fault finding in multiple stages of the production process starting with the stage of mold oil spray prior to shaping of tile to reduce problem of uneven coating, the stage of tile color spray (GEP coating spray) to ensure even coating and avoid defect products, as well as the stage of inspection to detect the defects and automatic reject out from the production line. This was done through knowledge transfer of Image AI from the cement plant.

Test of the application of 5G Technology in industry

Outputs that meet quality will then be handled by automate handling, which moves pieces in and out of the curing room, and robot packer shall pick up products for packaging.

For inventory management, the Warehouse Management System (WMS) is an operating system using QR Code for information and space management to reduce errors between loading staff and delivery staff to ensure correct delivery.

The implementation of AI jointly with automation in managing different functional areas inside a factory enables an efficient flow of production lines with precise monitoring system, increased productivity within the same amount of time, optimized resource use, energy saving and less labor dependence for safe work. In addition, there is a notification system on equipment status and machine capabilities for maintenance schedule.

Cement-Building Materials Business uses Overall Equipment Effectiveness) (OEE) to measure manufacturing productivity of Smart Operation against world class benchmarking in terms of ability to reduce losses from downtime, speed and quality.

In 2021, Smart Operation has been implemented at two roof tile factories, and planned to rollout in all six factories. The manufacturing productivity through OEE score increases from 53% to 78%, increased outputs to over 8.5 million pieces per year, and decreased reject to only 1.5%.

Smart Safety
Protect, Monitor and Safe

Although the factory deploys digitalization, AI, robotics and automation systems, the workforce is needed to jointly inspect production processes and feed data onto digital devices. In this setting, Smart Safety is an important element of a Smart Factory for safety of workers and contractors working on site.

Targeting to zero occupational illness and injury, Cement-Building Materials Business developed Smart Human Tracking that is already implemented at the cement plant, Khao Wong. The system tracks location and status of worker through a signal transmit device installed atop of safety helmet. Data are fed real-time into the system inside the control room. In case of emergency, a worker can press the alert system button for prompt assistance. The system also helps manage overall safety arrangements inside the factory by tracking and controlling entry and exit at different areas. Disaggregated data are displayed according to categories such as staff, suppliers/contractors, or visitors. It also alerts in case of unauthorized access or access into unsafe zone.

Smart Human Tracking also helps boost efficiency of employee caring during the COVID-19 pandemic, when physical distancing is a measure to prevent the transmission.

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Industry 4.0 is a challenge for Cement-Building Materials Business in terms of new technology investment, worthwhile benefits and expected performance. In quest for the right technology, the Business has to collaborate with relevant partners to create innovations for practical and efficient deployment.

And above all, the important aspect is to reskill and upskill the workforce with technological literacy in order that they can perform in the Industry 4.0 way of work.

Cement-Building Materials Business is in readiness to drive its business across the supply chain towards Industry 4.0 for SCG's sustainability.

Industry 4.0 Partnership

In its Smart Factory drive, Cement-Building Materials Business has collaborated with the following Industry 4.0 experts:

- ITRI, Taiwan - Image Processing
- Virtual Manufacturing, Sweden-Lean Engineering
- ABB Robotics, Switzerland-Robot and Transportation
- King Mongkut's Institute of Technology Ladkrabang-Cira Core Image Processing Technology
- King Mongkut's University of Technology North Bangkok-Digital/ Smart Factory
- Chulalongkorn University-Optimization Program
- Fraunhofer Institute for Factory Operation and Automation (IFF)-Industry 4.0 Assessment

Test of controlling remote driving forklift.

CPAC Green Solution
for Sustainable Pig Farming

"Construction Industry" is a vital part driving national socio-economic development. Cement-Building Materials Business has therefore delivered Green Construction Solution that is environment friendly, maximizing the resource use, enhancing the precise selection of material use, reducing the construction period, cost-saving, and reducing generation of construction waste, air pollutions, PM2.5 and greenhouse gas emissions.

The Concrete Products and Aggregate Co., Ltd., CPAC, part of Cement-Building Materials Business presents Green Construction Solution under the brand CPAC Green Solution. CPAC Green Solution targets large-scale industry client, airport, shopping mall, residential complex, and expanding to agroindustry particularly livestock group that needs large animal houses such as pig farm. With this segment, the aim is to meet client's need for good standard farm, with sound hygiene and eco-friendly as well as improving community quality of life.

Stress-Free Pig Farm Construction

Official data in 2021 counted 191,588 breeders tending to a total swine population of 13,101,176 heads across Thailand. These numbers are in line with increasing demand for pork consumption.

Among the breeders, small-scale and contract farm operators usually face numerous challenges in pig house construction projects. Problems they struggle with typically range from lacking the technical knowledge to build a proper pig house, shoddy quality of construction materials, overbudgeting, delay, contractors abandoning work, building materials waste, and regulatory hurdle of securing necessary permits.

Hearing feedbacks relating to pig house construction by breeders and operators has given CPAC insight into their real needs and CPAC is committed to applying its knowledge and experience coupled with application of CPAC Green Solution to solve problems in a holistic manner for pig farm. The result is CPAC Farm Solution that deals with steps starting from pig house design, pre and post construction work, along with the construction itself. This innovative solution transforms stressful challenge into a pleasant professional engagement experience among stakeholders: the farm owner, contractor, builder.

Pre-Construction Satisfaction

"Well begun is half done," it is said, and the same goes for pig farm construction.

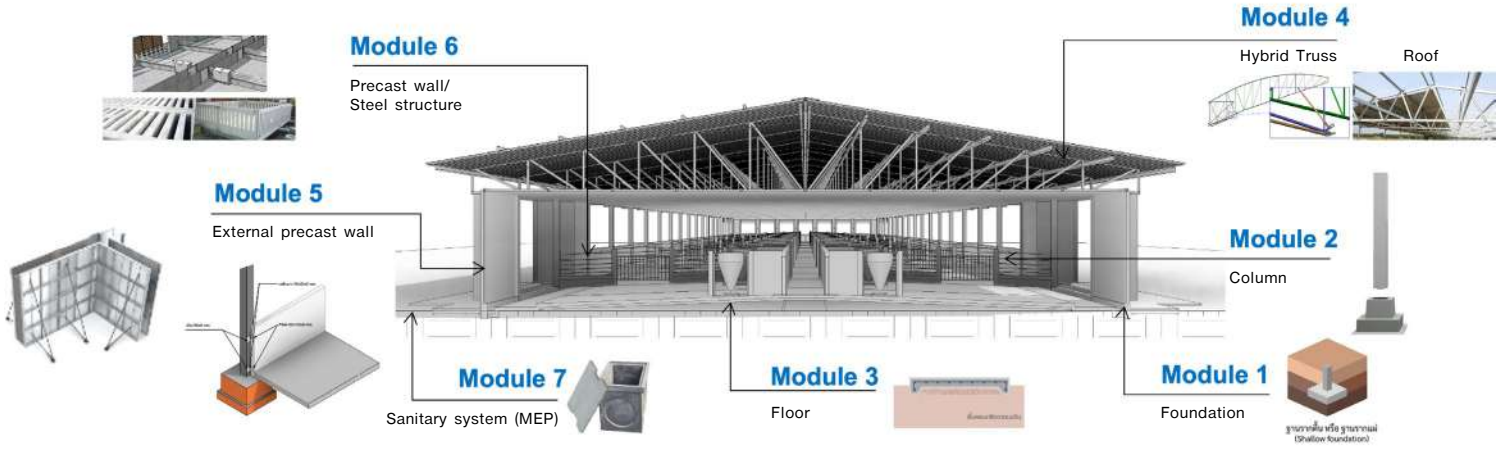
CPAC Drone Solution handles preparation work by conducting a thorough survey of farm site with precise, relevant details of construction ground quality, elevation, wind direction, the surrounding, etc., producing data and evaluation to inform the pig house layout and design, to make the most out of utility space while minimizing mistakes during construction.

In the next step, pig house is designed using CPAC BIM featuring Building Information Modeling (BIM), an end-to-end construction project solution. It yields 3-dimensional projection of the architecture, structure, and systems work. This visualization brings stakeholders – designer, farm owner, contractors and builders- on the same page of every step of work from pre-construction on, so that inaccuracies or mistakes can be spotted early and joint planning to meet deadline.

Importantly, the solution can assess quantity of building materials and accurately project the volume required. This helps save cost to farm owner, reduces building materials waste compared to the traditional approach that typically procures "just-in-case" excess cushion in advance.

Confidence During Construction

Every project owner wishes to see construction work proceeding as planned without glitch, and to be reassured that the work meets terms of reference, on time, in budget. However, many times construction projects do not turn out that way.


Module 4
Hybrid Truss
Roof
Module 6
Precast wall/
Steel structure
Module 5
External precast wall
Module 2
Column
Module 7
Sanitary system (MEP)
Module 3
Floor
Module 1
Foundation

CPAC Farm Solution builds the confidence and reassurance for the farm owner with systematic planning of steps and organized collective work. Tasks are divided as modularity, ranging from foundation work, piling, flooring, steel, systems work, interior and exterior work.

For concrete work, the solution uses CPAC's Precast technology with precast pieces delivered from factory for onsite assembly. As a result, construction period is reduced, as are environmental impacts such as dust, noise, plus less generation of construction waste.

Systematic approach to construction helps guarantee quick finish, enabling business to start faster. Farm owners can also be confident because the construction crew consists of experienced skilled workers, complying with work safety standards,

who make sure that work is done as planned, to standard and within budget.

Besides, the farm owner can virtually watch the crew at work and monitor progress on daily or weekly basis through monitoring and evaluation APPS using CCTV.

CPAC Green Solution

CPAC developed Green Construction solution for a low-carbon society and economy by optimizing efficiency, resource use, reduce environmental impact, while ensuring safety and hygiene, circularity, from waste to value, social contribution, and being part of sustainability of the country and the world. CPAC Farm Solution aside, other innovations along this line include:

- Super Fast Setting Concrete for construction projects that cannot close for a long stretch of time such as airport, express way, bridge. The solution speeds up reopening window of within 4 hours.
- Ultra High Performance Concrete (UHPC), an innovative solution for heavy-weight structural work, helping to reduce size, workload, time and construction man hours.
- Steel Prefabrication, in addition to concrete, we can make prefabricated steel structure pieces at factory to be assembled onsite. This saves time, reduces waste and man hours while delivering up-to-standard outputs.
- Modular Construction, modules for different spaces are factory-made to be assembled in desired shapes at construction site.
- Waste Circularity, concrete scraps from construction work are crushed to size that can be recycled as concrete substitute material (RCA) for pavement. This is giving value to waste, reduction of construction waste, and resource optimization.

Post-Construction Satisfaction

Pig farm construction work is achieved twice the speed of usual time required. This means more than just days saved for farmers as it is translated into less interest payment for loans because farmers can speed up cycle of swine breeding. With the speed achieved, farmers can raise two batches of pigs in the first year, so their revenue can be generated faster.

CPAC Farm Solution allows for pig farm construction to be completed within 3 months, compared with 6 months by legacy approach. On top of that the finished product is of higher quality, delaying maintenance costs farmers have to pay in the future.

At present, more than 20 swine breeding farms have commissioned CPAC to build a total of 109 pig houses in central region of Thailand. This is translated into livelihoods support to communities in the range of 310 million baht.

Miss Kwanchat Aim-oonjit is an entrepreneur in Chainat Province who never owns a pig farm before shared her experience working with CPAC.

"CPAC helped us to complete work on schedule, so we can promptly invest in the sows, turning in revenue faster and we have a standard farm that keeps the pig healthy, yielding good quality pork that market wants.

Miss Kwanchat Aim-oonjit

Miss Lookpla Saengrussami

With CPAC Farm Solution, we don't have to go through the pains of negotiating prices with contractors, the headache of builders abandoning work. In the future, if we are to expand our business, we will certainly turn to CPAC again."

Miss Lookpla Saengrussami, another operator in Chainat, already has 2 pig houses but she wants to add 6 more for a capacity to 1,200 each. On CPAC Farm Solution experience, she said:

"In the past our contract-farming partners had doubts about our capacity. Now those partners accept and recognize our farm, confident that our farm meets quality standard for pigs to live happily with improved hygiene, and free from outside contamination. As a result, earnings of our farm increase. Moreover, we received supports from CPAC, from financing, to construction, material, equipment and crew. All problems were resolved."

CPAC Farm Solution has teams to provide post-construction advice and services to reassure pig farmers and operators of holistic care.

Community Happiness

Besides raising standard of animal house construction towards Smart Farm with green construction technology, CPAC Farm Solution aims at forging an Eco-Partners' Network among key stakeholders including construction contractors, builders, workers, farm equipment vendors at local level as part of community sustainability.

The Happiness from CPAC FARM SOLUTION

Farm Owner	material cost saving	double time saving	20% faster revenue generation
Contractor and Builder	10% pay rise	skill improvement	faster work, less construction period
Society	Eco-Partners' Network	better livelihood	
Environment	less GHG emissions	less resource use	10-15% less waste, and less dust

Local contractors and builders working with CPAC have been selected for their skills and commitment to work together. They receive skills training on reading of construction design, work according to building standards, quality inspection. These allow them to work till completion without rectification, while safety is ensured by CPAC compliance resulting in less work hours but higher earning.

For **Boonchan Pha-phumma**, a local builder in Ayutthaya province, throughout 2020 at the peak of covid-19 pandemic, he had a total of one pig farm commissioning. Later, his contractor friends introduced him to join CPAC Eco-Partners' Network. In 2021, he was able to take commissioning of four pig houses, earning him 1.6 million baht.

"The good things about partnering with CPAC are that I get paid on time, no fear of default, and opportunities to improve myself and skills of my crew. We feel safe at work because CPAC standards are demanding. There are less requests to correct mistakes. There's a quality inspection team to assist us, coordinating with clients. That way, we get works done faster, can take more commissions. Also building materials are delivered on schedule, no need to wait." Mr. Boonchan shared benefits of eco-partnership with CPAC.

Social Contribution

CPAC Farm Solution has turned pig farm construction around, making it stress-free with innovation and technology with the commitment of its team and Eco-Partners' Network to deliver benefits to all stakeholders.

Helping farm owners to reduce building material waste by 10-15%, achieve value for money as construction period is shortened from 6 months to 3 months, so pig farmers can turn in revenue 20% faster.

Helping contractors and builders to earn 10% more, advancing their skills, reducing rectification points, working faster, less interest burden and ability to take up more workload in view of shorter-time delivery.

Building Eco-Partners' Network that contributes to community livelihood.

Helping delivery of quality construction work, extending life cycle, reducing resource required for future maintenance.

Reducing dusts during construction, cutting GHG emissions from pig farm construction activities through use of SCG Green Choice such as SCG Hybrid Cement that has the property to reduce GHG emissions from its production process at least 50 kg per ton of cement.

We deliver happiness to green farm that contributes to the environment, society and global sustainability.

Growing Trees to Mitigate Global Warming

Connecting Communities, Expanding Green Space

ปลูก ลด ร้อน

Twenty years ago, the forestlands on Khao Yai Da in Rayong Province were nothing but a drought-stricken rubber plantation under a private concession contract. The Ban Map Chan Community, situated at the foot of the hill, suffered from drought on a yearly basis, until the private concession ended and the community appealed to the Royal Forest Department to return the forest to the community.

Today, lush green trees extend as far as the eyes can see on Khao Yai Da.

This area of over 700 rais is packed with a variety of trees, such as Padauk, Ta-khian, Gamhar, Yang Na, Siamese Rosewood, Wild Almond, and other types of horticultural trees, as well as wildlife like Asian black bears, monkeys, red squirrels, various birds, all of which have returned to Khao Yai Da.

"This was my first real experience with planting trees, from preparing the seeds, pots and filling them with soil all the way to watering and watching the development of the seedlings every day. I'm so happy I got to be a small part of passing on our good intentions to nature."

Mayura Janbodin
A Chemicals Business employee reflecting on the "Community Tree Bank" project

Nevertheless, getting here has not been easy. **Wandee Intraphrom**, village head of Ban Map Chan, recalls that in the past, this region suffered from a scarcity of essential resources, particularly "water", due to the absence of a forested watershed and lack of knowledge on proper water management that would allow for sufficient allocation throughout the year. Each year, the villagers had to purchase water from the municipal water truck to ease the problem of scarcity.

"Back then, it was completely dry up there. The top of the hill was barren, with no big trees. There wasn't enough water for subsistence. Every year we were faced with drought. April-May of each year, we were always running up the hill to put out forest fires like it was an annual agenda."

Due to the area topography, distance from infrastructure, and no access to a public water system for a decade until the Ban Map Chan community was introduced to SCG through the facilitation of government agencies and a collaborative effort was initiated for the construction of check dams and growing trees. Educational support was also given to the community on holistic water management in order to help improve the people's quality of life. Ms. Wandee, the village head and community leader, reflects on the community's collaboration with SCG:

"SCG treats us like family. They've been by our side ever since we started building dams together in 2007. They've helped us with the thinking process. If there's something they don't know themselves, they find an expert to help teach us. SCG has equipped the community with strength and knowledge in order to empower us."

Khao Yai Da is now blanketed with trees that have grown out of the seedlings that the community and SCG helped to plant. In 2021, more than 3,000 trees were planted in an area of over 50 rais.

Aside from planting, the seeds of rare flora are also being collected and stored in the Community Tree Bank for the conservation of forest species. SCG has integrated this initiative into an activity aimed at promoting environmental awareness among its own employees. Wild plant seeds are collected by youth from the Ban Khao Yai Chum School and given to SCG employees, who plant them and tend the seedlings for three months before returning them to the care of the Community Tree Bank.

Once the seedlings have fully matured, SCG staff will coordinate with the community to plant these saplings on Khao Yai Da in the continued effort to expand forestland.

This initiative is part of the larger "Conserving Water from the Mountains to the Mighty Rivers Project" that SCG has conducted for over ten years in various areas throughout Thailand.

“Planting a tree is one way in which we can help take care of this Earth by expanding green space, increasing carbon dioxide sinks, and helping to stabilize the global temperature. Thank you very much for the excellent activity organized by SCG **“Growing Trees to Mitigate Global Warming”** on the occasion of His Majesty the King's Birthday 28 July 2021 and for giving me the opportunity to help our planet.”

Kwanruethai Yuedmun
Outstanding Community Development Volunteer Leader of Nakhon Si Thammarat 2017
Ban Wang Sai Community Forest Board, Thung Song Community Water Management Group Committee
July 2021

From "Saving Water" to "Saving the Forest"

From Solving the Problem of Drought to Solving the Problem of Global Warming

The "Conserving Water from the Mountains to the Mighty Rivers Project" has continuously sought to tackle the problem of drought in collaboration with local communities in many provinces, namely Saraburi, Ratchaburi, Kanchanaburi, Prachinburi, Rayong, Lampang, Nakhon Si Thammarat, and Trang. Recently, the environmental crisis has emerged as an issue of great importance and urgency to the world, especially the problem of global warming and climate change, which has escalated into a climate emergency. In response to this, SCG has set the goal of reducing greenhouse gas emissions in order to move towards becoming a net zero organization by 2050 while simultaneously utilizing the concept of natural climate solutions to restore forests, which can function as greenhouse gas sinks. This initiative builds on the commitment that SCG's three core businesses have been implementing for many years.

Cement-Building Materials Business has been working continuously to restore limestone mines by reconditioning and revegetating these areas with native plants in order to create forest buffers and conserve biodiversity, as well as participating in reforestation efforts of national parks in Lampang Province, building fish habitats, and restoring mangrove forests and seagrass in the southern provinces.

Chemicals Business supports the restoration of marine biodiversity through the fish home project and collaborates with local communities in Rayong Province in reforestation efforts.

SCGP (Packaging Business) has established biodiversity conservation areas in accordance with the FSC's Sustainable Forest Management Standards as well as restored forestlands in the vicinities of its manufacturing plants as well as in national parks and communities.

In 2021, as part of its commitment to utilizing knowledge on sustainable reforestation to expand green areas to function as greenhouse gas sinks and restore the balance of the ecosystem, SCG initiated the **Growing Trees to Mitigate Global Warming Project**, which places emphasis on knowledge-based reforestation efforts in order to maximize the viability and sustainable growth of seedlings into mature trees.

The goal by 2021 was to plant a total of 150,000 trees, divided among three types of ecosystems: 81,992 in terrestrial trees, 44,000 mangroves, and 30,000 seagrass. These are expected to help absorb 14,500 tons of carbon dioxide. Nevertheless, in the effort to achieve the net zero goal in 2050, SCG's target is to plant a total of 3 million rais and mangrove of 30,000 rais.

Beyond the success of Ban Map Chan Community and Khao Yai Da, SCG has been on the field in many more communities to promote cooperation and inspiration and pass on the knowledge gleaned from its pilot projects by inviting the communities to take part in coming up with solutions and taking action as well as fostering participation from all sectors in planting trees for sustainability.

From Mangroves to Seagrass

From Habitats for Marine Life to Strength for the Community

The sea floors surrounding the beaches of Ban Mod Tanoi Community, Kantang District, Trang are abundant with swaying seagrass, underwater leaf-like plants which function as a nursery and hideout from predators for baby fishes, shrimps, crabs, and as well as hunting grounds for large marine animals such as sea turtles and dugongs. The surrounding coastal area is also covered with large mangroves that provide shade and serve as seawalls to prevent coastal erosion.

Many decades ago, this area was under concession for the harvesting of mangroves to convert into charcoal for sale abroad, resulting in the deforestation of 70% of the mangrove forest. After the concession contract ended, the community became concerned by the deterioration of the ecosystem and the reduction of marine life such as shrimps, mollusks, crabs and fishes, so they began planting mangroves. Not long after that, a tsunami occurred and devastated the coastal ecosystem. The fluctuated climate brings about the scarcity of marine animals caused by reduced food sources, spawning grounds, and hideouts impacting the livelihood of fishermen.

SCG and the Ban Mod Tanoi Community were first acquainted with each other in 2016 through the "From the Mountains to the Mighty River" Water Conservation Project, when SCG stepped in to support and promote the potential of indigenous fisheries and marine ecosystems. The "Habitats for Fish, Seagrass for Dugongs" project has been collaboratively undertaken for over 5 consecutive years in the effort to expand reforestation of both mangroves and seagrass and restore the coastal ecosystem and biodiversity. This initiative has evolved into the **"Growing Trees to Mitigate Global Warming"** Project in 2021, through planting 31,000 seagrasses.

Together the Ban Mod Tanoi Community and SCG have conducted observations of the seagrass propagation sites at the Save Andaman Network Foundation, the Floating Basket Fish Breeding Community Enterprise of Baan Pru Jood, Sikao District, Trang, and the Rajamangala University of Technology Srivijaya Trang Campus and successfully adapted the knowledge gained in combination with local wisdom on the collection of seagrass species and experimental planting in propagation centers to increase the viability of propagates to over 80% and reduce damage during transplantation until this initiative ultimately evolved into a learning center for seagrass propagation for other surrounding communities.

Both mangrove forests and seagrass meadows function as significant greenhouse gas sinks, especially seagrass, which has the capacity to sequester a large amount of carbon dioxide compared to perennial trees, as much as 133 grams carbon dioxide per square meter per year, which is 50 times higher than that of tropical terrestrial forest ecosystems.

From Ban Mod Tanoi to Ban Na Thap

From the Andaman Sea to the Gulf of Thailand

In December of 2020, SCG acted as a mediator connecting two communities from two provinces on two different coasts of the sea — the Ban Na Thap community of Nakhon Si Thammarat on the coast of the Gulf of Thailand and the Ban Mod Tanoi Community of Trang Province on the coast of the Andaman Sea-by bringing members of the Ban Na Thap Community to study and exchange knowledge on planting mangroves and seagrass in Ban Mod Tanoi, which is over 100 kilometers away, so that the former could apply the knowledge gained to restore the mangrove forest in their hometown for sustainability.

Many years ago, the coastal area of Ban Na Thap, once densely packed with mangrove forests, was left with nothing but a line of trees fencing in an area of barren land. This was caused by the encroachment of shrimp farms and deforestation of mangroves to build houses or burn into charcoal without reforestation efforts until the government attempted to reclaim the land. After that, the community established a mangrove forest conservation group aimed at reforestation and restoration of the ecosystem, but mangrove reforestation presents many challenges. Typically, only 30% of the saplings planted at any one time survive the strong winds and water erosion, and many saplings are damaged by monsoons and must be replanted in the long period of time it takes for the mangroves to develop strong roots.

The body of knowledge collected by Ban Mod Tanoi has, therefore, proven to be helpful in supporting the sustainable reforestation of mangroves. This body of knowledge includes two methods of reforestation, which are the natural method of seeding pods during propagation season and the cultivation of seeds into saplings for transplantation to replace damaged trees, as well as how to gauge the readiness of the soil for the planting of mangroves by examining Avicennia saplings, which sprout naturally on new wetlands and signal the readiness of the soil for the planting of mangroves, and, finally, choosing the right time to plant, which is the period between April and August when the Gulf of Thailand area is free of monsoons, so that the mangroves have a better chance of developing strong roots and growing into mangrove forests.

"Sometimes, we wanted to plant trees, but it was during monsoon season, so SCG advised us that if we were to plant them at that time, they would die, and everything we did would be a waste. SCG suggested that we focus on other projects meanwhile, such as waste management, and then when the time was right, we could come up with a plan to continue the reforestation effort together. Being introduced to SCG made us feel hopeful, and we would like to continue working with them forever," **Taksin Minman**, President of the Banlaem Homestay Mangrove Conservation Group (Ban Na Thap), Nakhon Si Thammarat, reflects on the changes that have taken place.

In 2021, the Ban Na Thap community planted 14,000 mangroves, and in the past two years, they have planted a total of 28,000 mangroves in collaboration with SCG.

SCG will continue to work with the community to expand the "Growing Trees to Mitigate Global Warming" Project by disseminating knowledge on propagation as well as connecting a network of various communities with a shared interest in conservation for collaboration on reforestation.

In 2021, SCG had cooperated with all sectors to plant more than 160,000 trees on over 700 rais of land.

Protecting our world one step at a time.


9.9
5.2
5.7
5.7
1.4
1.3

Reduce Inequality
by Power of Community

The problems of inequality and poverty in Thai society are intensifying as the COVID-19 epidemic continues to escalate, impacting the occupation and livelihood of many people. This is exacerbated by lack of knowledge and opportunity, coupled with the fact that farmers, a large subset of the country's population, are experiencing natural disasters such as drought and flood.

SCG considers it the company's responsibility to advance its business in conjunction with social and environmental development according to sustainable development guidelines. As such, it has sought to drive the business with ESG by developing the ESG 4 Plus Guidelines "Achieve Net Zero - Go Green - Reduce Inequality - Embrace Collaboration" plus fairness and transparency, placing emphasis on addressing problems that affect livelihoods and quality of life by helping to enhance occupational skills that can lead to income generation and, thus, sustainably alleviate the critical social problem of inequality.

A Path to Empowerment

"As farmers, we were a casualty of drought, and we could not see a way out of the problem, but after we became involved in SCG's Power of Community project, our lives have changed. We have goals, hope, and happiness, as well as the opportunity to develop our skills, from goods processing to expanding our market and linking raw materials upstream to the production process midstream as well as to downstream marketing, all the way to delivering our products directly to consumers. Learning has become sharing, as our community now serves as a role model of sufficiency economy and unity for other communities by creating a sense of local pride, reminding people to take care of themselves, offering advice to those who want to develop their own communities, and inspiring other communities through social media."

Fahseri Prapanta, a resident of Ubon Ratchathani and participant in the Power of Community project, reflects on her feelings about the program, which became the turning point in her life that freed her from poverty.

"Power of Community" is both the name of the project and its goal of empowering the community to be self-reliant, create jobs, increase income, reduce inequality, and also build a network to expand results and inspire other communities to rise up and adapt themselves for sustainable growth.

"If we rely on ourselves, others can rely on us, too. This will bring happiness to our families, the people around us, our communities, society, and the country."

Fahseri Prapanta
Fah En Du Farm - Ubon Ratchathani

Product: Caramel-covered wild almonds, the king of local grains

Background: From a farmer who accrued a large amount of debts as a result of flooding, the founder of this community enterprise learned how to process and add value wild almonds, from harvesting to shelling and roasting, from the wisdom of senior locals which has been passed on through generations. With the addition of flavors like caramel, original, and Himalayan salt, these wild almonds became a popular product and a source of enough income to pay off debts and expand to seven other communities.

Lack of Knowledge and Opportunity: The Cause of Poverty and Inequality

SCG is working towards reducing inequality and strengthening communities through the Power of Community project, which provides training to enhance knowledge alongside virtue and inspire communities to rise up and develop themselves by maximizing the value of their products with unique local identities, learning the principles of marketing and branding, expanding sales channels through e-commerce, and creating a life plan for sustainability.

"We have achieved a level of success in finding a way to survive the COVID crisis. If we can do it, everyone can too."

Surat Tiemmekha
Suan Malee Herbal Products Community Enterprise - Kanchanaburi

Product: Processed herbs, herbal drinks, ready-to-drink powdered fingerroot, roselle, and ginger, and processed agricultural products.

Background: Originally a community enterprise for processed local agricultural products such as preserved lime and mango leather, during the Covid-19 epidemic, when herbs came into demand among customers, especially green chiretta and fingerroot, this community enterprise turned to processing herbs for online sale.

At the heart of the Power of Community training is human capital development because products may fall out of demand, but with knowledge and innovation, along with the ability to create value out of existing resources and understanding of consumers and the market, the community will be able to create new products.

The training program draws from three sets of Sufficiency Economy Principle: The King's Philosophy, which espouses knowledge and virtue, moderation, rationality, and immunization; the international principle of product development for international markets; and the local principle of folk wisdom—through sharing experiences, assigning tasks for problem-solving or practical application, and learning from role models who have successfully turned crises into opportunities.

The participants of this program have not only learn new things but also learned to ask themselves what resources around them can be made useful and what can be improved to add value. This leads to self-growth and empowerment, which are the foundation of sustainable self-reliance and the confidence to persevere despite changes in circumstances.

A Role Model of Perseverance

Saichol Rakkamnerd is a rubber planter from Nakhon Si Thammarat province who also makes a living selling chili paste and local seasonal fruit on the side. Having accrued a three million baht debt from a failed rotating savings scheme, she felt hopeless to the point of having suicidal thoughts. However, she decided to persevere and find a way to improve her life, which led her to participate in the Power of Community project.

"When I attended the community enterprise training program in 2019, I gained knowledge about self-development and self-sufficient products for sustainability, and I realized that everything around me has value and can be used to increase income. The most important thing is the community network, which can help to increase sales of community products," Saichol Rakkamnerd recounts her path towards financial recovery.

The testimony to the success of the project is that 4-5 months after the training, during mangosteen season in Nakhon Si Thammarat, rather than selling the fruit locally as is typically done by the majority of farmers, Saichol expanded her sales channels to online markets through community networks until she was able to pay off her debts and release the mortgage on her land within a short period of time.

Her next goal is to build a facility for food production and processing to increase income and strengthen her family as well as help create jobs for the community.

Saichol is one example of the phenomenon wherein “when people adapt, the community advances.” This echoes the story of **Kesirin Klinfoong**, or **Mae Ning**, the owner of the brand “Perfect Bite by Mae Ning Phu Doi” from Chae Hom District, Lampang Province.

Knowledge gained from the Power of Community Project led Mae Ning to transform a common local dessert like pineapple cookies shaped like cocoon worms into “Pineapple Chicks,” pineapple cookies shaped like a chicken, which is the symbol of Lampang.

“The challenge I received during the training was to develop a product with a unique identity and set production and distribution goals.”

After establishing the identity of the product, she addressed the issue of production and distribution by selling her products on consignment at cafes and noodle stalls in Chae Hom District as well as during special occasions and festivals. However, when COVID-19 broke out, stores were closed, affecting sales. Mae Ning moved her sales channels to Line, direct message, and telephone. She also added new products, such as the “Bald Head Bean Pastry,” which enabled her revenue to recover.

“Once we have a clear goal, we need to execute right away. No matter how formidable the obstacles are, we will find a way to overcome them.”

“Herbal sour fish by Wang Tham, a one-stop fish production and processing enterprise, deliciousness guaranteed.”

Yossawat Patipanomruk
Wang Tham Sour Fish Community Enterprise - Udon Thani

Product: Wang Tham sour fish, a traditional recipe made with three types of salt for a good aroma with no fishy odor and soft bones. The best sour fish in Udon Thani, a favorite of 11 sub-districts in Nam Som and Na Yung districts.

Background: From a former government worker defrauded out of millions of baht, the founder of this community enterprise returned home to convert land in Nam Som District into a fish farm and later integrated the entire supply chain to produce sour fish from a variety of fish, such as carp, tilapia, and mackerel. This community enterprise stands out for connecting communities from upstream to downstream, from farm to product.

The majority of communities are often stuck with the idea of needing outside support. They lack the confidence that they can solve problems by themselves. However, based on the belief that “humans are capable of self-development,” the goal of the Power of Community project is to shift the mindset of the community towards self-reliance, instilling the confidence that even in the face of adversity, one can rise to the occasion.

The Power of Community project has conducted training for over 400 members across 13 provinces nationwide, namely Lampang, Kanchanaburi, Saraburi, Nakhon Si Thammarat, Chiang Rai, Phrae, Ubon Ratchathani, Udon Thani, Buriram, Uttaradit, Phitsanulok, Lamphun, and Tak. The goal is to create stable communities with incomes of tens to hundreds of thousands per month, and as poverty and inequality still persist in many areas, SCG will continue to expand this initiative.

SCG's Innovations
in the Time of Crisis Against COVID-19

As soon as news of a mysterious respiratory disease in the city of Wuhan in the People's Republic of China started to surface in media across the world in late 2019, meetings were quickly convened at SCG Headquarters in Bang Sue in preparation despite the fact that no case was detected yet in Thailand.

When the disease was found outside China, SCG issued a warning against all work travels to China and high-risk destinations, and later when outbreaks in Thailand began to intensify, SCG introduced internal preventive measures for employees in all areas to ensure business continuity despite lockdowns and border restrictions. As a result, SCG was able to navigate through every wave of the pandemic in 2020 all the way to the second year of the pandemic in 2021.

However, even in the face of obstacles and limitations, the product development teams of all SCG's core businesses did not choose to sit idly by but came together promptly to develop various innovations to support medical professionals who were in the race against the increasingly severe outbreaks. Thanks to its innovation expertise and readiness accumulated through the years, SCG was able to quickly produce and deliver assistance to healthcare professionals who were risking their lives battling the coronavirus tirelessly at the frontline in moments of crisis.

Innovations at the Screening Points

Modular Screening & Swap Unit

Monitoring the outbreaks closely, SCG recognized the difficulty of screening patients and the hazards that the medical professionals were exposed to. To address this urgent problem, the product development department of Cement-Building Materials Business began approaching doctors in various hospitals to identify their needs. Leveraging their expertise in engineering and existing experience in construction, especially from when they had previously worked with doctors to develop a ventilation system for a dust-free house and an ionizer that could kill airborne bacteria and viruses, the team was able to quickly invent a modular screening unit and a modular swab unit.

These units allowed a RT-PCR swab test to be administered through the wall, with the medical

professional inside the positive pressure chamber, which prevented an inflow of air from outside could may carry pathogens, thus ensuring safety and minimizing direct contact with the patient, which in turn reduced the need for PPE suits that were becoming scarce at the time.

Thanks to SCG's existing innovation, it took only seven days for these inventions to be manufactured and only a few days to be installed in hospitals, thus helping them to respond to the crisis in a timely fashion.

In the initial phase, the inventions were installed in four hospitals, and subsequently, with financial support from the Chaipattana Foundation and grants from His Majesty King Maha Vajiralongkorn Phra Vajiraklaochaoyuhua, SCG was able to expand the production capacity and distribute more units to hospitals upcountry.

A total of 30 modular swab units were donated to hospitals in different regions, with the Cement-Building Materials Business team coordinating with each area.

Each modular unit was produced as a "box" in a manufacturing facility in Nong Khae District in Saraburi, which was then transported to the installation site and then laid with durable easy-to-clean vinyl flooring and outfitted with an air conditioning system and a communication system that enabled the medical professionals inside and the patient to talk through the wall.

In 2020-2021, a total of 34 modular screening units and swab units were produced and distributed nationwide.

Innovations at the Frontline

Mobile Isolation Unit

Chemicals Business also stepped in to help doctors conduct screening tests safely.

In the past, Chemicals Business' solution development team had worked with doctors in various hospitals to invent new medical products.

Chemicals Business team set out by visiting doctors in hospitals and collecting data on their requirements and the problems they were facing in order to invent new tools that would help them handle this new mysterious disease safely while they were working on the frontline and racing against time. Their effort resulted in the development of mobile isolation units which used different air pressure to separate the patient and doctor zones.

The key invention was the negative/positive pressure isolation chamber, which answered the growing needs for screening points and testing sites outside hospitals.

The lightweight isolation chamber unit can be folded in half and is equipped with wheels for easy transportation. Each unit contains three testing chambers outfitted with a filtration system and can be pressurized either positively (when doctors operate inside the unit and have to administer tests to a large number of patients) or negatively (ideal when the patient is inside as the air flows into the room and prevents the germs from flowing out). The isolation chamber is also equipped with HEPA filters, which can screen out PM 2.5 and viruses.

The harder challenge was the transfer of patients under investigation (PUIs), which could also expose healthcare workers to risks.

To address this challenge, a patient isolation capsule was invented. The capsule features a bed

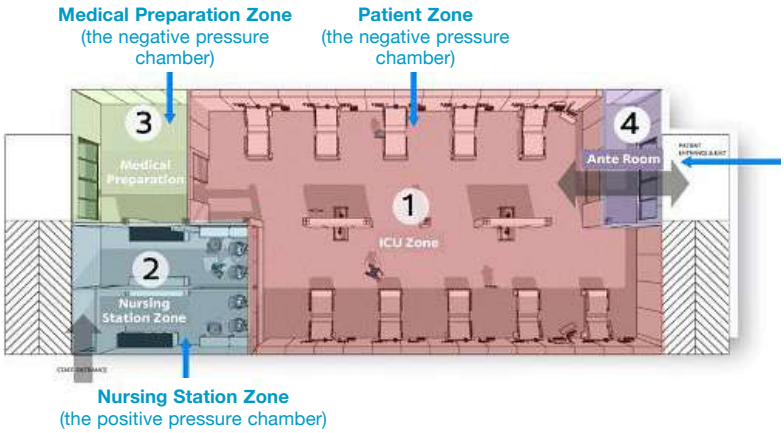
sealed off with an aluminum alloy frame fitted with clear PVC panels. The negative pressure causes the air to flow into the capsule, which is then pumped out through filters. After the first trial run, adjustments were promptly made once it was found that additional openings and slots were needed for medical equipment, an IV stand, and a respirator. The isolation capsule can operate for five consecutive hours, and SCG Foundation was responsible for distributing these capsule units to areas where they were needed.

Also invented was the small patient isolation capsule for CT scan to service the patient who need to undergo Pulmonary Function Testing. It was designed to be made completely out of polymers, so that it could be used with a CT scanner and allowed quality CT images to be produced. The capsule is compatible with all CT scanners on the market, applicable for transport of patients on aircraft, and passed the standards of the aviation industry. The transportation of patients on the isolation capsule has been undergone through the cooperation with health insurance companies.

Once the patient was safely transferred to the hospital, the next problem was that the patient could not be placed in the same ward with others. As such, it was necessary to invent a negative mobile pressure isolation room, which was usually available in limited numbers in hospitals and was mostly used for performing operations. Taking advantage of its strength in polymers, Chemicals Business manufactured lightweight negative pressure isolation room that could be assembled on site. The key features were the lightweight design that allowed for fast installation and the negative pressure and filtration system that met medical standards.

Much like a tent, the isolation room features a metal frame that is covered with tarpaulin and clear PVC sheets and can be assembled or taken apart in 30 minutes. Each isolation room consists of a treatment area and an anteroom. The design also enables medical equipment to be stored inside and allows doctors to perform medical procedures through glove ports.

Currently, these different types of mobile isolation units can be found in 280 hospitals across the country.



Medical Preparation Zone
(the negative pressure chamber)

Patient Zone
(the negative pressure chamber)

PPE Changing and Infectious Waste Litter Room That Connects the Corridor to the Bathroom.
(the negative pressure chamber)

Nursing Station Zone
(the positive pressure chamber)

Innovations at the Frontline

SCGP Paper Beds and Modular ICU

In April 2021, a new and more severe wave of COVID-19 broke out. In response, the government began looking for venues where field hospitals could be set up to keep up with the exponential increase in the number of patients and the exploding demand for beds in various areas. SCGP (Packaging Business), which had been closely monitoring the situation and recognized the issue of bed shortages, thus quickly leveraged its expertise to develop and manufacture SCGP paper beds, which were then promptly distributed to field hospitals nationwide.

The SCGP paper bed is a CSR innovation invented by SCGP's designers, who had prior experience designing paper products to accommodate diverse functional needs and provide relief in past crises, such as the SCGP paper toilet deployed during a flood crisis.

A number of considerations were involved in the designing of the SCGP paper bed, such as how to mass-produce the beds quickly, its weight bearing capacity, the space-saving design for transportation, easy assembly, and incineration at the end of their useful life as it was used by a patient and could be infectious.

The team's creativity and years of experience resulted in the SCGP paper bed, which can be taken part and packed in a box for easy transportation. The bed also takes very little time to assemble and can be put together by folding and inserting the pieces into one another without any need for screws or glue. It can bear 100 kilograms when placed horizontally and has a lifespan of about three months.

Up to late 2021, SCGP donated more than 100,000 beds to field hospitals nationwide.

Due to the severity of the outbreaks in 2021, there was a critical shortage of intensive care units, which were at the frontline and available in limited numbers, as the number of red (critical) patients began to soar. Cement-Building Materials Business team realized that this was a much more challenging, pressing, and complex problem compared to isolation rooms as patients had to remain in ICUs for extended periods of time while the space had to be designed in such a way that allowed medical professionals to access the patients and support equipment to be stationed.

Therefore, the development team had to take a risk and re-enter hospitals to collect data and study how doctors worked in the ICU. Based on the data collected, the team took a mere seven days to develop the modular ICU, a 300 sq.m. unit that could accommodate 10 patient beds and could be pressurized negatively. To treat patients inside the modular ICU, doctors in PPE suits first enter the positive pressure zone and then walk through a walkway where the pressure slowly becomes more negative until they reach the patient zone. The entrance and the exit were designed to be separated and equipped with a disinfection area to prevent the germs from attaching to the PPE suit and getting carried out into the positive pressure zone.

Using the modular home construction technique employed for SCG HEIM, the modular ICU was designed in such a way that technicians could perform maintenance without entering the patient zone. In addition, as everyone was in a race against time in such moments of crisis, the modular ICU was designed so that it took only seven days to manufacture and only 10 days to install in hospitals.

For this innovation, Cement-Building Materials Business did not apply for patents and also gave hospitals the blueprint and a list of required equipment so that they could construct it themselves.

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As a result of its efforts against COVID-19, SCG has not only earned trust among doctors and hospitals but also earned itself, as a Thai company, an opportunity to showcase its skills and make use of the innovation, experience, and expertise that it has accumulated over the years to promptly develop and deliver innovations, rivaling widely-accepted imported medical technologies.

Thanks to the collaboration it had continuously fostered with suppliers, customers, and various agencies, SCG was able to unite all parties in tackling and successfully overcoming the outbreaks. Moreover, SCG Foundation provided supports and donated COVID-19 innovations across Thailand over 90 million baht's worth in 2021.

This is not to mention the new know-how SCG has gained through innovation development, which may even lead to commercial products in the future.

However, the most important thing is that SCG was able to aid the general public and society at large through one of the worst and most widespread crises in the history of Thailand and the world.

And all of these are SCG's innovations in the year of a pandemic.

Innovation
for Health and Safety

From the onset of COVID-19 pandemic and two years since, people have become more conscious and cautious about health, hygiene, and safety for activities inside and outside home, as well as activities of frontline health workers.

SCG delivers technology and innovation for new normal living, recognizing specific requirements of user segments, and collaborating with experts in products that meet international standards for better living.

Protecting White-Coat Warriors

CUre AIR SURE Mask + Soluble Laundry Bag

Health personnel are most at risk of infection.

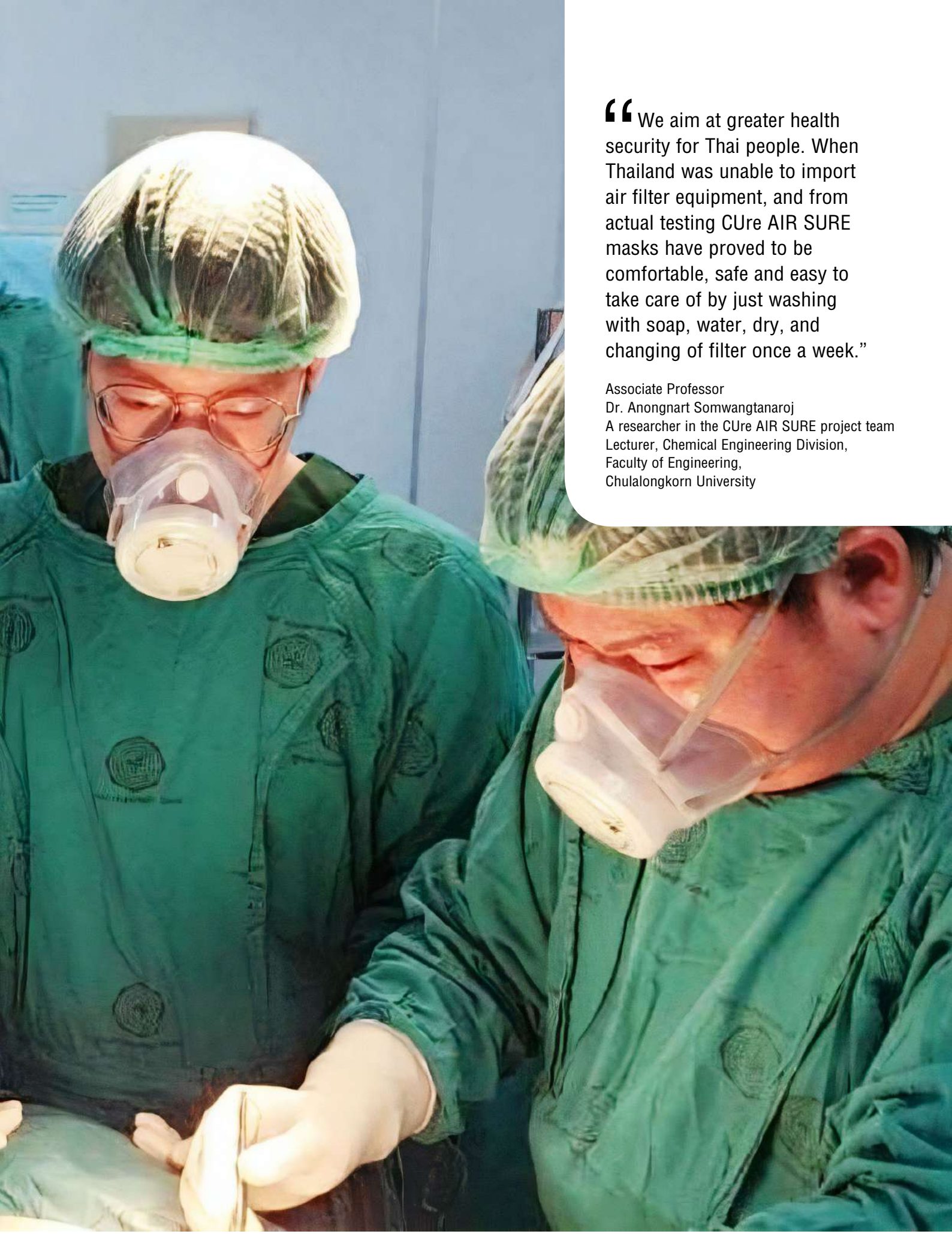
In addition to protective equipment such as PPE wear, medicine and medical equipment, “optimal face mask” forms an essential part in protecting front health workers caring for at-risk groups and covid-19 patients.

SCGP (Packaging Business) uses high-performance material such as polymer for the purpose, collaborating with the research team of Chemical Engineering Division, Faculty of Engineering, and the Metallurgy and Materials Science Research Institute Chulalongkorn University and others to develop a half-face respirator “CUre AIR SURE”. The product can filter out 99.9% percent of small particles and bacteria. It is certified Tier 1 of Medical Face Mask ASTM F2100.

The design considers real-life setting for users to feel comfortable with half-face coverage with silicone lining for flexibility and comfort while preventing leakage. The cover design is deliberately broader to allow for more breathing space and reducing damp, with adjustable strap, and weighed 15 percent lighter than ordinary mask. To reduce burden of hazardous waste disposal, clear plastic is the material choice because it is durable, washable and reusable, and the filter replaceable.

CUre AIR SURE’s design quality is guaranteed by the Design Excellence Award 2021, industrial and digital goods category. It is commended for design of respirator face mask suitable to Asians versus majority in the market mostly catered to European and American features.

Beyond visible PPEs, SCGP looked into other aspects of how professional healthcare workers perform their jobs and identified in the laundry service for covid-19 patients as at risk of infection. As a result, SCGP adapts its soluble packaging film to develop “soluble laundry bag” for soiled clothes of covid-19 patients, so that these clothes did not require being packed, unpacked and offloaded onto washing machine. The bag is designed to feed clothes directly into washing machine and it would dissolve gradually at water temperature over 65C till leaving no trace within 3-15 minutes. Soiled clothes would then be washed automatically according to process. Besides protecting people



“We aim at greater health security for Thai people. When Thailand was unable to import air filter equipment, and from actual testing CUre AIR SURE masks have proved to be comfortable, safe and easy to take care of by just washing with soap, water, dry, and changing of filter once a week.”

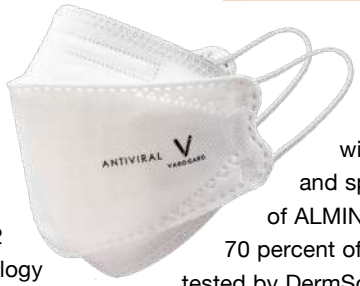
Associate Professor
Dr. Anongnart Somwangtanaroj
A researcher in the CUre AIR SURE project team
Lecturer, Chemical Engineering Division,
Faculty of Engineering,
Chulalongkorn University

working in laundry, these bags are environmentally friendly. Going forward this can be introduced to various industrial uses in care of the environment.

In 2021 SCGP delivered over 10,000 pieces of CUre AIR SURE mask to frontline health workers and public health agencies.

Your Best Bodyguard

VAROGARD Face Mask and Alcohol Hand Gel and Spray



With social distancing as a rule in daily life, face mask has become an indispensable companion alongside alcohol sanitizer.

SCG researched into how best one can protect oneself in this context.

Further to discovery of SARS-CoV-2 anti-viral agent that is proprietary technology of HeiQ Viroblock from Switzerland, that the substance has the property to block the pathogen effectively, Chemicals Business applies this to coat melt-blown fabric previously used to ward off dust, resulting in **VAROGARD**.

Unlike plain flat face mask, VAROGARD has three-dimensional shape that can effectively seal the face for optimum protection. It comes with four layers: two outer and two inner layers made from spun-bond cloth from synthetic polymer yarn that yields soft touch for breathability, waterproof and neat fitting.

The central critical feature is the middle layer coated with anti-SARS-CoV-2 viral agents on the melt-blown fabric. This is deemed “researcher’s specific technique” that is difficult and complex yet commercialization is possible through collaboration between Chemicals Business and partners. Testing by Faculty of Medicine, Mahidol University showed results of the ability to block viral agents by up to 99.99 percent. The product also passed quality testing for bacteria filter effect (BFE) of 99 percent by Rajamangala University of Technology Lanna; and the ability to filter 0.1-micron particulate (PFE); Particle Filtration Efficiency) by up to 97 percent. It has received standards certification of EU REACH and US FIFRA.

On the hand sanitizer front, consumers have abundant choices available in the market.

SCGP thus targets the sensitive, allergy-prone skin segment, with its development of “alcohol gel and spray sanitizer” under the flagship of ALMIND by SCGP. The product contains 70 percent of food-grade alcohol, dermatologically tested by DermScan Asia for baby-safe reassurance.

ALMIND by SCGP contains a nature-based ingredient called AQUACELLATM developed through nanotechnology-facilitated extraction of key property from eucalyptus tree cellulose. Other natural ingredients in the mix include aloe vera gel and glycerin for moisture and quick dry.

ALMIND by SCGP therefore cleans and nourishes the skin and particularly suitable for babies and older people with sensitive skins. Its environment-friendly packaging is made from Flairosol, PETE plastic that is recyclable, with effective spraying nozzle and content refillable.

Protecting Residents and Indoor Entrepreneurs

SCG Bi-Ionization Air Purifier for pure air and COTTO Hygienic Tile

Work From Home broadens the meaning of home beyond a house.

At the same time locations such as hospital, office, factory, eatery need to open and operate.

With virus, bacteria, dust, and particles circulating in the air, people need space that meets safety and hygiene standards, and searching for technology to make house and building safe, especially in at-risk areas or where covid-19 patients are treated.

SCG Smart Building Solution under Cement-Building Materials Business specializing in building energy management, has developed "SCG Bi-Ionization Air Purifier," a small device that can be installed inside air-conditioning unit. The device generates cation and anion to eliminate the virus that causes covid-19, bacteria, fungus, PM10-2.5 and VOCs, by up to 90-99 percent and thus purifying air within the utility space. In 2021, the system has been installed in multiple hospitals, office buildings and factories.

Flooring and wall surfaces with which residents come into regular contact could be another spot for germs buildup. Cement-Building Materials Business developed COTTO Hygienic Tile with Silver Nano infused onto the tile motifs to release cation to eliminate airborne fungus and bacteria by over 90 per cent more than ordinary tiles throughout its lifecycle. This is more worthwhile than application of sanitizing substance in cleaning liquid that releases fast and fades fast.

In addition to surfaces to ensure full coverage, COTTO offers Ultra Clean Plus sanitaryware line in which sink and other sanitaryware pieces are Silver-Nano infused with 99 per cent anti-bacteria effectiveness. These products have been tested and certified according to JIS Z-2801.

Existing or new building, health-focused innovations ensure occupants' access to good hygiene.

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SCG is committed to developing innovation with care for health and safety for all.

From inside the house to outside, from children to adult, to health workers most at risk.

The pandemic and health-conscious trend continue to drive SCG towards business development for better living.

> "Sodexo's business has no product, but ours is about being responsible to our business clients' safety. We have a workforce of over 500 employees. We must take care of them for them to take care of factories inside Amata Nakhon Industrial Estate, for the factory owners to carry out smooth production and business. We recognize the importance of ensuring good health to our workers. Being in good health is just as important as their skills and competency."
>
> Arnaud Bialecki,
> SODEXO's Country President Thailand
> and user of SCG Bi-Ionization Air Purifier)


ESG

OUR ACTION

Business Ethics

Product Stewardship

Customer Experience Creation

Sustainable Value Towards Supplier

Water Management

Waste Management

Air Quality Management

Biodiversity and Ecosystem

Human Rights

Employee Caring and Development

Community and Social Involvement

Business Ethics

Elevating Governance with **Integrated GRC**

SDGs 16

Target and Performance

The Coverage of the Ethics e-Testing passed by employees

100%

2021

100% for the seventh consecutive year

Strategy

1. Regularly foster knowledge and competency on corporate governance among the Board of Directors and top executives to enable them to serve as role models for SCG employees.
2. Revise SCG's corporate governance principles and SCG Code of Conduct to align with current regulations, international standards, and stakeholder expectations.
3. Assess and audit SCG's Anti-corruption efforts, using a preventive system consisting of ethics tests, risk management and internal control in accordance with the Three Lines Model, and a whistleblowing system that is accessible to stakeholders.
4. Communicate and organize the Code of Conduct training for corporate governance divisions, employees, contractors, and suppliers on a regular basis to foster a culture of transparency.

Management

1. SCG has established and reviewed policies and guidelines for executives, employees, and suppliers to promote compliance with corporate governance principles in national and international levels, taking into consideration suitability and fairness to all stakeholders.
2. SCG has implemented the Compliance Management System (CMS), thus ensuring efficient and effective compliance.
3. SCG regularly updates examples in SCG Code of Conduct and provides GRC Helpline, a channel for any inquiries regarding corporate governance practices.

SCG has committed to Integrity, ethical business conduct and social responsibility as well as corporate governance to ensure responsibility, transparency, and accountability, with SCG Code of Conduct and SCG's 4 Core Values. In addition, SCG has put in place a whistleblowing process in accordance with international practices and introduced corporate governance tools and best practices that meet international standards to create value for stakeholders sustainably.

Promoting Good Governance with Integrated GRC

Segregation of management is one of the causes of inefficient corporate governance and operational redundancy. As such, SCG has applied Integrated GRC (Governance, Risk, and Compliance) to management in order to enhance the efficiency and

GOVERNANCE RISK COMPLIANCE

effectiveness of its governance, risk management, compliance, and internal control. To this end, SCG fosters an understanding of Integrated GRC among its employees and their ability to follow the practice correctly through various tools, such as:

- The Managing Director GRC Guidebook provides guidance for both local and international managerial personnel regarding laws and regulations, internal control, accounting, financial management, and continuity management.
- The SCG GRC e-Rulebook gives advice on key basic concepts, processes, and decision making related to the GRC principle for employees at all levels. The content is regularly communicated via internal e-mail in the forms of e-Books, videos, and infographics.
- GRC Helpline is a consultation system where users can consult SCG Code of Conduct experts on correct conduct. A video explaining how to use GRC Helpline has been created to help employees understand the service, which is readily accessible from everywhere.

Revising and Expanding Guidelines to Cover a Broader Range of Risks and Stakeholders

SCG has conducted risk assessment on a yearly basis at a minimum to ensure the consistency of business activities with the good corporate governance principles at both national and international levels. Additionally, the revised guideline has been also delivered covering a varied group of stakeholders and being clearer in the practice. Key improvements made in 2021, which were communicated to SCG employees, are as follows:

- SCG Code of Conduct was revised to be in line with governance practices and standards, so that subsidiaries and joint ventures could readily and appropriately apply it.
- SCG Anti-corruption Policy was reviewed following the current risks and situation.
- The Whistleblowing System was communicated to employees and external parties. It has also been improved its functionality to provide 24/7 support both Thai and English languages apart from the traditional complaint form such as verbal, email, or letter.

SCG Anti-corruption Policy
https://www.scg.com/pdf/en/Anti-Corruption-Policy-E.pdf

Whistleblowing Channel
https://whistleblowing.scg.com

Extending Anti-corruption Practices to Suppliers

SCG has been certified by the Collective Action Coalition Against Corruption (CAC) since 2013. In 2021, SCG expanded the scope of its anti-corruption efforts by encouraging the key suppliers to join the CAC SME Certification Program.

Business Ethics Training and Evaluation Through Ethics e-Testing

In 2021, SCG administered the Ethics e-Testing for the seventh consecutive year. The test comprised questions on ethics, SCG's 4 Core Values, SCG Code of Conduct, and SCG Anti-corruption Policy. Employees at all levels would be assessed to ensure that they understood how to implement the policy. And then, in the same year, the questions on SCG Anti-corruption Policy were revised to be consistent with the notifications of the National Anti-Corruption Commission (NACC).

Additionally, all employees completed the Ethics e-Testing, with a 100% pass rate. The answers were analyzed, and the key issues were identified and communicated to employees to foster a correct understanding.

Product Stewardship

SCG Green Choice
Healthy and Eco-Friendly

SDGs 3 9 11 12 13

Target and Performance

2030
SCG Green Choice products, services and solutions account for
66.7%
of total revenue from sales

2021
40.7%

2030
SCG Green Choice products, services, and solutions which directly benefit to consumer accounts for
33.3%
of total revenue from sales

2021
5.9%

Products, services, and solutions certified for SCG Green Choice

2021
162 products

Consumers are paying more attention than ever to eco-friendly products and sustainability, therefore looking for alternatives that are healthy while contributing to climate solutions and scaling back on toxic waste.

All SCG Business Units have been pursuing development and design of products that are safe, environment-friendly, using less resource and with value adding properties. SCG Green Choice provides a distinct competitive edge in the business arena.

Strategy

1. Develop products, services, and solutions that meet consumer's needs, enhancing well-being. taking into account the impact of environment (Climate Resilience and Circularity).
2. Develop business processes throughout the value chain according to the international standards.
3. Innovation-oriented approach in the development of products, services and solutions to generate new business opportunities.
4. Consider the impact of products, services and solutions on environment and product safety throughout its life cycle.
5. Increase the share of eco-friendly products with direct benefit to consumer.
6. Advocate for the consumer to make eco-friendly choice of products, services, and solutions.

Management

- Use innovation and digital technology to ramp up efficiency of product development and drive cost-cutting.
- Use circular economy principles to guide optimum resource utilization, energy and water efficiency and reduce waste generation.
- Review capital expenditures in products and services development to expedite transformation.
- Use Eco-Design concept from design, production, packaging, safe use, and the least waste from disposal or reuse.

Certified Other Eco-Friendly Products, Services and Solutions

Carbon Footprint Reduction Label
179 products

Carbon Footprint Label
363 products

Green Label
47 products

Carbon Reduction Label
57 products

High-Efficiency Label
121 products

Safe, Strong and Extending Freshness in Packaging

With continuous growth of food industries, demands arise accordingly for packaging that is safe and strong, answering consumers' need. SCG collaborates with food sector partners in packaging products using innovation according to circularity, to protect food quality and freshness.

- SCGP (Packaging Business) developed Retort Pouch packaging to preserve food quality both flavor and color aspects at room temperature for up to one year without cooling. The retort pouch shields contents against external chemicals. It can replace typical plastic packaging that can keep food at room temperature for just one week. Retort pouch is thus suitable for longer-life supply such as jasmine rice. Alternatively retort pouch reduces transport cost because it is lighter in weight than aluminum packaging. With its health and safety, and longer lifespan features, SCGP retort pouch is certified SCG Green Choice, Direct benefit to consumer in "Health or Hygiene" and "Extended life product" Category.
- Chemicals Business and BETAGRO Group, an integrated agroindustry and food operator, jointly developed Food Grade packaging using SCG GREEN POLYMER™ that is made from SMX technology, HDPE S111F industry grade plastic pellet. The outcome has been certified food grade packaging that is strong and able to withstand food with sharp edges.

As a result, film thickness can be reduced at 20% while maintaining film strength compared with typical packaging, and while reducing plastic pellet usage and cost by up to 10%, as well as reducing GHG emissions by at least 19% per bag. This product is certified SCG Green Choice, Direct benefit to consumer in "Circular Economy" Category.

Supporting Low VOCs Building

Materials inside building, such as particle board, contain Volatile Organic Compounds (VOCs) which affect health in short and long terms. Cement-Building Materials Business therefore has developed SCG Smart Board for ceiling and interior work, that can reduce VOCs emissions at less than 0.02 milligram per cubic meter of air. Certified internationally, SCG Smart Board is categorized in Low Emitting VOCs Material according to the standard of LEED US Green Building Council. As such it supports LEED standards of Green Building. Buildings using SCG Smart Board that are LEED certified include a SCG Office buildings and several others. SCG Smart Board is certified SCG Green Choice, Direct benefit to consumer in "Health or Hygiene" Category.

Comprehensive Product Hazard Analysis

SCG integrates product and service safety as part of the Product Hazard Analysis (PHA) chain starting from production, transport, storage, use and disposal. This is intended for build-in of preventive thinking from design, production, safety labelling according to international standard and effective response to product complaint. As a result of the effort, in 2021 SCG did not receive any complaint with substantive issues in violation of health and safety.

Customer Experience Creation

From B2B to B2C:
Delivering Quality Products to Customers

SDGs 3 8 9

Target and Performance

Overall customer satisfaction based on surveys via SCG Contact Center

100%

2021

100%

SCG actively develops its businesses in a comprehensive way and foster engagement with B2C customers via online platforms, including both websites and applications, which conveniently connect them to services. SCG also collaborates with B2B partners to generate new solutions that address customer needs and facilitate a transition to an eco-friendly business.

Strategy

1. Deliver a good experience by the innovation to customers and consumers. (B2B2C).
2. Offer an alternative "Best-Better-Good" consistent with the living consumers (B2C).

Management

- Analyze and monitor customer experiences, ranging from customer's problems, needs, buying behaviors, and use of products, services, and solutions; including doing satisfaction surveys on products, services, and solutions.
- Adopt digital technology to support services provided to business partners, suppliers and all customer groups.
- Connect customer experience with online channels and service centers to ensure maximum service convenience and customer satisfaction.
- Offer innovative products, services and solutions that deliver sustainable benefits to customers.

Developing High-quality Post-consumer Recycled Resin Packaging with Customers Who Are Working towards Environmental Goals

Chemicals Business has collaborated with customers across various businesses to develop innovative packaging using high quality post-consumer recycled resin (PCR) in accordance with the principles of circular economy under the brand SCG GREEN POLYMER™, covering plastic formulation and mold trial all the way to packaging tests, in order to reduce resource consumption and achieve recyclability while maintaining the strength, durability, user-friendliness, and eco-friendliness of the packaging.

- Chemicals Business has worked with Unilever Group Thailand, the country's largest manufacturer and distributor of commodity goods, to produce containers for Sunlight dish liquid with high-quality post-consumer recycled HDPE, marking the first time ever in Thailand that used plastic containers from households can be returned for rebottling. Unilever has plans to expand this initiative to other products to reduce the use of virgin materials and achieve its target of cutting virgin material consumption by half globally.
- Chemicals Business has collaborated with Shell Thailand Co., Ltd. to manufacture green lubricant containers composed 25% of high-quality post-consumer recycled resin, which in 2021 helped reduce 320 tons of waste. Shell has also aimed to expand this initiative to the containers of all its products and increase the proportion of recycled content to 30% by 2030.

Developing Packaging to Meet B2B2C Needs

SCGP (Packaging Business) has joined forces with its business customers to develop packaging that caters to a diverse range of consumer needs.

- SCGP has collaborated with Nestlé Purina Petcare Co., Ltd., a pet product company, to develop sheet plastics for the manufacturing of pet food cups with reduced thickness from 1.2 mm. to 1 mm., which cuts down plastic consumption by 28 tons per year while maintaining the lifespan of the pet food, thus enhancing competitiveness in the market.
- SCGP has worked with KUFF to use paper innovation as material for lifestyle products, such as skateboard shelves and accessories, tables, plant pots, cat houses, and pet-shaped paper models. Thanks to KUFF's design expertise, these products are not only lightweight, strong, and easy to transport and assemble but are also aesthetically pleasing and equipped with functionality.

Online Platforms for Consumers and Suppliers

- **SCGHOME.com**: The online platform of SCG HOME is seamlessly connected to the physical SCG HOME stores nationwide to deliver a comprehensive range of product, service and solution to customers and meet all home-related needs, from construction, renovation, extension, repairs and home maintenance services.
- **Q-CHANG**: This home maintenance services platform brings together trained contractors and technicians and offers quality-guaranteed services for the assurance of home owners. Services encompass cleaning, repairs, installation, and extension and include A/C unit cleaning, home cleaning, and garage roof/awning installation.
- **DESIGN CONNEXT**: To turn their dream homes into a reality, this platform connects home owners to architects and designers and offers unique house designs for those planning to build a new home.
- **PROMPT PLUS**: This B2B e-commerce platform helps building construction stores to enhance their efficiency and keep their costs competitive as well as enhances their capabilities with expanded wholesale channels.
- **Rak Mao**: As Thailand's first e-procurement platform, Rak Mao caters to medium- and small-sized contractor businesses and enables contractor and developers to procure building materials and services at the best offer while also increasing sales opportunities for construction material stores.

Centers for Product, Service, and Solution Development

All business units of SCG have opened consultation centers for product, service, and solution development, which cater to both businesses and consumers and work closely with them to understand their issues and generate creative solutions.

- **CPAC Solution Center**: With 23 branches nationwide, CPAC Solution Centers offer a comprehensive range of solutions for structural works and construction technologies, with consultation and quality services provided by engineering experts and a network of contractor teams.
- **I2P Center**: As a one-stop "ideas to products" innovation center of the Chemicals Business, I2P Center provides a full range of services related to plastic resin innovation, from material selection, processes, designing, all the way to quality testing, to enable businesses to develop new products and cater to the market promptly.
- **SCGP Inspired Solutions Studio**: Operated by SCGP, this studio is a hub of packaging innovations and solutions that seeks to spark new packaging ideas for customers to best address consumer needs.

Sustainable Value Towards Supplier

Caring for Our Supplier and Co-Responsible for the World and Sustainability

SDGs 8 12 17

Target and Performance

100% of supplier in procurement spend pass the annual Environment, Social and Governance (ESG) assessment

2021
100%

Strategy

1. Supplier selection and assessment for those with potentials to do business sustainably.
2. Risk assessment and supplier segmentation to formulate strategy and supplier development plan aligned with risks.
3. Develop and enhance supplier's capacity towards ESG-focused sustainability.
4. Raising awareness, knowledge and competency among procurement staff.

Management

- Annually and continually, conduct risk assessment and certification of every single supplier, on the basis of enterprise risk management framework and act according to "SCG Sustainable Procurement Framework" that addresses ESG aspects alongside spend analysis.
- Segmentation of supplier into four groups: tier 1 supplier, critical supplier, high potential sustainability (ESG) risk supplier and critical non-tier 1 supplier.
- Formulate plans to enhance supplier's capacity in sustainable business effectively addressing ESG issues, continually and effectively, such as Contractor Safety Management and SCG Transportation Safety: Sustainability Program.
- Establish a committee to advance knowledge and competency of staff in the professions of procurement, supply and logistics, as well as organize sharing of knowledge and practice with public and private sector procurement bodies.

SCG prioritizes supplier selection. The selection looks beyond professionalism in product and service delivery. SCG supplier must do business ethically and responsibly. To ensure smooth and sustainable business, SCG implements supplier development plan to enable them ready and resilient to cope with changing circumstances and emergency such as the pandemic or natural disaster.

Floods Response

The floods in Nakorn Ratchasima province during Q4 of 2021 posed serious threat to the transportation route the supplier relies on to truck sand from pits to deliver to client. Cement-Building Materials Business worked out a contingency plan with the supplier. Under the joint plan, a storage area to hold stockpile was arranged near the sandpit. The stockpile storage would hold the amount approximate to orders. Efforts were made to identify contingency supply source. In another crucial aspect, the team closely monitored water level in

the surrounding four major dams (Lammoonbon, Lamsae, Lampraploeng and Lamtakhong).

As a result of the response plan, the supplier did not miss the opportunity to sell goods worth 4.85 million baht. This boosts credibility on its client's parts and further business opportunities to sell to new client at additional sales revenue of 2 million baht per year. It also helped to save transport cost by 460,000 baht should it need to truck sand from supply source further away.

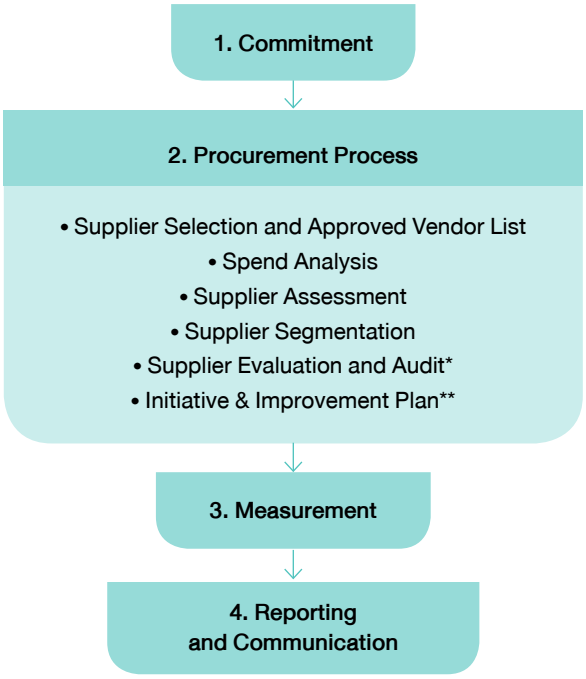
Supporting Supplier to Switch to B10 Diesel Oil

Responding to the government's policy to mandate B10 diesel as new standard with higher mix of biodiesel in the range of up to 10% to combat air pollution problem, SCG incentivized supplier to switch fuel for its trucking fleet to B10. This undertaking started since 2020, with B10 tariffs applied in the transport tariff structure costing and therefore suppliers can reduce their fuel costs. In 2020-2021, a total of 44 contracts applying B10 fuel tariff came into force at the procurement value of 1.4 billion baht.

Waste Reduction Effort Yields Substitute Material for Natural Gypsum

PURAC (Thailand) Ltd. manufactures lactic acid that is used as precursor in industrial processes. Making lactic acid generates high-acidity waste which requires de-acidification prior to disposal by landfilling. This makes waste management cost prohibitive. Cement-Building Materials Business has been working with the supplier to study waste recovery possibility as material to substitute natural gypsum in cement production processes. The study led to a pilot in Q3 of 2021. The undertaking enabled supplier to cut management cost of 100% -acid waste, yielding substitute material for 12,400 tons of natural gypsum. Volume ramp-up is planned for the following year to achieve up to 108,000 tons by entering into long-term contract with supplier.

SCG Sustainable Procurement Framework



* Evaluate vendors in terms of quality, cost and delivery (QCD Supplier Evaluation) as well as relevant environmental, social and governance (ESG) performance.

** Improvement Plan & Corrective Action and Follow up.

From Green Products to Green Services

To enhance procurement standard and managing environmental risks in work processes, Chemicals Business expands the scope of green procurement from products such as raw materials, parts, to green services. In 2021 it introduced guidelines to evaluate and audit supplier to this effect including environment management standard, life cycle impact consideration – make, use and dispose, and conducted supplier selection for those with the potential to join. The outcome to date is certification of one green service provider which scaffolding installs plank camp instead of wires, resulting in reduction of scrap metal waste by 0.8 ton per year. More green services in the pipeline include: building cleaning service, chemical tank cleaning service.

Collaboration and Technology Development For Water Management

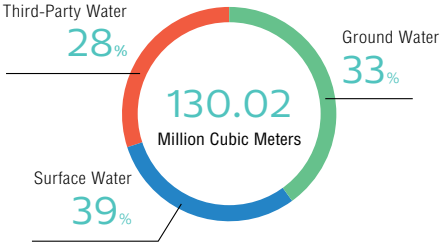
SDGs 6 9 12 14 15

Target and Performance

Reduction of water withdrawal by
23%
compared with BAU
at base year 2014 by 2025

2021
22.6%

Proportion of External Water Withdrawal



Climate-related risk of flood or drought is likely to intensify further. SCG collaborates with all sectors on risk management by applying technology, as well as exploring business opportunity relating to water management.

Strategy

1. Reduce water-related risk through integrated water management.
2. Reduce water withdrawal by increasing water consumption efficiency in production processes and product.
3. Treat wastewater in line with regulatory standards, monitor volume and quality, report incident and investigation and reduce wastewater discharge.
4. Reuse/recycle treated wastewater.
5. Rehabilitate the ecosystems related to water resources, and support water supply to community and agriculture.
6. Capability building of personnel who involve in water management.

Management

1. Water Management Committee defines guideline and strategy for integrated water management.
2. Assess water-related risks and impact quarterly and report to Environment Excellence Committee, SCG Sustainable Development Committee and SCG Risk Management Committee.
3. Water scenarios analysis to foresee water volume in external sources, alongside Business Continuity Management (BCM) and prepare a Business Contingency Plan (BCP).
4. Jointly monitor water situation and trends and collaborate in water resources management effort with the state, industries and key stakeholders.

Joining Water Resource Management Body

The Water Resources Act B.E. 2561 establishes “Water Resources Organization” at three levels – nationally through the Office of National Water Resource, basin-level totaling 22 basins and water users’ level. SCG has thus joined as industry sector representative in seven Basin Committees. These committees are tasked with steering, managing, allocation and prioritization of water usage, upkeeps and restoration, and conservation of water sources, as well as managing floods and droughts.

Sustainable Water Management in the Eastern Region

SCG collaborates with the state, industries and key stakeholders in water management in the Eastern region and Eastern Economic Corridor (EEC) continuously from the drought in 2020. The partners make plans for the future including building additional water reservoirs, diversion of water from sources, and develop technology to enhance efficiency in water situation monitoring.

In addition, Chemicals Business collaborates with industry sector in enhancing relationship with Wang Tanod reservoire community through municipal wastewater treatment system project at the municipality of Nongkla Subdistrict, Tha-Mai District, Chantaburi. By constructing wetland system to treat 400 cm/day of wastewater from the community prior to discharge to Wang Tanod canal, the project contributes to water security for the East.

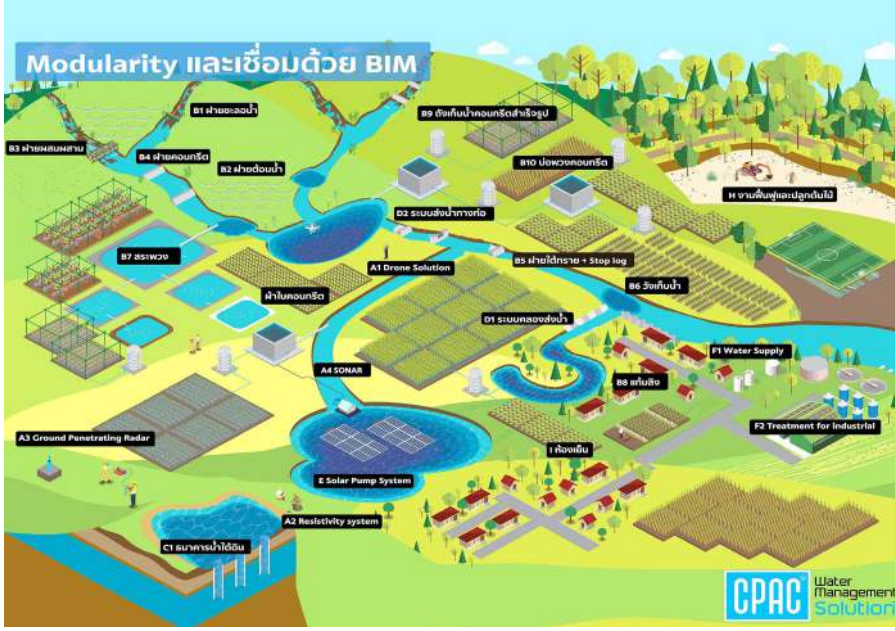
Developing the Early Warning System

SCGP (Packaging Business) has developed Multi Hazards Early Warning System (EWS) alerting flooding event and drought. The system analyses data from multiple sources in Thailand and internationally including: AQUEDUCT and EDO (European Drought Observatory) by UNDRR (United Nations Office for Disaster Risk Reduction). It provides crucial details in the window of 7-10 day-forecast, and for early warning to be issued to factories in at-risk locations for preparedness.

The development of EWS demonstrates SCGP's commitment to obligation under Sendai Framework 2015-2030 (article 7) on disaster prevention and loss mitigation.

Smart Public Toilet

Typical public toilet issues such as faulty equipment, odors, unsafe environment make using it a tough choice for people in need. Cement-Building Materials Business joins with the Bangkok Metropolitan Administration in a project to build Smart Public Toilet at JJ Green 2 Market. The idea is to make public toilets safe, hygienic and convenient. COTTO contactless sanitaryware has been installed, for hygiene and water conservation. Smart Public Toilet is accompanied by service and maintenance arrangement. Plans are afoot to install Smart Public Toilet at new site such as fresh-food market, night market.



CPAC Water Management Solution

Cement-Building Materials Business applied knowledge and experience stretching over 15 years of water resource development projects with communities for an integrated suite of water management solutions that address search, storage and distribution of water, with helps of technology such as drone for site evaluation and water sources identification, Resistivity System, Ground Penetrating Radar (GPR), SONAR. It is well equipped to offer consultancy, design and construction of water storage and distribution system that is appropriate and customized to location. On offer are innovation alternatives such as concrete tarpaulin, solar pump system, to substitute use of electricity and oil.

CPAC Water Management Solution targets inclusion of all sectors-community, public and private sectors, to deliver valuable water, to ensure year-round water supply to community.

Water Saving Product

Cement-Building Materials Business is committed to developing new generation of water-saving sanitaryware. During the pandemic, health and hygiene is prioritized through automation features such as the latest VERZO line of COTTO Smart Toilet with automatic open/shut lid, contactless bidet, along with Powerful Jet cleansing system that consumes only 3.8 liters of water per minute, saving water by 35% compared with the standard rate of 6 liters per minute.

In 2021, installed COTTO products in use contributes to water saving nationally of 1,149 million liters.

Water Saving Measures Implemented

	Technology	Water Use Reduction
SCGP	APM Water Ring	0.6 million cu m/year (installed at 165 of total 438 sites)
	Pump and filter system to recycle treated water	2.1 million cu m/year (at 4 factories)
Chemicals Business	Reverse Osmosis (RO)	18.2% 156,359 cm/year (factories in Thai Polyethylene Co. Ltd.)
	Recovery of Steam Condensate back to production process	193,921 cu m/year

Waste Management

Waste Circulation
Partnership Towards Value-Added Products

SDGs 6 9 12 14 15

Target and Performance

Zero hazardous and non-hazardous waste from process to landfill every year

2021

0%

of hazardous waste and

0.0107%

of non-hazardous waste from process to landfill

Reduce hazardous and non-hazardous waste to incineration without energy per ton production

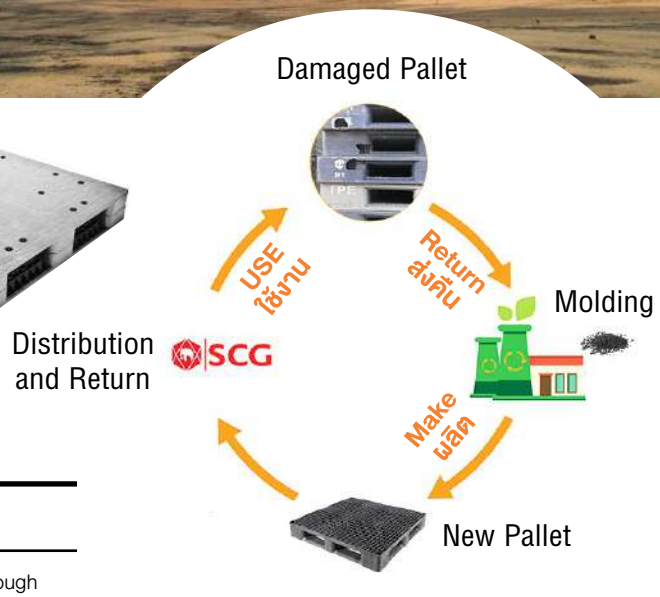
70% by 2025

compare to base year 2014

2021

99%

SCG attaches significance to waste management through the product life cycle, adheres to the principle of resource maximization, and manages waste internally so that it can be recovered for use in production or processed into new value-added products, services, and solutions. This, in turn, reduces waste disposal which can otherwise be harmful to the environment, increases business opportunities in accordance with circular economy principles, and makes contribution to society.



Strategy

1. Reduce the amount of waste generation at source.
2. Manage industrial waste according to the 3Rs and Circular Economy principles, both hazardous and non-hazardous waste within SCG.
3. Research and develop innovation to reuse/recycle and add the value to waste.
4. Manage industrial waste without sending to landfill.
5. Reduce waste disposal by incineration.

Management

- Reduce waste generation through prevention, starting from the stage of product design, acquisition of materials, and increase production efficiency.
- Ensure that disposal of waste outside SCG and of chemical substances are in compliance with regulations on efficient waste disposal and with environmentally-friendly processes stipulated in international cooperation agreements.

Giving a Second Life to Broken Pallets

Because it had to send about 388 tons of broken PE and PP pallets to be disposed of every year, Thai Polyethylene Co., Ltd., under the Chemicals Business studied ways of converting broken pallets into post-consumer recycled resin (PCR) for the production of new ones according

to circular economy principles. To this end, it partnered with B.A.S., who processed decommissioned pallets into PCR pellets, which were then sent to Srithai Superware PCL to be molded into quality PCR pallets. In 2020, 300 PCR pallets were put into circulation, and the number increased to 500 in 2021, with more such pallets to be put into use in the coming years. This initiative has successfully reduced the amount of waste sent out for disposal by 64 tons and decreased as much as 1.6 million baht in cost per year for the company.

Transforming Scrap Building Materials into Products and Substitute Materials

In the manufacturing of building materials, such as lightweight concrete, concrete roofs, ceramic roofs, fiber cement roofs, and ceramic sanitaryware, of the Cement-Building Materials Business, it is impossible to avoid waste from process, which must then be sent to landfill. The Cement-Building Materials Business has thus studied and analyzed the properties of its waste so as to use it as substitute for natural materials or process it into construction materials in collaboration with various organizations and communities.

- **Substitutes for virgin materials**: Through collaboration, waste from one manufacturing plant can become substitute materials for another. For instance, ground concrete roofing and lightweight brick scraps can be used in place of natural sand in the production of paving blocks, and ground ceramic roof tiles and ceramic scraps in place of natural soil in the production of ceramic tiles. In 2021, over 12,000 tons of virgin materials were replaced by substitute materials thanks to a collaboration between eight manufacturing plants in SCG, and over 2,800 tons of virgin materials were saved as a result of a partnership between SCG's manufacturing plants and two external factories. Furthermore, the company also contributed 540 tons of black soil residue to a community enterprise in Kaeng Koi District in Saraburi for use as substitute material for planting trees, generating a revenue of 460,000 baht for the community.
- **Converted into paving materials**: Leftover lightweight concrete and scrap concrete roof tiles were processed into over 20,000 tons of subgrade/subbase materials for sale. Scraps of concrete, fiber cement, and ceramic roofs were processed into building materials for temples, schools, and communities in 10 areas across Saraburi, Nakhon Prathom, and Bangkok for use in flood-proofing landscape adjustments.

High-quality Concrete Blocks from Fly Ash and Bottom Ash

SCGP (Packaging Business) has developed a block machine that can produce concrete blocks from fly ash and bottom ash, both of which are by-product waste from the generation of electricity and steam in paper making, as studies have found that they have components that can replace cement in cement block production. In 2021, 100% of the bottom ash resulting from combustion at Thai Cane Paper Prachinburi was used for the production of concrete blocks, thereby reducing disposal expenses by approximately 0.8 million baht per year.

Fly ash from Siam Kraft Industry Co., Ltd., in Ban Pong District, Ratchaburi, is also sent to cement plants within SCG Group in Saraburi for use as a substitute material in cement manufacturing. Previously, fly ash would be transported by truck, which incurred additional expenses as it needed to be sprayed with water to control dust during offloading. However, by using bulk feed trucks to transport fly ash to silos in cement plants, the company was able to solve the dust problem led to a 24 million baht decrease in expenses as there was no longer a need for water spraying. Moreover, the Siam Cement (Kaeng Khoi) Co., Ltd. introduced the use of a screw mixer for spraying. This innovation was able to successfully reduce dust when fly ash was retrieved from silo for use and mixed with other materials in cement production.

Circulating Waste Back into Production

Every business unit of SCG has actively been conducting research and development to create innovation that will enable the recirculation of waste into production. Examples of such projects in 2021 are as follows:

- Thai MMA Co., Ltd. under the Chemicals Business studied the recycling of used catalysts, which are normally considered waste that must be disposed of. This initiative has successfully reduced 25 tons of waste destined for disposal per year and cut down as much as 2 million baht in expenses for virgin materials per year.
- At SCGP, one of the processes in flexible packaging production is printing, in which solvents are used to wash off inks from the printers and equipment, resulting in used solvents. To reduce such waste through the 3Rs principle, SCGP has not only put in place control measures that reduce the amount of solvents used per production volume but has also installed solvent recycling systems in manufacturing facilities both in Thailand (Prepack Thailand Co., Ltd.) and overseas (Tin Thanh Packaging Joint Stock Company – BATICO Vietnam) with an investment of over 9 million baht. As a result, there were no used solvents that needed to be sent out for disposal, thus reducing 300 tons of such waste in 2021.

Air Quality Management

Target Setting for Air Emissions Reduction

SDGs 9 12

Target and Performance

2025

Reduction of dust emission compared with BAU at base year of 2020.

8%

2021

15.2%

Air pollution has become an increasingly prominent public interest issue as air quality problems affect health of human, animals, plant life and assets.

SCG is committed to enhancing its ability to manage air quality in the aftermath of production using best-in-class technology solutions to obtain fast, accurate and actionable data for analysis and prevention of potential impact. The process yields evidence for formulation of targets, as well as monitoring and disclosure of air quality related data to the public sector and the public.

Strategy

1. Set targets of air pollution emission according to international norms among peers, and not exceed legal limits.
2. Use best-in-class technology solutions in managing and reducing air pollution, aiming at both prevention at source and emission, as well as continuous inspection of air quality.
3. Foster collaboration in air pollution management with community and stakeholders. And collect feedbacks and concerns regularly.

Management

- Establish Air Quality Management Committee, with representatives from Business Units to jointly prepare strategy, targets and action plan.
- All business units enforce Continuous Emission Management System (CEMs) instead of spot check approach, and organize for verification by external party.
- Develop Air Pollution Supervisor according to regulations by the Department of Industrial Works.

Establish Air Quality Management Committee

In 2021 SCG appointed Air Quality Management Committee to regulate and ensure effectiveness and concrete result of air quality management by its business units across Thailand and overseas. The Committee brings together representatives from business units to join as working group, tasked with formulating strategy, guideline and targets to conform with international standards, with tangible performance indicators. SCG also promotes R&D and use of technology in air quality management.

Managing Air Quality Using Best Available Technology Continuously

Industrial factories need to combust fuel as energy source, resulting in emissions of air pollutants such as carbon dioxide (CO_2), sulfur dioxide (SO_2), nitrogen oxide (NO_x) and dust. SCG is committed to reduction of pollutants through increased proportion of renewables, enhancing energy efficiency. SCG began using Circulating Fluidized Bed (CFB) type of boilers since 1993. In 2021 it installed Terminox GS burner technology for boiler using natural gas as fuel which improves combustion while reducing NO_2 emission. The digitalized control system is installed to ensure stability and efficiency of production processes.

For air pollution management, SCG looks to best-in-class technology, including SO_2 trapping system with lime mud at SCGP (Packaging Business). Cement-Building Materials Business have been using Electrostatic Precipitator (ESP). From 2014, these have been gradually changed to Bag Filter system which can better withstand hot heat erosion better until full coverage of all cement kilns in 2021.

In air quality inspection, SCG uses Continuous Emission Monitoring System (CEMs) equipment and has developed PI Vision system for monitoring and surveillance of air quality at stacks on real-time basis to issue warning any moment when risk arises.

R&D of SO_2 Absorption

In 2021 SCG launched a project to study absorbents that can effectively reduce SO_2 emission and which can be applicable on site at factories. The project researched into correlation of properties of such absorbents such as surface, size and pores, number of active sites per SO_2 trapping performance. The purpose is to reduce SO_2 emissions that exceed benchmark and to reduce cost of absorbents. The research also considers absorbents of lime mud which is waste from internal production process in view of the circular principle whereby waste is recovered and waste disposal cost reduced. Results of this research project will provide guidance regarding types of absorbents that are appropriate to a factory's context for effective reduction of SO_2 emissions.

Controlling VOCs Leakage at All Point Sources

Volatile Organic Compounds (VOCs) in petrochemical industry originate from raw materials, products and by-products. Some VOCs bring health impact to bear upon health of those coming into contact with them. SCG Chemicals has developed a VOCs Inventory conforming with the announcement of the Department of Industrial Works, Ministry of Industry Thailand. The Inventory covers comprehensively all point sources of VOCs ranging from storage tank, product, delivery of raw materials or product, wastewater treatment system, post-combustion residues at the incinerating tower, and the company has taken measures to control potential VOCs leakage continuously including:

- Installation of high-performance pollution treatment system such as the Vapor Recovery Unit at storage tanks and vessel loading, and to recover VOCs back into production system.
- Installation of Internal Floating Roof for naphtha raw materials to replace the previous line of tanks where leakage may occur around the lid area, and as such minimizing VOCs leakage.
- Reduction of hydrocarbon combustion at tower through Flare Minimization project, by sending hydrocarbon that must be burned from one factory to be used as substitute material at another factory.
- Conducting Leak Detect and Repair (LDAR) at joints, valves, pipe connection parts, to reduce seepage from equipment regularly.
- Applying Turnaround procedures of petrochemical industry into the maintenance of all factories regardless of partial equipment or major turnaround maintenance where there is risk of VOCs leakage.

Biodiversity and Ecosystem

Rehabilitation and Conservation for Biodiversity

SDGs 9 11 13 15

Target and Performance

2052
Net Positive Impact
after closure of first quarry
by 2052

2021
Similarity Index between rehabilitated quarry area must equal to buffer zone of natural forest at higher than
60%

At least
10%
coverage of FSC Biodiversity Conservation Area in agroforestry zone.

2021
14%
1,552.5 rai

The importance of biodiversity and ecosystem to the world's sustainability has been gaining traction in recent years as biodiversity losses due to manmade activities are sending chain reactions tipping the nature's balance and threatening human existence. For years, SCG has taken actions based on evidence and international standards with a view to being a role model in biodiversity conservation.

Strategy

1. Manage biodiversity sustainably, benchmarked against international indicators.
2. Engage community and stakeholder to raise awareness and understanding of ecosystem and biodiversity conservation.
3. Be a role model in biodiversity conservation, to replicate the practice in other areas.

Management

- The Quarry Rehabilitation and Biodiversity Working Group provides oversight to ensure compliance with international standards on biodiversity management.
- Foster "Net Positive Impact" in all relevant processes.
- Organize a quarry rehabilitation fund for research into rehabilitation and transfer of mining zone after closure, and other social activities.
- Communicate with the community and external entities so they are informed and understand about SCG's action in ecosystem conservation and biodiversity.

Restoring Marine Ecosystem with Coral Substrate

Death of coral reef through natural cause and human activity inflicts crisis upon marine ecosystem. SCG joining with the Veterinary Faculty, Chulalongkorn University and Department of Marine and Coastal Resources have developed a coral substrate using 3D printing technology. Coral substrate can shift shape or surface like natural coral formation with nooks and crannies for fish and marine life.

The ecofriendly material can withstand undersea conditions for decades. Following installation of coral substrate around Koh Tao, Surat Thani province and Koh Mai Thon in Phuket, a follow-up study after three to six months showed multiple species of fish and marine life have settled in. Coral larva and barnacles were also found sticking to coral substrate surface.

Fish Home Helps Restore Marine Biodiversity

Marking its 10th anniversary in 2021, the SCG Fish Home Project makes use of leftover PE100 pipes from injection molding trials to build artificial homes for marine creatures, thus creating added value in line with the principles of Circular Economy. Thus far, SCG has installed a total of 2,230 fish homes in coastal areas across Rayong, Chonburi, Chanthaburi, Trat, and Ranong in collaboration with 43 local fishery groups, covering an area of over 50 sq.km. of marine resource conservation. SCG has also collaborated with the Department of Marine Science, Faculty of Fisheries, Kasetsart University and Marine and Coast SDG, an expert on marine ecosystems and environment to assess the biodiversity of the project in order to plan further fish home installations and bring benefits to local fisher groups in other areas. According to the latest survey, there was greater biodiversity around fish homes, with a total of 174 species found in the areas compared to 120 in 2017. These species included economic marine animals, ornamental fishes, young marine life, sessile animals, and plankton. The project exemplifies success in increasing coastal biodiversity while also establishing a sustainable source of income for local fisheries and has resulted in a collaborative fish home building network consisting of over 23,000 volunteers.

Conservation of Local Species in Limestone Quarry

Thung Song Quarry of The Siam Cement (Thung Song) Co, Ltd., has a conservation project focusing on local species, including Bear Macaque and Dusky Langur. As part of its actions to rehabilitate forestry and ecosystems upon completion of mining activities, SCG Thung Song has consistently built water wells and plant trees as animal's food supply. Annual biodiversity survey has been carried out continuously to collect data to inform the conservation plans in collaboration with Prince of Songkla University. Results from the latest camera trap in 2020 found an increase in local animal population, The survey counted at least 104 species in four groups of vertebrates consisting of 24 mammal, 62 bird, 7 amphibian and 11 reptile species in the area.

Biodiversity at Kampangphetch Conservation Forest

Kampangphetch Agroforestry managed by SCGP's Siam Forestry Company Limited covers an area of 9,201.43 rai. The site management complies with the Forest Stewardship Council sustainability guideline. Under the FSC guideline, about 10% of the site is set aside for conservation of original forest and biodiversity as flora and fauna habitat in balance with utilization. "Kampangphetch Conservation Forest" the size of about 1,000 rai lies at the core, surrounded by community forests where locals take active part in sustainable agroforestry management.

Results of biodiversity survey in Kampangphetch Conservation Forest conducted by Faculty of Forestry of Kasetsart University showed relatively high level of fauna diversity (at the rate of 3.66 according to Shannon-Weiner Index). The survey documents presence of 101 fauna species, 77 taxonomy and 33 families, with one near extinction. A total of 105 animal species has been counted at the survey, dominated by 58 bird species, followed by 20 reptile, 15 mammal and 12 amphibian species. Therefore, Kampangphetch Conservation Forest has the potential to be a good biodiversity habitat

	Bird	Mammal	Reptile	Amphibian
Thungsong Quarry	62	24	11	7
Kampaengphet Agroforest	58	15	20	12

Human Rights

Expanding Human Rights Management across All Dimensions

SDGs 3 5 8 10

Target and Performance

Number of human rights violation cases

2021
0

Percentage of employees who underwent human rights training and passed human rights tests on Ethics e-Testing at a score of
100%

2021
100%

2025
Female employees in all management positions account for
27%

2021
24.8%

SCG is committed to the ethical business practices and adheres to the Four Core Values in its business operations. Since 1987, it has included human rights and labor practices in SCG Code of Conduct, which has been reviewed to ensure currency and consistency with international standards – a testament to SCG's commitment to human rights and equitable treatment of all without discrimination in both its direct activities and the activities of suppliers/contractors in the business value chain both in Thailand and abroad.

Strategy

1. Integrating Human Rights, diversity and inclusion into business operations across the value chain both in Thailand and abroad.
2. Foster value and initiate human rights programs for all stakeholders across the value chain and society.
   - Employees: Respecting rights is fundamental and enhance diversity and inclusion.
   - Contractors: Risk minimization and enhance quality of life in work environment including labor, health and safety and well being.
   - Suppliers: Human rights risk minimization which may affect value chain.
   - Communities: Build engagement based on the principle of respecting fundamental rights and enhance quality of life.
   - Customers: Deliver product, services and solutions with quality and safety for fundamental rights and better living.

Management

1. SCG has announced and reviewed SCG Human Rights Policy and SCG Diversity and Inclusion Policy in line with United Nations Global Compact (UNGC), the International Labor Organization (ILO) Declaration on Fundamental Principles and Rights at Work, and other international standards, as well as driven implementation of such policies through SCG Sustainable Development Committee.
2. SCG has established a unified organization-wide risk management framework and carried out human rights due diligence process in all facets in a proactive manner to prevent human rights violation.

Human Rights Due Diligence Process

Identify and Assess Human Rights Risks

Identify issues and assess risks according to enterprise risk management guidelines, covering relevant industry, countries specific issues as well as all stakeholders and vulnerable groups.

- Use of forced labor
- Human trafficking
- Use of child labor
- Freedom of association and collective bargaining
- Equal remuneration
- Discrimination

Formulate Preventive and Mitigation Plans as Well as Remediation Actions

Foster engagement with stakeholders.

- Employees
- Contractors/Suppliers
- Customers
- Communities
- Joint ventures

Monitor Results

- Whistleblowing system
- Ethics e-Testing
- Engagement survey
- Governance risk and compliance

Communicate

- Fostering awareness, knowledge, and understanding
- Communicating with both internal and external stakeholders

Salient Human Rights Issues in 2021

Three salient human rights issues with a high level of risks as follows:

1. Workplace Safety and Transportation Safety
   - Business operations in countries with suboptimal work environment and safety standards
   - Thailand and abroad expansion of logistics and transportation
2. COVID-19 Pandemic
   - Impact on the health and safety of employees and related parties
   - Social inequality
3. Compliance with stricter personal data protection laws and regulations
   - Respecting the rights and personal data privacy of all stakeholders
   - Regulatory compliance and trust among stakeholders.

SCG has planned correction and prevention actions as well as established remediation actions in a comprehensive manner. (More detail on page 136-138).

Promoting Workforce Diversity

In 2021, the Management Development Committee formed the Female Employee Development Working Group to support and oversee the achievement of the target of having 27% Female employees in all management positions by 2025.

Extending Risk Management to Consolidated Businesses and Abroad

SCG has continuously assessed its human rights risks, including those arising from business expansion both Thailand and abroad, such as through mergers and partnerships, across the entire process, from reviewing M&P or investment decisions to ensuring uniform human rights practices including the activities of its suppliers in the value chain to avoid human rights violation. In 2021, SCG conducted reviews and established the Human Rights and Stakeholders Engagement Committee to support business operations in Thailand and abroad and build engagement with all stakeholders in order to foster confidence and create mutual value.

National Action Plan on Business and Human Rights

In 2019, the Thai government announced the first phase of the National Action Plan on Business and Human Rights (2019-2023), making Thailand the first ASEAN country to do so. In response, SCG has operated its businesses with respect for human rights in accordance with the action plan in terms of labor, international investments and multinational corporations, community rights, land, natural resources, the environment, and human rights defenders.

As a result of its active and continuous human rights implementations, SCG was given an excellence award in the Corporation Category for a second consecutive year of the 2021 Human Rights Awards by the Rights and Liberties Protection Department under the Ministry of Justice.

Employee Caring and Development

Digital Technology for Learning and Employee Care During COVID-19

SDGs 5 8

Target and Performance

100% of employees in Thailand receive a competency assessment and have an Individual Development Plan (IDP) on the Learning Management System (LMS) continuously every year.

2021

100%

2022

Employee engagement rate based on the total number of employees in Thailand exceeds 70% (surveyed every 2 years).

2021*

70%

*Pulse Check Survey

Strategy

1. Promote digital learning by, for instance, adjusting the content and the activities to suit virtual classroom instructions.
2. Enhance employee competencies to meet the Company's competitiveness and develop leaders to have attitudes, knowledge and abilities, and be able to develop subordinates to have potential as an important force of SCG.
3. Create a fundamental learning system by using the Learning Management System (LMS), with the same quality and standards across the region.
4. Create value for the organization to attract talents and competent prospective employees.
5. Ensure that employee care is equitable and thorough to foster employee engagement.

Management

- SCG has appointed committees at the business unit level (BU Academy Committee) to oversee employee learning and take care of competency development for all employees.

The COVID-19 has forced many businesses to adjust to shifts in society and customer behaviors, including the trend of Work from Home. In response, SCG has promptly adjusted its instruction formats and content to ensure continuous employee development in line with changing business strategies and circumstances. It has also been taking care of the employees' physical and mental health closely with the help of digital technology.

Shifting Towards Digital Learning

As COVID-19 made training and instructions in actual classrooms impossible, SCG adjusted its courses towards digital learning to ensure uniform quality and standards both in Thailand and abroad. In 2021, SCG revised and added a total of 279 digital

courses, forming 90% of the target courses, as well as enhanced LMS to improve accessibility and deliver positive learning experience to employees at all levels.

Shifting Focus to Coaching, On-the-Job Training, and Assignments

Placing emphasis on hands-on practice and experience-based learning in the 70:20:10 ratio for maximum learning efficiency, SCG has improved its programs and increased the proportion of coaching, on-the-job training, and assignment-based learning. In 2021, SCG revised 20 out of its 25 programs, or 80% of all the programs. These included one flagship program, namely the Business Concept Development (BCD), and 19 regular and future skill programs, namely Data Analytics for Business, Intelligence Ways to Create Idea Workshop, and Customer Insight.

Learning Case: Employees' Interest in 100% Online Business Concept Development (BCD) Program

A challenge of transitioning to digital learning is the employees' concentration and time allocated to learning. With the Business Concept Development (BCD) Program shifting to a 100% digital online classroom format, it was found problem about time allocation and could not complete pre-requisite classes and pre-reading. To solve this problem, SCG added learning tracking methods via various online channels, created videos to raise awareness of the significance of the course, and equipped the instructors with teaching techniques and activities to make online instructions more engaging.

Learning Case: Work Life Balance

In 2021, SCG assessed employee engagement through a pulse survey – an abbreviated version of a full survey during the Work from Home period. It was found that the employees struggled with adjustment and the increased work hours resulting from remote online working. A meeting was thus held to listen to their problems so as to plan work process improvement to suit the new normal of work.

Employee Connect: Support for Work from Home Employees

SCG has developed the Employee Connect Application to take care of and support employees working from home during the COVID-19. Through the online system, employees can request leaves, overtime, claim reimbursements for medical expenses, and check their benefits. The application also has a Chat Bot that can answer questions, SCG news and updates communication, as well as other online channels where employees can seek consultation and make additional inquiries.

Taking Care of Employees' Physical and Mental Health

The Employee Connect Application took care of the health of SCG employees during the COVID-19 through a daily check-in system, a vaccination status tracking system, and a Health Pass + system for employees who needed to enter their workplaces. Bi-ionization air purifiers, capable of killing as many as 99% of airborne viruses, were also installed in SCG offices to keep the staff safe from viral infection.

In addition, SCG consistently communicated the pandemic situation to its employees and hosted Health Talk sessions to educate them on how to take care of themselves physically and mentally through online channels, such as the Happy Heart Smart Work Life activity, hosted by physicians and psychiatrists from various hospitals. SCG also provided psychiatrists at the Health Center, Head Office of SCG, where employees could seek consultation with.

Community and Social Involvement

Waste Management for Communities, Society, and the Environment

SDGs 1 4 6 12 17

Target and Performance

Target and Performance
Social contribution

2021

700 million baht
in grants

147 million baht
in goods and services
contributed to society

128,713
hours of employees' involvement
in CSR activities, equivalent to
28 million baht

SCG aims to build business for sustainable growth which must be achieved alongside community and social development and the fostering of self-reliance. To this end, it promotes the involvement of all sectors in effecting change, developing the quality of life, as well as demonstrating environmental responsibility through the application of circular economy principles, such as promoting the waste to value scheme for an ultimate circulation of the natural resource and scale up.

Strategy

1. Utilize SCG expertise and external experts to enhance community self-reliance as well as care for society.
2. Foster engagement among employees and all relevant sectors to create sustainable value for society.
3. Develop innovation to serve the needs of communities and solve social issues.
4. Develop models for sustainable development and scale up to other community networks.

Management

- The CSR Committee for Sustainable Development, consisting of members of the Board of Directors and SCG top executives, is responsible for formulating policies and guidance on sustainability-oriented social development activities.
- SCG Foundation carries out a key mission focusing on maximizing human capability and having them equipped with knowledge and integrity.
- The Community Relations Unit carries out activities that enhance the potential of neighboring communities of SCG's operational sites to attain better life quality and sustainable self-reliance.

SCGP Paper Beds Against COVID-19

The growing severity of COVID-19 outbreaks in 2021 caused a sharp rise in demand for beds among field hospitals. SCGP (Packaging Business) thus joined forces with its partners to launch the SCGP Paper Beds against COVID-19 Project, for a period of over one month (April 28-May 31, 2021). The project was joined by over 150 organizations, and over 1,800 drop-off points for used paper were installed. Through the use of its manufacturing innovation, SCGP produced 100% recycled paper beds from more than 450 tons of paper collected and delivered them to field hospitals nationwide to help Thailand overcome the COVID-19 crisis while also promoting environmental conservation and consumer involvement in resource recovery and recirculation for resource efficiency.

Milk Pouch for a Cleaner World Turning Milk Pouches into Chairs

The project has not only transformed milk pouches that used to be thrown away and give off an offensive odor into lovely chairs but also cultivated resource efficiency among young children. Under this project, milk pouches are sorted, cleaned, recycled, and transformed into durable plastic chairs. With the collaboration of Chemicals Business and network of government agencies, a model school for the project was established in Rayong in 2020. The project has since been expanded to schools across 17 provinces in central and eastern Thailand.

Eliminating Marine Waste with Floating Litter Traps

To solve the issue of marine debris through innovation and collaboration, Chemicals Business joined hands with the Department of Marine and Coastal Resources (DMCR) under the Ministry of Natural Resources and Environment and the Marine Ranger Network to install litter traps to reduce the amount of waste making its way to the sea and develop the SCG-DMCR Litter Trap. In 2020, the pontoon of the litter trap was made with HDPE-Bone instead, which allowed for easy assembly and installation and gave it resistance to ultraviolet rays, durability, and a 25-year lifespan. During the period from 2019-2021, Chemicals Business installed 47 litter traps in 17 provinces nationwide and was able to collect over 71 tons of waste. In addition, Chemicals Business collaborated with the Ministry of Industry to deliver and install four litter traps in the Prem Prachakon Canal to improve the water quality.

Scaling up the Waste-Free Community Project

SCG has since 2019 carried out the Waste-Free Community Project and fostered collaboration with the government and public sectors to establish model communities in order to scale up the project for a wider impact.

- **Bang Pong Model** in Bang Pong District, Ratchaburi. In 2021, the Project achieved to build 58 model communities in total, with the goal to create a total of 183 model communities across the district by 2023. Bang Pong Model has been expanded to a total of 13 communities in other provinces where manufacturing facilities under SCGP are located, such as Prachinburi, Kanchanaburi, and Khon Kaen.

  In 2021, Ban Nong Song Hong Community won the first prize in the national zero waste competition hosted by the Department of Environmental Quality Promotion.

- **The Waste-Free Community Project** in Map Ta Phut District, Rayong introduced a home-temple-school approach to waste management, in which these locations were connected and linked to community waste banks, which employed KoomKah application developed by Chemicals Business for integrated waste management.

  In 2021, the home-temple-school approach was expanded to 64 communities, 2 fishery groups, 9 temples, 11 schools, and 1 hotel, and 14 community waste banks were established. KoomKa recorded a total of 3,589 user ac counts and over 178 tons of cumulative recycled waste, worth 464,406 baht in total, or comparable to the reduction of 134 tons of carbon dioxide equivalents.

- At **“Na Mai Phai Community”** in Nakhon Si Thammarat, the “Smiley Youth” Group turns waste into proceeds for their community, which have been directed towards the construction of new houses for elderly people in the area and English camps for local youths. The group has also been working with various agencies to expand their network and exchange knowledge with other surrounding communities in Nakhon Si Thammarat and Trang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1 ตัด

PERFORMANCE

About This Report

SCG has published the sustainability report annually since 2001 by presenting the performance in 3 core business units, namely Cement-Building Materials Business, Chemicals Business, and SCGP (Packaging Business). The selection of Sustainability Performance information included in this report is based on what is determined by SCG's management to be responsible, relevant and of value for its stakeholders when measuring sustainability performance.

Reporting Scope

The reporting scope for economic data, covering the performance of subsidiaries, joint ventures, associates and other companies both in Thailand and abroad which is in line with the SCG Annual Report.

Environmental, health and safety data in the report using the combined criteria of equity share of at least 50% and controlled associates, the newly established companies (less than 3 years), the merging and acquisition companies (less than 4 years) both in Thailand and abroad, except otherwise stated. Exclusivity of the data is as shown on page 142-151. The reporting period for the information in this report is from 1 January 2021 to 31 December 2021

This Sustainability Report and its data were prepared in accordance with Global Reporting Initiative ("GRI Standards"): Comprehensive level. The information in this report disclosed the Communication on Progress - Advanced Level of United Nations Global Compact (UNGC) as shown on page 160, Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) as shown on page 161, Action Toward Achieving the United Nation's Sustainable Development Goals (SDGs) as shown on page 18-19, the Operating Results of Cement Business according to Global Cement and Concrete Association (GCCA) as shown on page 134-135, as well as Response to Sustainability Accounting Standard Board (SASB) as shown in page 162-163.

Sustainability Management System

SCG applied the management system according to various international standard in operations such as quality management system standards, environmental management system standards, occupational health and safety management system standards, etc. To ensure that SCG has a sustainable management system covering the entire organization, SCG has established sustainable development guidelines such as the Sustainable Development Guidelines, Environmental Management Guidelines, Occupational Health and Safety Management Guidelines. Subsidiaries under business units of SCG have been certified international management standards, i.e. ISO 9001 - Quality Management System, ISO 14001 - Environmental Management System or other relevant system certified by 3rd party, OHSAS/TIS 18001/ISO 45001 - Occupational Health and Safety Management System or other relevant system certified by 3rd party, and ISO 50001 - Energy Management System. In 2021, 98% subsidiaries have been certified for Quality Management System, 94% for Environmental Management System and 90% for Occupational Health and Safety Management System.

SCG Sustainable Development Framework

SCG Environment Management Framework

SCG Safety Framework

Reporting Assurance

Financial data was derived from financial management system similar to those presented in SCG Annual Report and is verified by certified accounting firm.

The integrity and the transparency of environmental, health and safety and social data in this report has been verified by an external party on selected KPIs against GRI Standards as shown in details on page 152-153.

Environment

The environmental data cover those activities that could have a significant impact on the environment together with sites and production process while sites with activities considered not to have a significant impact are not included, for examples; sales offices, R&D laboratories, services and holding companies.

The environmental data sources, i.e. accounting evidence, meter reading, data from production system, and estimation with ground rule have been presented in absolute value. For the specific consumption/emission, since 2016 the disclosure of energy, greenhouse gas emission and water withdrawal have been improved with greater visibility by comparing the absolute consumption/ emission of the current year with the business as usual (BAU) of the base year prior to the reduction measures. The energy consumption use the base year of 2007 and water withdrawal use the base year of 2014.

GHG reduction target is an ambition ton net zero by 2050 with new setting near term to at least 20% reduction by 2030 from based year of 2020.

The report of Cement Business which is under Cement-Building Materials Business is in line with the Guidelines of Global Cement and Concrete Association (GCCA). Air emission and heat consumption performance are calculated from tonnage of clinker while greenhouse gas emission and water consumption performances are calculated from tonnage of cementitious since 2016.

Energy

Total energy consumption includes thermal energy and electricity used in the companies/ plants areas. For the details on thermal energy, the amount and ratio of alternative energy utilization are also presented, together with the addition of renewable energy and non-renewable energy from the year 2018.

Thermal energy consumption =
fuel weight or steam volume (estimated from volume purchased or stockpile change)
x heating value of each fuel type
(provided by laboratory test or suppliers)

Greenhouse Gas Emissions (GHGs)

GHGs data in this report represent the amount of GHG emissions from the operation based on the calculation according to “Guidelines to disclose and measure greenhouse gas emissions” from WRI/WBCSD GHG Emissions Protocol as per the following scopes:

1. Reporting Scope

1.1 Direct GHG emissions (Scope 1):
GHG emissions occur from manufacturing process or other activities that are owned, controlled, and managed by SCG, for example emissions from combustion of coal or natural gas in boilers, furnaces, vehicles, etc.
In addition, this scope also includes GHG emissions associated with chemical reaction in production process such as calcinations in cement plant while excluding emissions from the combustion of fuel from renewable materials and alternative fuels.

1.2 Indirect GHG emissions (Scope 2):
GHG emissions occur from the purchased energy, such as electricity, as well as purchased thermal energy, in form of steam and hot air.

2. Report of GHG Inventory:

2.1 Direct GHG emission calculation (Scope1)

• From combustion

- The calculation based on quantities of fuel consumption (weight or volume) such as: amount of fuel oil or natural gas x emission factor which was referred to Thailand Greenhouse Gas Management Organization (Public Organization) (TGO). Apart from TGO emission factor, the Intergovernmental Panel on Climate Change 2006 (IPCC) or GCCA emission factors can be referred.

- The calculation based on fuel consumption (based on heating value) such as: amount of coal x heating value x emission factor which was referred to TGO. Apart from TGO emission factor, the IPCC or GCCA emission factors can be referred.

- The calculation will be based on carbon mass balance from fuel consumption.

• From chemical reaction in production process i.e. limestone is calculated using mass balance.

• For Cement Business, refers to GCCA.

2.2 Indirect GHG emissions (Scope 2) will be calculated from purchased electricity, steam or hot air consumption x GHG emission factors based on TGO, manufacturers, or suppliers.

3. The type of GHG emissions report includes CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3 converted and reported as CO_2 equivalent by Global Warming Potential (GWP). Referred GWP factors are defined by IPCC.

Air Emission

Air emissions are the quantity of air pollution such as NO_x, SO_x, and Particulate Matter deriving from combustions and being the components during the production process. Types of air pollutants depend upon each production process in which chemical substance is produced. The result and measurement method shall refer to method required by laws such as US EPA or equivalent standard or Thai’s law.

Reporting of quantity of air emission will be calculated based on concentration measured from random spot check being conducted by laboratories which are certified and registered to the Department of Industrial Works, multiplied by hot air flow rate and production hours.

In addition, Chemicals Business and Cement Business measure their air emissions from stack using Continuous Emission Monitoring Systems (CEMs). Cement Business refers the measurements to GCCA's Guidelines (see details on page 134-135).

Water

Water management consists of the amount of water withdraw from outside, the amount of recycled water and the amount of effluent.

Since 2020, the amount of water withdraw from the outside has been reported with categorized by type of water source such as surface water, ground water, third party water. It is also categorized as fresh water, i.e. water with total dissolved solids not more than 1,000 mg/L and others water with total dissolved solids above 1,000 mg/L. Finally, water withdrawal from water stress areas are reported in separated column.

Recycled water is the quantity of treated water returned to the process excluded non-treated reused water such as cooling water. Since 2018, the recycled water quantity of Building Materials Business has been included retrospectively from 2014 onwards.

Begin in 2020, the effluent has been reported both by discharged destination and by type of effluent. In addition, the effluent discharge to stress area is categorized by type of effluent. The report of effluent quality in terms of BOD, COD and TSS are reported along with the amount of effluent.

Industrial Waste

The industrial wastes are reported into 2 categories comprising hazardous waste and non-hazardous waste according to the Ministry of Industry's Decree on the Disposal of Waste and Unused Materials, excluding the waste that can be recycled in production process (Work in process, WIP) Beginning from 2019, the amount of waste has been reported in terms of waste generation, waste management and waste in the storage in order to indicate the efficiency of production process and efficiency of waste management.

In 2019, waste management approach has been categorized into reuse, recycling (including incineration with energy), incineration without energy and landfill. According to new GRI 306:Waste 2020, waste management approach has been reclassified as "Diverted from disposal" (reuse, recycling, other recovery operations and treatment, and "Directed to disposal" (incineration with or without energy, landfill and other disposal operations.

The amount of waste generation is collected from weighting, calculation or estimation in accordance with academic principles, while the amount of waste management is collected from weighting scale which is more accurate.

Social

Health and Safety

Data on number of employees and contractors

1. Employee is a full time employee according to an employment contract such as operational level, supervisory and technical staff level, and managerial level including intern (probationary) and special contracted employee.

- Operational level is a front line worker who uses their skills and technics in their daily operations.
- Supervisor and technical staff level is a front line manager who is responsible for daily management or having a control over subordinates.
- Managerial level is a manager who is responsible for addressing business strategies or policies, delegating, and controlling supervisor and technical staff level who implement policy and daily jobs.
- Special contracted employee is a temporary person being employed on a specific period.

2. Contractor is a person who has been consented to work or provide service or benefit to the company apart from the company's employee as per the definition specified above, which could be divided into 3 groups as follows:-

1) Workplace Contractor is a contractor that works for the organization, and whose work and/ or workplace is controlled by the organization. (Exclude Transportation contractor)

2) Direct Transportation Contractor is a transportation contractor with operation under SCG's brand.

3) Other Transportation Contractor is other transportation contractor without operation under SCG's brand.

Workplace contractors' data covered in the report will be calculated for number of hours worked. Data on transportation contactors under SCG Logistics Management Co., Ltd., will be reported in kilometer.

Third party is other people, not the employees and contractors, who are not working for the company and not covered in this report.

Hours Worked Calculation

1. Data from clock-in system, HR database, accounting, or relevant administrative functions.

2. In case the companies/plants do not have a clock-in system or HR database, the below formula shall be employed to estimate the hours worked.

Number of hours worked =
[Number of Employees/Contractors x
Number of working days x
Number of normal hours worked (per day)]
+ Total Number of overtime hours worked
(only operational employees and contractors)

Recording of Health and Safety Data

SCG records data on work-related health and safety as follows:-

1. Total Recordable Work-Related Injury and Occupational Illness & Disease Rate from workplace is total number of work-related injury and occupational illness & disease that results in fatality, lost time, restricted work or medical treatment cases (person) per 1,000,000 hours worked.

2. Fatality Work-Related Injury and Occupational Illness & Disease Rate from workplace is number of work-related injury and occupational illness & disease that result in fatality cases (person) per 1,000,000 hours worked.

3. Total Number of Recordable Work-Related Injury from workplace is total number of work-related injury that results in fatality, lost time, restricted work or medical treatment.

4. Total Recordable Work-Related Injury Rate from workplace is total number of work-related injury that results in fatality, lost time, restricted work or medical treatment cases (person) per 1,000,000 hours worked.

5. Number of Fatality Work-Related Injury is number of work-related injury that result in fatality regardless of suddenly death or suffering the consequences and dying later.

6. Fatality Work-Related Injury Rate from workplace is number of work-related injury that result in fatality cases (person) per 1,000,000 hours worked.

7. Number of High-Consequence Work-Related Injury from workplace is total number of work-related injury that result in high-consequence excluding fatality.

8. High-consequence Work-Related Injury Rate from workplace is total number of work-related injury that result in high-consequence excluding fatality cases (person) per 1,000,000 hours worked.

9. Lost Time Injury Frequency Rate from workplace is total number of work-related lost time injury cases (person) per 1,000,000 hours worked.

10. Severity Work-Related Injury Rate from workplace is total number of lost workdays (day) from work-related lost time injury per 1,000,000 hours worked.

11. Total Number of Recordable Occupational Illness & Disease from workplace is total number of work-related occupational illness & disease that results in fatality, lost time, restricted work or medical treatment.

12. Total Recordable Occupational Illness & Disease Rate from workplace is total number of work-related occupational illness & disease that results in fatality, lost time, restricted work or medical treatment cases (person) per 1,000,000 hours worked.

13. Number of Fatality Occupational Illness & Disease from workplace is number of work-related occupational illness & disease that result in fatality regardless of suddenly death or suffering the consequences and dying later.

14. Near Miss Frequency Rate is number of near miss cases per 1,000,000 hours worked.

Lost Time is a work-related injury, occupational illness & disease that cause the injured absence from work on the next working day or the following shift, as well as the case that such injury, occupational illness & disease leads to the leave of absence as the person being incapable of returning to work after the incident.

High-consequence work-related injury is injury that results in a fatality or in an injury from which the worker cannot, does not, or is not expected to recover fully to pre-injury health status within 6 months.

Employees

Average wage ratios

Employees refer to persons who work full-time for the Company as specified in the employment contract and can be categorized into executives, management employees, and non-management employees. The term encompasses employees of the Cement-Building Materials Business, the Chemicals Business, and SCGP (Packaging Business)

Wage refers to a salary paid on a monthly basis to employees as prescribed by the company.

Other remuneration refers to any remuneration in addition to salaries given as incentives or special performance-related pay as well as other monetary rewards, such as bonuses.

The average wage based exclusively on salaries or the average wage based on salaries and other remuneration and the average wage ratios are calculated from annual salaries and other remuneration throughout the year, which are averaged per capita per annum for employees at each level and divided into averages for female and male employees. The figures to be disclosed in accordance with GRI 405-2 are the average wage based exclusively on salaries, the average wage based on salaries and other remuneration, the wage ratio based exclusively on salaries, and the wage ratio based on salaries and other remuneration, divided by gender for employees at each level.

The electronic file of this report and the previous ones can be downloaded from SCG website
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and website: www.scg.com

Sustainability Performance Data

Economic Performance

Strong revenue growth amid COVID-19 pandemic and continued to increase return on equity for shareholder and tax paid to government.

Performance Data	2017	2018	2019	2020	2021	GRI Standards	DJSI*	SASB
Revenue from sales (Billion Baht)	450.9	478.4	438.0	399.9	530.1	GRI 201-1	0.1	
Profit for the year (Billion Baht)	55.0	44.7	32.0	34.1	47.2	GRI 201-1		
EBITDA (Billion Baht)	102.1	86.6	75.1	74.6	91.9	GRI 201-1		
Employee compensation comprising salary, wage, welfare and regular contributions (Million Baht)	43,674	43,960	48,139	46,796	47,921	GRI 201-1		
Dividend to shareholders (Million Baht)	22,800	21,600	16,800	16,800	22,200	GRI 201-1		
Interest and financial expenses to lender (Million Baht)	7,112	6,836	6,442	7,082	6,758	GRI 201-1		
Taxes to government and local government authorities such as income tax, local maintenance tax, property tax and other specific taxes (Million Baht)	6,959	6,630	6,143	7,190	8,430	GRI 201-1		
Tax privilege and others from investment promotion, and research and development (Million Baht)	4,300	1,905	1,388	1,149	1,829	GRI 201-4		
Non-compliance case through SCG Whistleblowing System (Cases)	31	21	30	38	30	GRI 205-3	1.4.7	
Customer Satisfaction - SCG Contact Center (%)	100	100	100	100	100		1.5.1	
Average Customer Satisfaction - All business unit (%)	NA	93	94	94	94		1.5.1	
Contributions to organizations (Million Baht)**	5.2	9.8	22.2	13.79	11.31		1.6.1 1.6.2	
Contributions to political activities (Million Baht)***	0	0	0	0	0		1.6.1 1.6.2	
Suppliers that assessed Environmental, Social and Governance (ESG) Risks (% of procurement spending)	98	100	100	100	100		1.7.4	
Procurement Spending by Geography (% of procurement spending)								
• Domestic	45	50	58	57	40		1.7.6	
• Regional	55	50	42	43	60			
Revenue from Sales of High Value Added Products and Services								
(Billion Baht)	175.5	185.0	179.2	126.1	182.7			
(%)	38.9	38.7	40.9	31.5	34.5			
Revenue from Sales of SCG Green Choice Products and Services								
(Billion Baht)	185.2	202.4	128.8	130.4	216.0			EM-CM-410a.2
(%)	41.1	42.3	29.4	32.6	40.7			
Revenue from Sales of Products and Services designed for use-phase resource efficiency of Chemicals Business (Billion Baht)****	NA	NA	NA	0.022	4.870			RT-CH-410a.1
(%)	NA	NA	NA	0.02	2.00			
Revenue from Sales of Sustainable Construction Products and Services								
(Billion Baht)	58.5	65.5	60.4	59.6	69.4		1.10.1	EM-CM-410a.1
(%)	13.0	13.7	13.8	14.9	13.1			

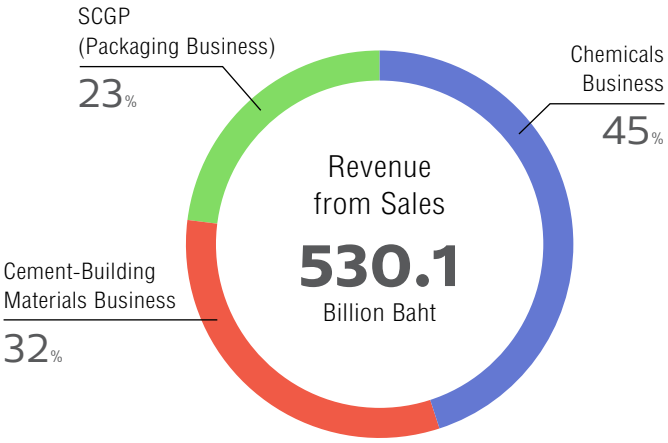
NA = Not Available

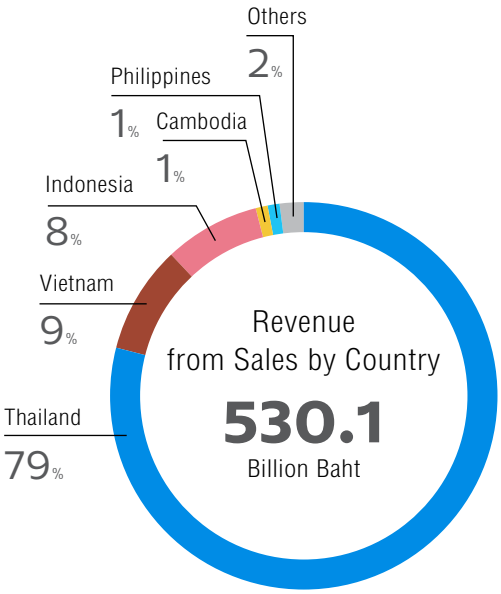
* Reference based on DJSI 2021 Questionnaire

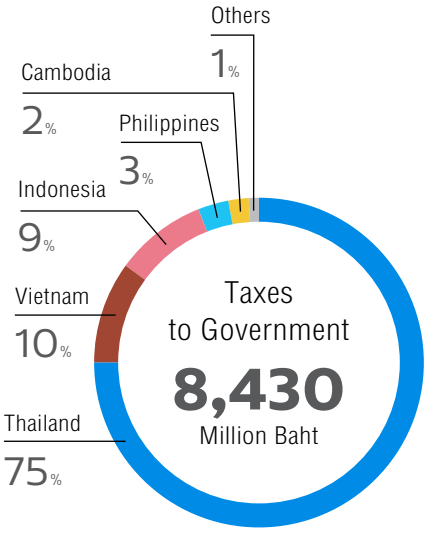
** The first fifth organizations contributed by SCG are Alliance to End Plastic Waste (AEPW), World Business Council for Sustainable Development (WBCSD), The Federation of Thai Industries, Global Compact Network Thailand, and The Thai Chamber of Commerce and Board of Trade of Thailand. The objective is to support sustainable development work. In particular, issues that need to be accelerated in building a network of cooperation, such as climate change, circular economy, and health & safety in order to achieve tangible results. SCG does not provide support to influence any organization or represent a stakeholder in that organization's operations.

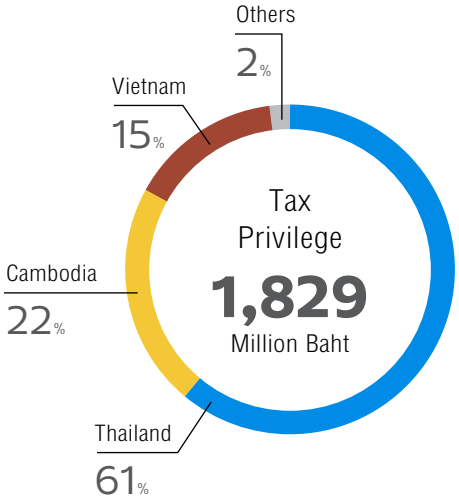
*** SCG remains politically neutral, and set policy which does not give financial or any kind of supports to any political party, political group, or candidates in local, regional or national levels or person with political influence or lobbying or interest representation or similar and other categories (such e.g. election campaign, spending related to ballot measures, voting activities, or referendums). In addition, SCG establishes definition and prohibition of facilitation payments in Anti-corruption policy which means any action that may influence or motivate an unfair decision making and treatment.

**** Adjusted data in 2020 due to data collection error


SCGP
(Packaging Business)
23%
Chemicals
Business
45%
Revenue
from Sales
530.1
Billion Baht
Cement-Building
Materials Business
32%


Others
2%
Philippines
1%
Cambodia
1%
Indonesia
8%
Vietnam
9%
Revenue
from Sales by Country
530.1
Billion Baht
Thailand
79%


Others
1%
Cambodia
2%
Philippines
3%
Indonesia
9%
Vietnam
10%
Taxes
to Government
8,430
Million Baht
Thailand
75%

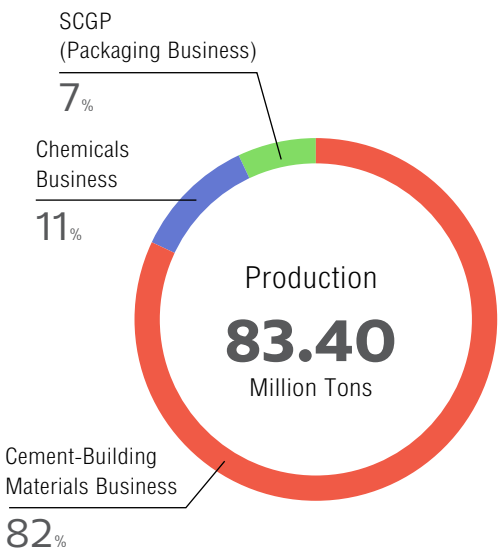

Others
2%
Vietnam
15%
Tax
Privilege
1,829
Million Baht
Cambodia
22%
Thailand
61%

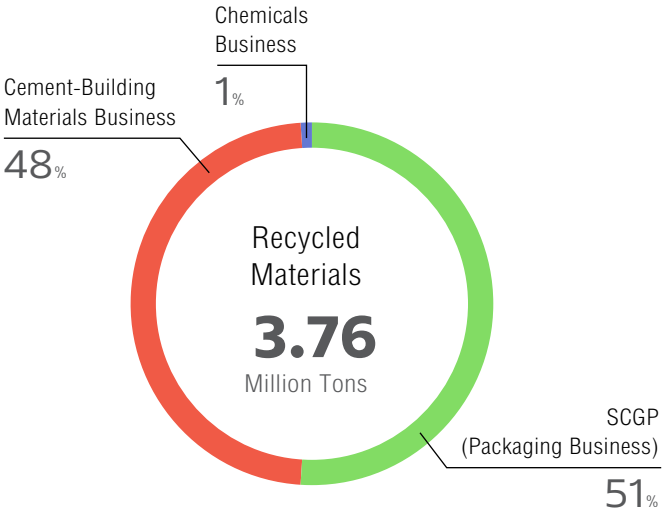
Environmental Performance

Production and Raw Materials

Performance Data	2017	2018	2019	2020	2021	GRI Standards	DJSI**	SASB
Production (Million Tons)	42.05	43.22	43.14	39.85	83.40*		0.1	EM-CM-000.A
Raw Materials (Million Tons)	48.79	50.98	51.39	52.77	71.34	GRI 301-1		
Recycled Materials (Million Tons)	3.88	3.73	4.25	5.65	3.76	GRI 301-2		RT-CP-410a.1
(%)	7.9	7.3	8.3	10.7	5.3			

*1st year to incorporate environmental performance from abroad operations
** Reference based on DJSI 2021 Questionnaire





Greenhouse Gas Emissions

Towards the net zero in 2050, Greenhouse gas emissions decreased 0.90 million tons CO_2 compared with Greenhouse gas emission at year 2020.

Performance Data	2017	2018	2019	2020*	2021*	GRI Standards	DJSI**	SASB
GHGs Scope 1 and 2 (Million Tons CO_2)	23.60	24.54	23.99	33.90	33.00			
GHG Scope 1 (Million Tons CO_2)***	21.15	22.10	21.59	30.68	29.82	GRI 305-1	2.3.1	EM-CM-110a.1
GHG Scope 2 (Million Tons CO_2)***	2.45	2.44	2.40	3.22	3.18	GRI 305-2	2.3.2	
Biogenic CO_2 (Million Tons CO_2)	NA	NA	NA	NA	4.85	GRI 305-1		
GHG emission reduction compared with the base year of 2020 (Million Tons CO_2) (%)					 0.90 2.66	 GRI 305-5		

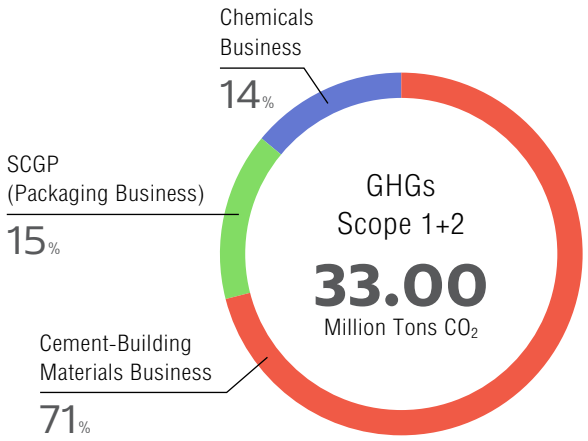
Revised base year of 2020 including performance from abroad operations

NA = Not Available

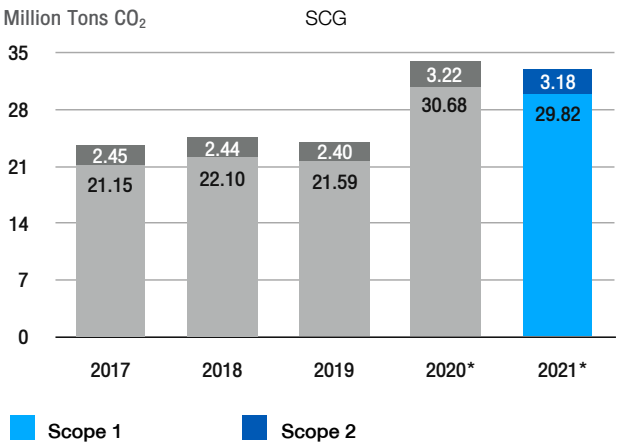
* 1st year to incorporate environmental performance from abroad operations

** Reference based on DJSI 2021 Questionnaire

*** Within Deloitte's limited assurance scope (Page 152-153)



Greenhouse Gas Emissions



* 1st year to incorporate environmental performance from abroad operations

Energy Consumption

Performance Data	2007	2017	2018	2019	2020	2021*	GRI Standards	DJSI**	SASB
Total Energy Consumption (Petajoules)***	139.36	183.49	189.36	188.83	183.54	257.44	GRI 302-1	2.3.3	EM-CM-130a.1
Heating and Steam Consumption (Petajoules)***	127.11	169.14	175.00	174.60	170.11	236.61	GRI 302-1		EM-CM-130a.1
Alternative Fuel (Petajoules)									
• Renewable : Biomass	21.46	5.10	5.66	8.88	9.15	14.38	GRI 302-1		EM-CM-130a.1
• Renewable : Industrial Waste		12.64	9.80	9.81	8.81	10.46	GRI 302-1		EM-CM-130a.1
• Non-Renewable : Industrial Waste			4.42	5.08	6.28	10.53	GRI 302-1		EM-CM-130a.1
Portion of Alternative Fuel (%)	16.9	10.5	11.4	13.6	14.3	14.8	GRI 302-1		EM-CM-130a.1
Electrical Consumption (Gigawatt Hours)***	3,403	3,985	3,988	3,953	3,730	5,231	GRI 302-1		EM-CM-130a.1
Energy Consumption Reduction compared with business as usual (BAU) at the base year of 2007 (Petajoules)	0	16.90	16.08	15.31	15.00	19.75	GRI 302-4		
(%)	0	8.4	7.8	7.5	7.6	7.1			
Energy Consumption - by Category (Megawatt Hours)							GRI 302-1	2.3.3	
a) Non-renewable fuels (coal, oil, natural gas, etc.) purchased and consumed		40,460,824	42,863,956	42,038,353	41,155,843	58,181,776			
b) Non-renewable electricity purchased		3,496,405	3,398,368	3,371,388	3,154,717	5,116,971			
c) Steam/heating/cooling and other energy (non-renewable) purchased		1,595,372	1,484,067	1,314,380	1,233,071	1,292,790			
d) Total renewable energy (wind, solar, biomass, hydroelectric, geothermal, etc.) purchased or generated***		5,416,967	4,883,520	5,772,189	5,564,261	7,015,718			
e) Total non-renewable energy (electricity and heating & cooling) sold***		30,901	29,816	42,563	124,029	97,098			
Total Non-Renewable Energy Consumption (a+b+c-e) (Megawatt Hours)***		45,521,700	47,716,575	46,681,558	45,419,602	64,494,439			

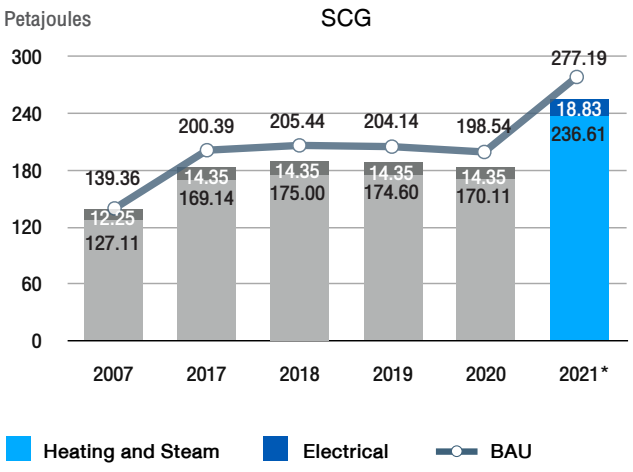
Base year

*1st year to incorporate environmental performance from abroad operations

**Reference based on DJSI 2021 Questionnaire

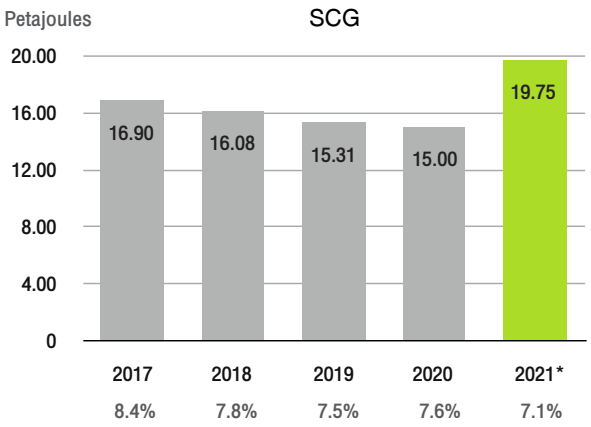
***Within Deloitte's limited assurance scope (Page 152-153)

Total Energy Consumption

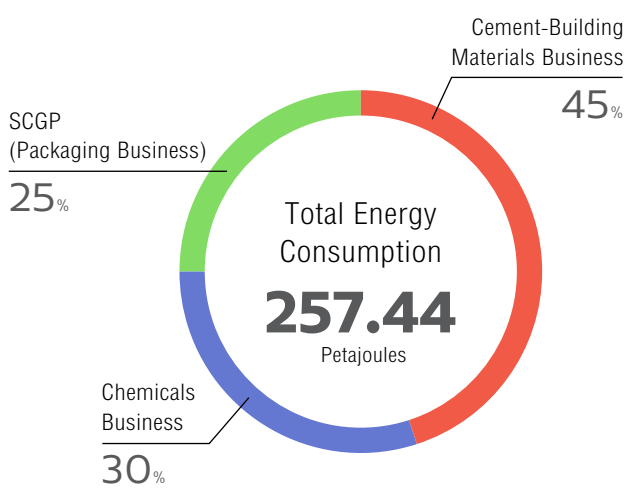


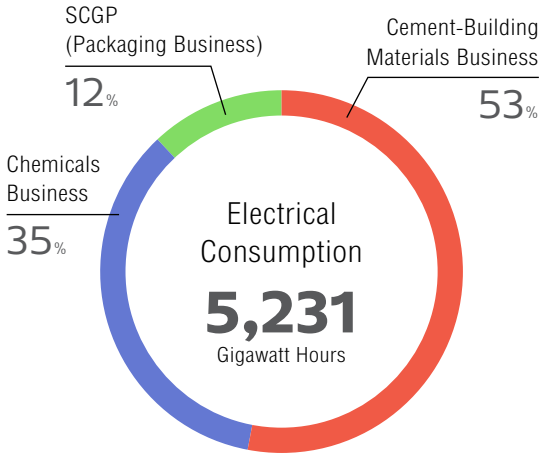
*1st year to incorporate environmental performance from abroad operations

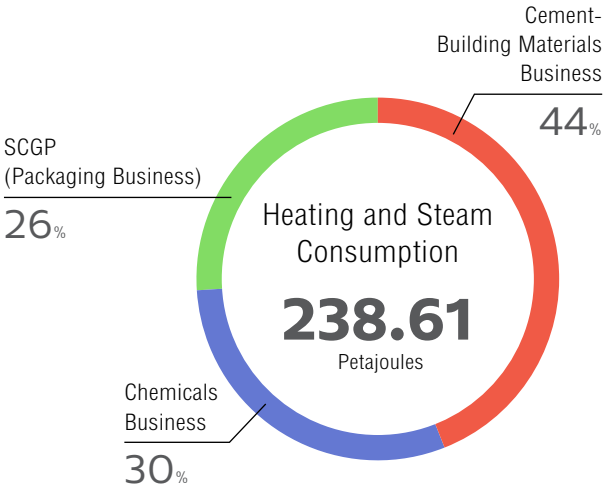
Energy Consumption Reduction

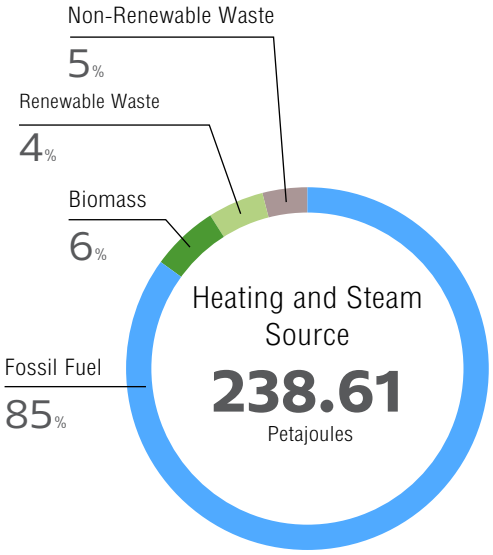


Total Energy Consumption









Co-Processing Performance of Cement-Building Materials Business

Performance Data	2017	2018	2019	2020	2021*	GRI Standards	DJSI**	SASB
Alternative fuel used to replace the fossil fuel (as % of total heat consumption)	11.10	11.90	17.50	18.30	19.90		2.5.1	
• Alternative fossil fuel	5 .00	4.90	6.20	6.60	7.70			
• Biomass	6 .10	7.00	11.30	11.70	12.20			
Alternative raw materials contained in cement (%)	13.40	13.80	9.60	8.40	8.40		2.5.1	
Alternative raw materials contained in concrete (%)	1.96	2.01	1.21	1.29	1.09		2.5.1	
Clinker-to-Cement ratio (%)	75.60	74.80	74.40	72.90	74.20		2.5.1	
Alternative raw materials contained in other building materials (%)	19.20	14.10	14.70	15.40	11.20		2.5.1	

*1st year to incorporate environmental performance from abroad operations

**Reference based on DJSI 2021 Questionnaire

Water Withdrawal and Effluent Quality

Water withdrawal decreased 38.03 million cubic meters compared with BAU with an increase in recycled water portion.

Performance Data	Water						Areas with water stress	GRI Standards	DJSI**	SASB
	2014	2017	2018	2019	2020	2021*	2021*			
Water Withdrawal										
Water Withdrawal by source										
Surface water (Million Cubic Meters)***	38.56	33.78	27.79	26.44						
• Freshwater TDS ≤ 1,000 mg/l					28.45	50.85	0	GRI 303-3	2.3.4	EM-CM-140a.1
• Other water TDS > 1,000 mg/l					0	0	0			
Groundwater (Million Cubic Meters)***	37.18	45.05	44.26	41.79						
• Freshwater TDS ≤ 1,000 mg/l					31.38	42.31	0	GRI 303-3	2.3.4	EM-CM-140a.1
• Other water TDS > 1,000 mg/l					6.63	0	0			
Third-party water (total) (Million Cubic Meters)***	37.76	38.77	38.13	35.20						
• Freshwater TDS ≤ 1,000 mg/l					27.83	36.87	0	GRI 303-3	2.3.4	EM-CM-140a.1
• Other water TDS > 1,000 mg/l					0	0	0			
Total Water Withdrawal (Million Cubic Meters)***	113.51	117.60	110.18	103.43	94.29	130.03	0	GRI 303-3	2.3.4	
Water Withdrawal Reduction compared with business as usual at the base year of 2014 (Million Cubic Meters)	0	3.92	10.03	12.17	16.61	38.03	-			
(%)	0	3.2	8.3	10.5	15.0	22.6	-			
Recycled Water (Million Cubic Meters)***	12.19	10.19	11.24	12.30	12.33	17.03	-			EM-CM-140a.1
(%)	9.7	8.0	9.3	10.6	11.6	11.9	-			

Base year

* 1st year to incorporate environmental performance from abroad operations

** Reference based on DJSI 2021 Questionnaire

*** Within Deloitte's limited assurance scope (Page 152-153)

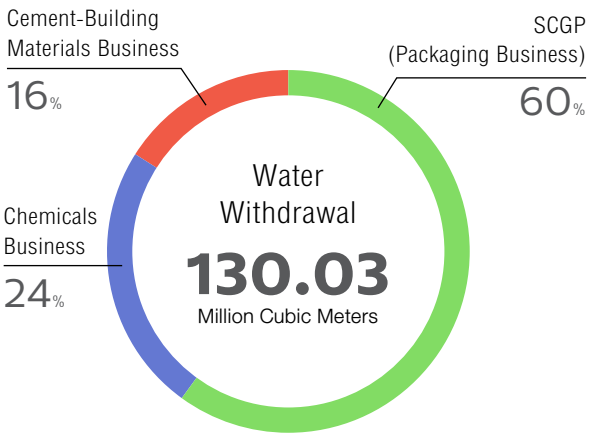
Performance Data	Water						Areas with water stress	GRI Standards	DJSI*	SASB
	2014	2017	2018	2019	2020	2021	2021			
Water Discharge (Only Thailand Operations)										
Water Discharge by destination**										
• Surface water (Million Cubic Meters)	NA	NA	NA	NA	35.57	48.25	-	GRI 303-4	2.3.4	
• Groundwater (Million Cubic Meters)	NA	NA	NA	NA	1.16	0.001	-	GRI 303-4	2.3.4	
• Third-party water (total) (Million Cubic Meters)	NA	NA	NA	NA	4.76	4.15	-			
---Third-party water sent for use to other organizations (Million Cubic Meters)	NA	NA	NA	NA	4.62	3.81	-	GRI 303-4	2.3.4	
Water Discharge by freshwater and other water**										
• Freshwater TDS ≤ 1,000 mg/l (Million Cubic Meters)	NA	NA	NA	NA	5.45	7.84	0	GRI 303-4	2.3.4	
• Other water TDS > 1,000 mg/l (Million Cubic Meters)	NA	NA	NA	NA	36.04	44.56	0			
Total Water Discharge (Million Cubic Meters)**	NA	NA	NA	NA	41.49	52.40	0	GRI 303-4	2.3.4	
BOD (Tons)	485	387	240	165	176	211	-			
COD (Tons)	6,725	6,322	5,390	4,422	3,875	4,411	-			
TSS (Tons)	1,019	965	793	588	549	490	-			

Base year

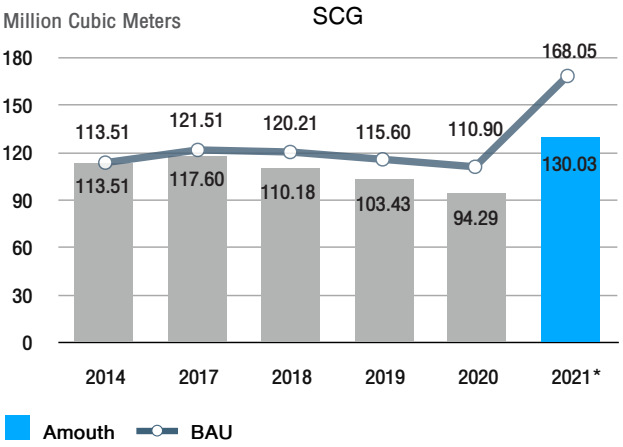
NA = Not Available

* Reference based on DJSI 2021 Questionnaire

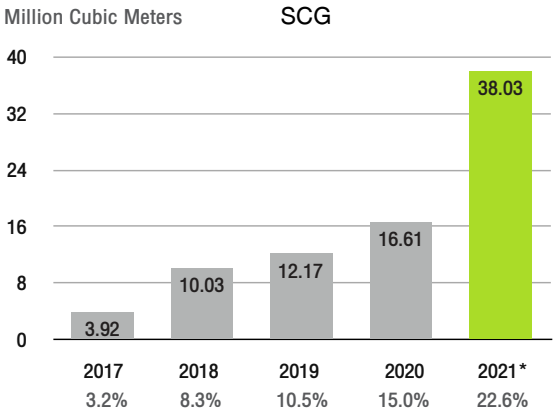
** Within Deloitte's limited assurance scope (Page 152-153)



Water Withdrawal



Water Withdrawal Reduction



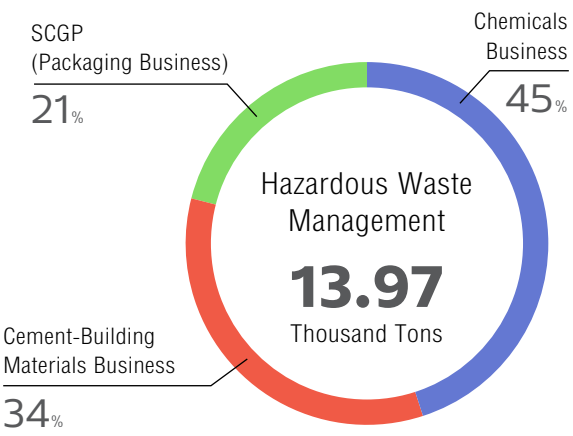
* 1st year to incorporate environmental performance from abroad operations

Waste Management

Reducing hazardous waste generation while targeting toward zero waste to landfill.

Performance Data (Only Thailand Operations)	2017	2018	2019	2020	2021 Onsite	2021 Offsite	GRI Standards	DJSI*	SASB
Hazardous Waste Generation (Thousand Tons)**	12.08	13.94	11.70	17.90	14.23		GRI 306-3 (2020)	2.3.5	EM-CM-150a.1
Hazardous Waste Management (Thousand Tons)**	12.20	13.62	11.38	17.79	4.93	9.04	GRI 306-4 (2020)	2.3.5	EM-CM-150a.1
Diverted from Disposal (Thousand Tons)**									
• Reuse					0.00	0.03			
• Recycled	9.95	12.31	11.00	17.59	1.19	2.48			
• Other recovery					0.00	0.74			
Directed to Disposal (Thousand Tons)**									
• Incinerated with energy recovery					3.74	5.76			
• Incinerated without energy recovery	2.22	1.31	0.38	0.20	0.0018	0.0293			
• Other disposal	NA	NA	NA	NA	0.0026	0.00			
• Landfilled	0.03	0.00	0.00	0.00077	0.00	0.00			
Hazardous waste in the storage at the end of the year (Thousand Tons)	NA	NA	1.16	1.24	1.24				
Non-Hazardous Waste Generation (Thousand Tons)**	1,394.45	1,414.24	1,527.06	1,190.68	1,209.62		GRI 306-3 (2020)	2.3.5	EM-CM-150a.1
Non-Hazardous Waste Management (Thousand Tons)**	1,376.28	1,354.88	1,542.30	1,217.63	783.25	458.90	GRI 306-4 (2020)	2.3.5	EM-CM-150a.1
Diverted from Disposal**									
• Reuse					6.26	0.13			
• Recycled	1,372.58	1,172.79	1,318.96	1,206.66	430.03	265.79			
• Other recovery					0.10	0.03			
Directed to Disposal**									
• Incinerated with energy recovery					346.85	192.50			
• Incinerated without energy recovery	3.70	2.11	1.36	0.11	0.01	0.32			
• Other disposal	NA	NA	NA	NA	0.00	0.00			
• Landfilled	0.00	179.98	221.97	10.86	0.00	0.1329			
Non-Hazardous waste in the storage at the end of the year (Thousand Tons)	NA	NA	191.84	164.78	132.24				
Total waste generated and being managed (Thousand Tons)*** (a)	1,388.48	1,368.50	1,553.69	1,235.41	1,256.12			2.3.5	
• Reuse/Recycled/Other recovery/Incinerated with energy recovery (b)	1,382.53	1,185.10	1,329.96	1,224.25	1,255.62				
• Incinerated without energy recovery/ Other Disposal/Landfilled (a)-(b)	5.95	183.40	223.73	11.16	0.50				

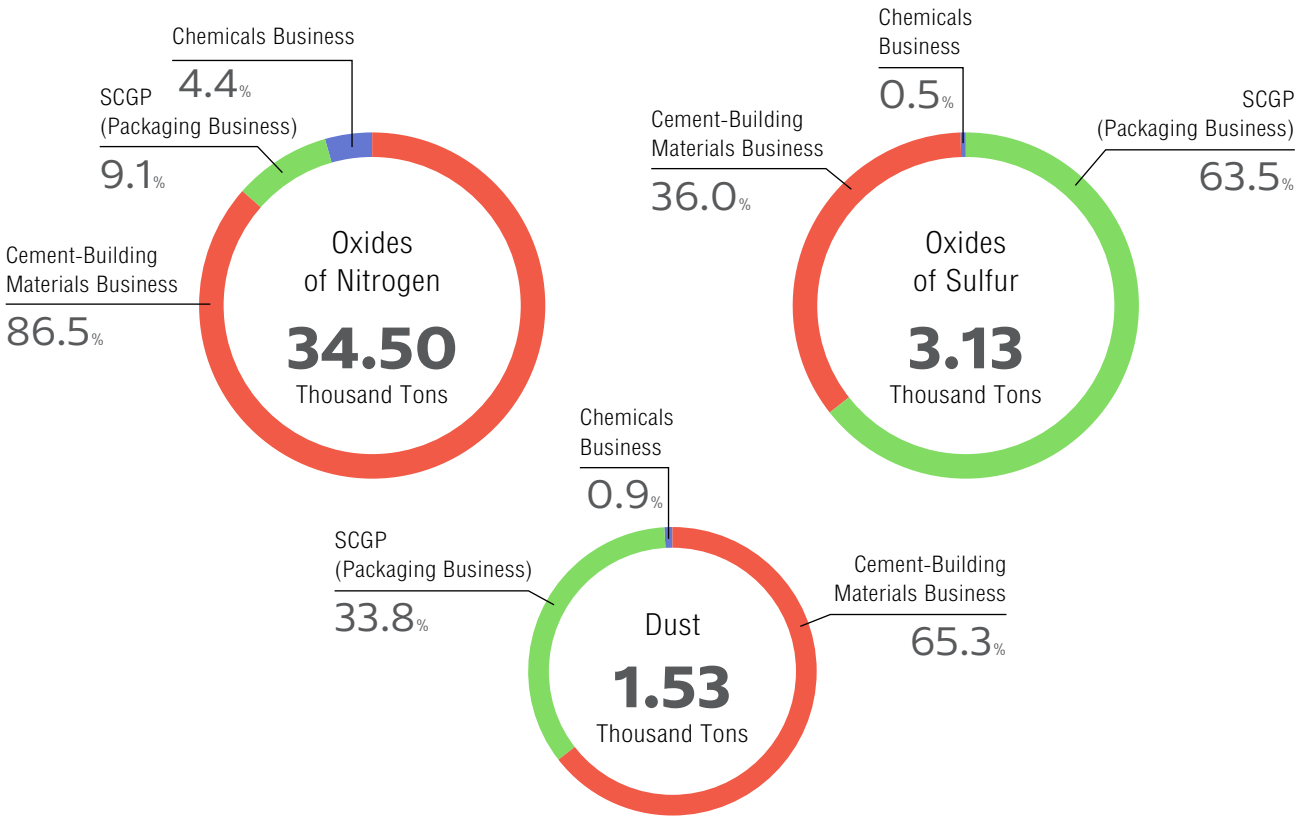
NA = Not Available
* Reference based on DJSI 2021 Questionnaire
** Within Deloitte's limited assurance scope (Page 152-153)
*** Exclude waste in the storage at the end of the year



Air Emissions

Performance Data (Only Thailand Operations)	2017	2018	2019	2020	2021	GRI Standards	DJSI*	SASB
Oxides of Nitrogen (Thousand Tons)**	25.48	27.23	25.72	30.80	34.50	GRI 305-7	2.3.6	EM-CM-120a.1
Oxides of Sulfur (Thousand Tons)**	3.50	2.88	2.75	3.71	3.13	GRI 305-7	2.3.7	EM-CM-120a.1
Dust (Thousand Tons)**	1.09	1.25	1.36	1.39	1.53	GRI 305-7	2.3.9	EM-CM-120a.1
Mercury (Kilograms)**	14.53	112.28	84.21	32.95	29.51	GRI 305-7	2.3.8	EM-CM-120a.1

NA = Not Available
* Reference based on DJSI 2021 Questionnaire
** Within Deloitte's limited assurance scope (Page 152-153)



Biodiversity/Environmental Expenditures and Benefits/Violations of Legal Obligations and Regulations

Performance Data (Only Thailand Operations)	2017	2018	2019	2020	2021	GRI Standards	DJSI*	SASB
Quarries with Biodiversity Management Plan in place (Number of Sites)	4	4	4	4	4		2.4.2	EM-CM-160a.2
(%)	100	100	100	100	100			
Operating Expenses – Environmental (Million Baht)	1,462	2,190	2,192	2,676	2,657		2.2.3	
Capital Investment – Environmental (Million Baht)	692	1,275	2,593	1,220	1,643		2.2.3	
Total Expenses – Environmental (Capital Investment + Operating Expenses) (Million Baht)	2,154	3,465	4,785	3,896	4,300		2.2.3	
Savings, cost avoidance and tax incentives linked to environment investment (Million Baht)**	1,728	1,441	2,242	9,611	34,084			

NA = Not Available
* Reference based on DJSI 2021 Questionnaire
** Savings, cost avoidance and tax incentives linked to environment investment include Revenue from sales of SCG Green Choice, provide directly value to customer

Performance Data	2017	2018	2019	2020	2021*	GRI Standards	DJSI**	SASB
Total actual and opportunity costs (e.g. forgone income) from water-related incidents (Million Baht)	0	0	0	0	0		2.7.5	
Number of violations of legal environmental obligations/ regulations (over USD 10,000) (Number of Cases)	0	0	0	0	0	GRI 307-1	2.2.4	

* 1st year to incorporate environmental performance from abroad operations
** Reference based on DJSI 2021 Questionnaire

Social Performance

Health and Safety

Zero fatality of travelling, transportation, and occupational illness disease while lost time injury frequency rate of employee and contractor are still not achieved zero.

Performance Data	2017	2018	2019	2020	2021*	GRI Standards	DJSI**	SASB
From Workplace								
Hours Worked*** (Million Hours Worked)								
• Employee	79.38	83.18	79.55	79.72	118.31			
• Contractor	118.33	110.63	110.95	124.97	140.43			
Total Recordable Work-Related Injury and Occupational Illness & Disease Rate (Cases/1,000,000 Hours Worked)								EM-CM-320a.1 RT-CH-320a.1
• Employee***	1.020	0.854	0.880	0.840	0.947			
• Contractor	0.625	1.094	0.793	0.608	0.869			
Fatality Work-Related Injury and Occupational Illness & Disease Rate (Cases/1,000,000 Hours Worked)								RT-CH-320a.1
• Employee***	0.013	0.000	0.000	0.000	0.017			
• Contractor	0.017	0.018	0.018	0.032	0.057			
Total Number of Recordable Work-Related Injury*** (Cases)								
• Employee	81	71	70	67	112	GRI 403-9		
• Contractor	74	121	88	76	122			
Total Recordable Work-Related Injury Rate*** (Cases/1,000,000 Hours Worked)								
• Employee	1.020	0.854	0.880	0.840	0.947	GRI 403-9		
• Contractor	0.625	1.094	0.793	0.608	0.869			
Number of Fatality Work-Related Injury*** (Cases)								
• Employee (Male : Female)	1 : 0	0 : 0	0 : 0	0 : 0	1 : 1	GRI 403-9	3.7.2	
• Contractor (Male : Female)	2 : 0	2 : 0	1 : 1	3 : 1	8 : 0			
Fatality Work-Related Injury Rate*** (Cases/1,000,000 Hours Worked)								
• Employee	0.013	0.000	0.000	0.000	0.017	GRI 403-9		
• Contractor	0.017	0.018	0.018	0.032	0.057			
Number of High-Consequence Work-Related Injury*** (Cases)								
• Employee	NA	NA	NA	0	2	GRI 403-9		
• Contractor	NA	NA	NA	4	7			
High-Consequence Work-Related Injury Rate*** (Cases/1,000,000 Hours Worked)								
• Employee	NA	NA	NA	0.000	0.017	GRI 403-9		
• Contractor	NA	NA	NA	0.032	0.050			
Lost Time Injury Frequency Rate*** (Cases/1,000,000 Hours Worked)								
• Employee (Only Thailand Operations)	0.250	0.192	0.239	0.113	0.175		3.7.3	
• Contractor (Only Thailand Operations)	0.110	0.279	0.279	0.216	0.192		3.7.4	
• Employee	0.250	0.192	0.239	0.113	0.389		3.7.3	
• Contractor	0.110	0.279	0.279	0.216	0.249		3.7.4	
Severity Work-Related Injury Rate (Days/1,000,000 Hours Worked)								
• Employee	4.095	2.685	4.890	2.960	6.246			
• Contractor	1.690	6.000	5.714	5.609	8.780			
Total Number of Recordable Occupational Illness & Disease (Cases)								
• Employee***	0	0	0	0	0	GRI 403-10		
• Contractor	NA	NA	NA	0	0			

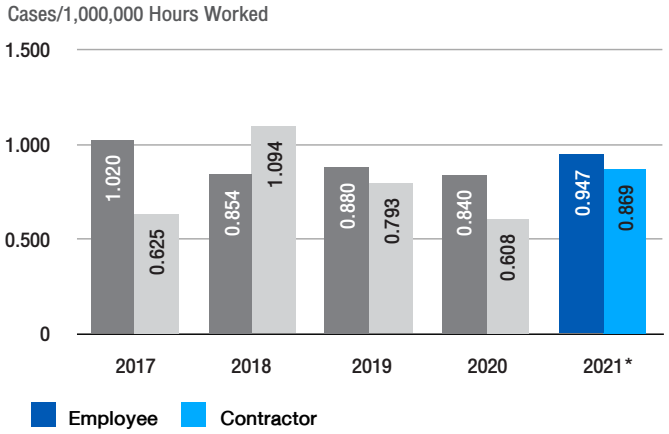
Performance Data	2017	2018	2019	2020	2021*	GRI Standards	DJSI**	SASB
Occupational Illness Frequency Rate (Cases/1,000,000 Hours Worked)								
• Employee***	0.000	0.000	0.000	0.000	0.000		3.7.5	
• Contractor	NA	NA	NA	0.000	0.000			
Number of Fatality Occupational Illness & Disease (Cases)								
• Employee***	0	0	0	0	0	GRI 403-10		
• Contractor	NA	NA	NA	0	0			
Number of Reported Cases of Silicosis (Cases)								
• Employee***	0	0	0	0	0			EM-CM-320a.2
• Contractor	NA	NA	NA	0	0			
Near Miss Frequency Rate (Employee & Contractor) (Cases/1,000,000 Hours Worked)	NA	NA	NA	17.524	20.213			EM-CM-320a.1
Process Safety Incidents Count (PSIC)**** (Cases)	NA	NA	NA	0	0			RT-CH-540a.1
Process Safety Total Incident Rate (PSTIR)**** (Cases/1,000,000 Hours Worked)	NA	NA	NA	0	0			RT-CH-540a.1
Process Safety Incident Severity Rate (PSISR)**** (Cases/1,000,000 Hours Worked)	NA	NA	NA	0	0			RT-CH-540a.1
Number of Chemicals Spillage (Cases)								
• Level 1 : High Severity	0	1	1	1	0	GRI 306-3		
• Level 2 : Moderate Severity	0	1	0	0	0			
• Level 3 : Low Severity	4	4	7	3	4			
From Travelling and Transportation								
Number of Fatality Work-Related Injury*** (Cases)								
• Employee (Male : Female)	1 : 0	0 : 0	0 : 0	0 : 0	0 : 0	GRI 403-9	3.7.2	
• Direct Transportation Contractor (Male : Female)	2 : 0	2 : 0	0 : 0	1 : 0	0 : 0			
• Other Transportation Contractor (Male : Female)	5 : 0	1 : 1	4 : 0	2 : 0	0 : 0			
Number of Transport Incidents (Cases)	NA	NA	NA	33	24			RT-CH-540a.2
Logistics Drivers Trained from SCG Skills Development School (Persons)	17,716	17,024	18,224	8,989	8,969			
From Workplace, Travelling and Transportation								
Number of Fatality Work-Related Injury*** (Cases)								
• Employee (Male : Female)	2 : 0	0 : 0	0 : 0	0 : 0	1 : 1	GRI 403-9	3.7.2	
• Contractor (Male : Female)	4 : 0	4 : 0	1 : 1	4 : 1	8 : 0			
Others								
Product that have under gone a Hazard Assessment**** (%)	NA	NA	NA	100	100			RT-CH-410b.1
Revenue from Products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS)**** (%)	NA	NA	NA	100	100			RT-CH-410b.1

NA = Not Available
* 1st year to incorporate safety performance from abroad operations
** Reference based on DJSI 2021 Questionnaire
*** Within Deloitte's limited assurance scope (Page 152-153)
**** Only Chemicals Business

Employee : A full time employee according to an employment contract such as operational level, supervisory and technical staff level, and managerial level including Intern (probationary) and special contracted employee.
Workplace Contractor : A contractor that works for the organization, and whose work and/or workplace is controlled by the organization (exclude transportation contractor).
Direct Transportation Contractor : Transportation contractor with operation under SCG's brand.
Other Transportation Contractor : Other transportation contractor without operation under SCG's brand.

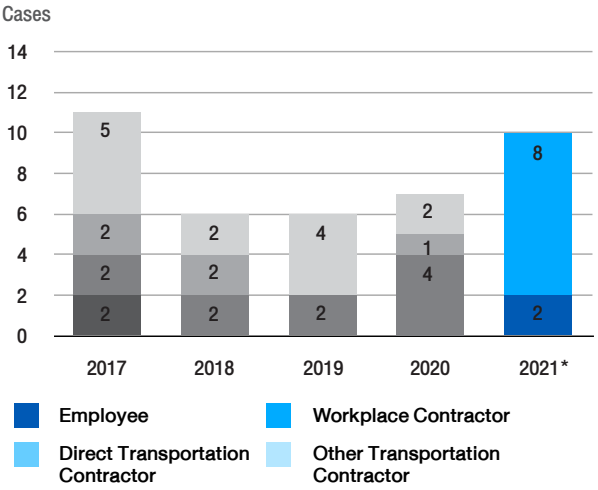
Level 1 : High severity means that spills that causes of injury or spill to environment or the volume of chemicals spills is more than 2,500 kg (plastic powder or granule is more than 5,000 kg) can be contained (not reaching the environment).
Level 2 : Moderate severity means that spills with no injury occurred and the volume of chemicals spills is more than 500 to 2,500 kg (plastic powder or granule is more than 2,500 to 5,000 kg) can be contained (not reaching the environment).
Level 3 : Low severity means that spills with no injury occurred and the volume of chemicals spills is more than 50 to 500 kg (plastic powder or granule is more than 500 to 2,500 kg) can be contained (not reaching the environment).
The chemicals exclude flammable gas and utility chemicals, e.g. raw water, filtrated water, distilled water, nitrogen gas, instrument air, service air, or carbon dioxide.

Total Recordable Work-Related Injury and Occupational Illness & Disease Rate



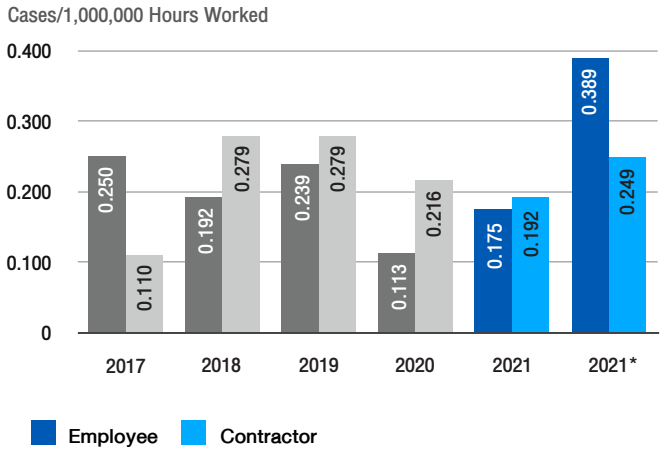
* 1st year to incorporate safety performance from aboard operations

Number of Recordable Work-Related Injury



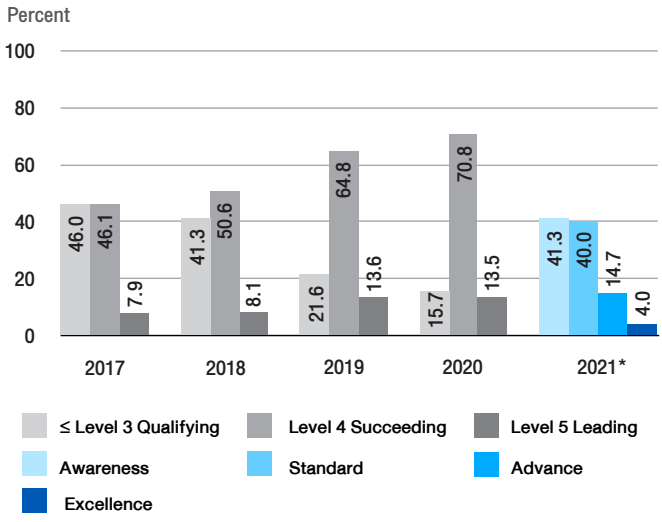
* 1st year to incorporate safety performance from abroad operations

Lost Time Injury Frequency Rate



* 1st year to incorporate safety performance from abroad operations

SPAP Certified Companies in Thailand



* Safety performance level corresponding to SCG Safety Framework 2021

Workplace Contractor: A contractor that works for the organization, and whose work and/or workplace is controlled by the organization (exclude transportation contractor).
Direct Transportation Contractor: Transportation contractor with operation under SCG's brand.
Other Transportation Contractor: Other transportation contractor without operation under SCG's brand.

Labor and Social Development

Performance Data	2017	2018	2019	2020	2021	GRI Standards	DJSI*	SASB
Number of employees (Persons)	53,670	52,971	54,224	49,754	58,283	GRI 102-8		
Female share of total workforce (%)	22.6	22.8	21.9	23.0	22.4	GRI 405-1b	3.2.2	
Female in all management positions (%)	25.5	24.8	24.7	24.9	24.8	GRI 102-8	3.2.2	
Female in junior management positions (%)	26.5	26.3	26.1	26.4	26.6		3.2.2	
Female in top management positions (%)	14.2	13.3	13.1	13.1	12.9		3.2.2	
Female in management positions in revenue-generating functions** (%)	19.2	19.2	19.5	19.5	18.3		3.2.2	
Female in Science, Technology, Engineering and Mathematics positions (STEM-related positions) (%)	NA	NA	NA	24.2	26.3		3.2.2	
Proportion of local senior management*** (%)	0.3	0.3	0.5	0.9	0.4	GRI 202-2		
Number of employees with disability**** (Persons)	41	40	39	35	31		3.2.4	
Remuneration of female to male (Only Thailand Operations)********						GRI 405-2	3.2.5	
• Average salary of Executive Level (base salary only)********								
• Female (Thousand Baht)	6,355	7,072	7,190	7,026	7,171			
• Male (Thousand Baht)	6,987	7,106	7,086	7,218	6,604			
• Ratio of average salary of female to male (Executive Level) (base salary only)********	0.910	0.995	1.015	0.973	1.086			
• Average salary of Executive Level (base salary + other cash incentives)********								
• Female (Thousand Baht)	NA	NA	NA	9,075	11,257			
• Male (Thousand Baht)	NA	NA	NA	9,324	9,937			
• Ratio of average salary of female to male (Executive Level) (base salary + other cash incentives)********	NA	NA	NA	0.973	1.133			
• Average salary of Management Level (base salary only)********								
• Female (Thousand Baht)	2,112	2,222	2,289	2,319	2,235			
• Male (Thousand Baht)	2,372	2,441	2,486	2,511	2,246			
• Ratio of average salary of female to male (Management Level) (base salary only)********	0.890	0.910	0.921	0.924	0.995			
• Average salary of Management Level (base salary + other cash incentives)********								
• Female (Thousand Baht)	2,815	2,963	2,956	2,995	3,175			
• Male (Thousand Baht)	3,162	3,254	3,211	3,243	3,163			
• Ratio of average salary of female to male (Management Level) (base salary + other cash incentives)********	0.890	0.911	0.921	0.924	1.004			
• Average salary of Non-management Level (base salary only)********								
• Female (Thousand Baht)	475	523	554	583	588			
• Male (Thousand Baht)	439	471	493	516	517			
• Ratio of average salary of female to male (Non-management Level) (base salary only)********	1.082	1.110	1.124	1.130	1.138			
• Average salary of Non-management Level (base salary + other cash incentives)********								
• Female (Thousand Baht)	NA	NA	NA	753	818			
• Male (Thousand Baht)	NA	NA	NA	667	829			
• Ratio of average salary of female to male (Non-management Level) (base salary + other cash incentives)********	NA	NA	NA	1.129	0.987			
Employees represented by an independent trade union or covered by collective bargaining agreements***** (%)	89.4	86.2	84.1	88.0	85.6		3.2.6	
Proportion of Absence by Type								
• Sick leave (%)	14.0	14.0	12.7	10.6	9.1			
• Work-related leave (%)	0.1	0.1	0.1	0.1	0.0			
• Others (%)	85.9	85.9	87.2	89.3	90.9			

Performance Data	2017	2018	2019	2020	2021	GRI Standards	DJSI*	SASB
Number of new employees hire (Persons)	1,659	855	927	482	854	GRI 401-1a	3.5.1	
• Percentage of total employees (%)	3.4	1.8	2.0	1.0	1.5			
• by Gender (Female : Male) (%)	23 : 77	29 : 71	27 : 73	37 : 63	39 : 61			
• by Employee level (Management level : Other level) (%)	0.4 : 99.6	1.8 : 98.2	1.7 : 98.3	1.5 : 98.5	1.3 : 98.7			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	76.6 : 23.3 : 0.1	79.8 : 19.1 : 1.1	69.3 : 30.3 : 0.4	70.3 : 29.5 : 0.2	74.4 : 25.5 : 0.1			
Number of positions filled by internal candidates (Rotation/ Promotion) (Persons)	2,718	2,946	2,532	2,012	2,232		3.5.1	
• Percentage of total employees (%)	5.1	5.6	4.7	4.0	3.8			
• by Gender (Female : Male) (%)	28 : 72	29 : 71	27 : 73	26 : 74	26 : 74			
• by Employee level (Management level : Other level) (%)	6.5 : 93.5	7.2 : 92.8	11.7 : 88.3	7.9 : 92.1	10.9 : 89.1			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	26.5 : 70.1 : 3.4	26.7 : 69.9 : 3.4	21.0 : 73.3 : 5.7	17.4 : 77.5 : 5.1	14.6 : 79.1 : 6.3			
Average hiring cost per employee (Baht/Person)	235,321	123,000	97,264	98,140	85,542		3.5.1	
Voluntary employee turnover (Persons)	1,825	1,599	1,560	1,180	849	GRI 401-1b	3.5.6	
• Percentage of total employees (%)	3.4	3.0	2.9	2.4	1.5			
• by Gender (Female : Male) (%)	23 : 77	26 : 74	27 : 73	27 : 73	29 : 71			
• by Employee level (Management level : Other level) (%)	1.1 : 98.9	1.4 : 98.6	1.5 : 98.5	2.6 : 97.4	3.3 : 96.7			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	47.6 : 50.3 : 2.1	40.5 : 55.2 : 4.3	33.2 : 61.6 : 5.2	24.8 : 64.3 : 10.9	27.0 : 68.9 : 4.1			
Total employee turnover (Persons)	2,437	2,340	1,880	1,804	1,323	GRI 401-1	3.5.6	
• Percentage of total employees (%)	4.5	4.4	3.5	3.6	2.3			
• by Gender (Female : Male) (%)	23 : 77	26 : 74	26 : 74	23 : 77	27 : 73			
• by Employee level (Management level : Other level) (%)	2.6 : 97.4	2.9 : 97.1	3.4 : 96.6	5.4 : 94.6	5.5 : 94.5			
• by Age group (under 30 yr : 30 - 50 yr : over 50 yr) (%)	42.1 : 41.9 :16.0	30.1 : 50.1 : 19.8	28.9 : 54.0 : 17.1	17.3 : 53.5 : 29.2	18.4 : 57.3 : 24.3			
Return to Work after Parental Leave******						GRI 401-3		
• Number of employees taken parental leave (Persons)	375	339	492	306	250			
• Number of employees returned to work after parental leave (Persons)	358	311	461	303	246			
Employee engagement level******* (%)	66	67	68	71	70		3.5.7	
• by Gender (Female : Male) (%)	NA	NA	NA	66 : 73	64 : 72			
• by Employee level (Management level : Other level) (%)	NA	NA	NA	76 : 71	74 : 69			
• by Service year (0-5 yr/over 5-20 yr/over 20 yr) (%)	NA	NA	NA	67 : 68 : 79	64 : 67 : 77			
Employee engagement level by ethnic group of employees (Thai : Others) (%)	NA	NA	NA	70 : 76	69 : 74			
Average hours of training and development (Hours/Person)	72	104	136	124	82	GRI 404-1	3.4.1	
• Mandatory (Hours/Person)	NA	NA	NA	104	42			
• Non mandatory (Hours/Person)	NA	NA	NA	20	40			
Average amount spent on training and development (Baht/Person)	26,924	28,766	23,933	15,794	9,569		3.4.1	
Number of sites where human rights risks have been identified with mitigation plans (Company)	107	49	47	34	50		3.3.4	
Contribution for social and community development (Million Baht)	689	748	719	669	700	GRI 201-1	3.6.3	
• Contribution by SCG (Million Baht)	516	494	414	326	388			
• Contribution by SCG Foundation (Million Baht)	173	254	305	343	312			
Employee volunteering during paid working hours (Million Baht)	87	82	82	40	28		3.6.3	
In-kind giving: products or services donations, projects/ partnerships or similar (Million Baht)	39	46	132	124	147		3.6.3	
Management overheads related to CSR activity (Million Baht)	291	233	152	167	157		3.6.3	

NA = Not Available

* Reference based on DJSI 2021 Questionnaire

** Revenue-generating functions e.g. marketing, sales, production

***Calculate from percentage of local Management Level over total staff in abroad

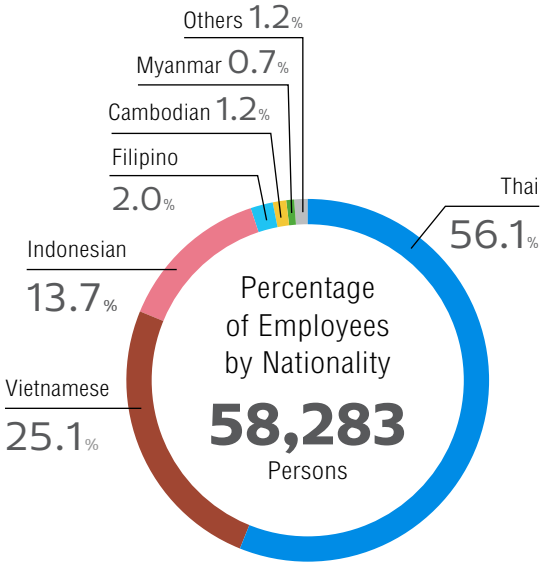
**** Visual and physical impairment and movement disability or other, e.g.hearing impairment, mental disability, communication disability

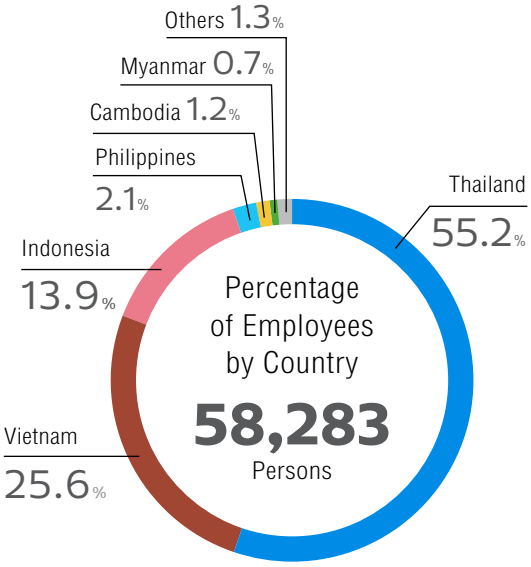
***** Employees joining trade union or working with companies covered by Welfare Committee

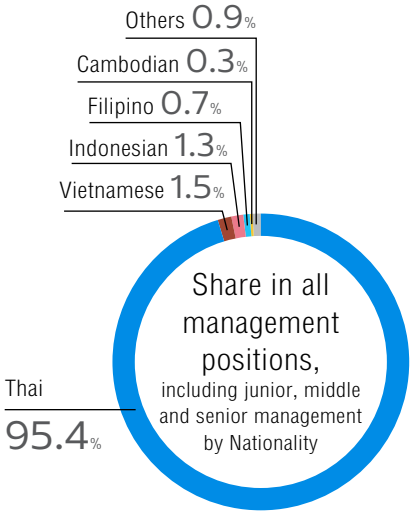
****** Under Thai laws, only female employees can take parental leave

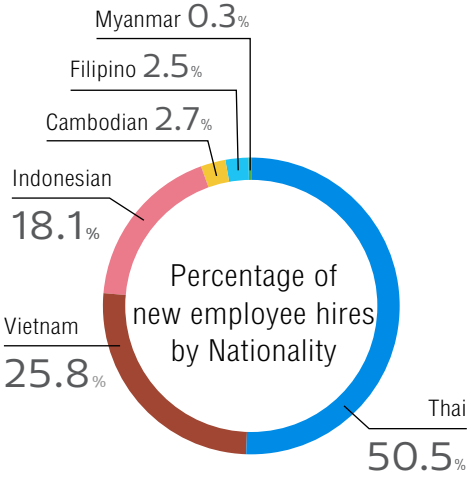
******* Employee engagement level by Gender is available since 2020

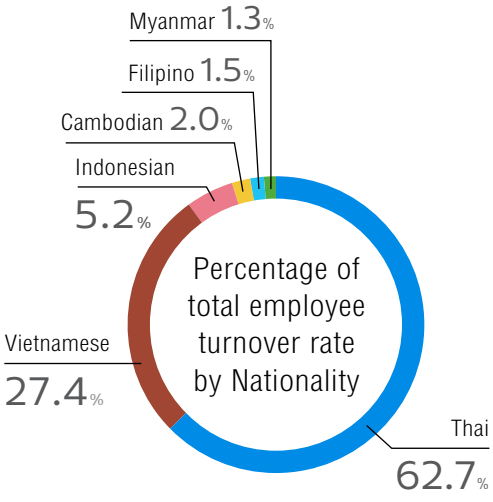
******** Within Deloitte's limited assurance scope (Page 152-153)

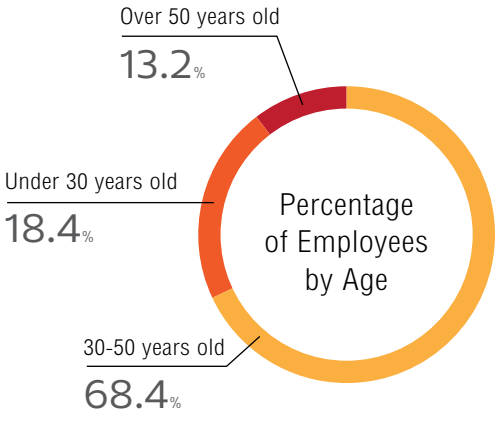

Others 1.2%
Myanmar 0.7%
Cambodian 1.2%
Filipino 2.0%
Thai 56.1%
Indonesian 13.7%
Vietnamese 25.1%
Percentage of Employees by Nationality
58,283
Persons


Others 1.3%
Myanmar 0.7%
Cambodia 1.2%
Philippines 2.1%
Thailand 55.2%
Indonesia 13.9%
Vietnam 25.6%
Percentage of Employees by Country
58,283
Persons


Others 0.9%
Cambodian 0.3%
Filipino 0.7%
Indonesian 1.3%
Vietnamese 1.5%
Thai 95.4%
Share in all management positions,
including junior, middle and senior management by Nationality


Myanmar 0.3%
Filipino 2.5%
Cambodian 2.7%
Indonesian 18.1%
Vietnam 25.8%
Thai 50.5%
Percentage of new employee hires by Nationality


Myanmar 1.3%
Filipino 1.5%
Cambodian 2.0%
Indonesian 5.2%
Vietnamese 27.4%
Thai 62.7%
Percentage of total employee turnover rate by Nationality


Over 50 years old 13.2%
Under 30 years old 18.4%
30-50 years old 68.4%
Percentage of Employees by Age

Operating Results of Cement Business in Accordance with Global Cement and Concrete Association (GCCA)

	Unit	2017	2018	2019	2020	2021	DJSI**
Number of facilities adopting GCCA Cement CO_2 Protocol	number of factory	6	6	6	6	17*	
	%	100	100	100	100	100*	
Absolute Gross CO_2***	million tons of CO_2	14.92	16.17	15.74	15.49	21.15*	
Absolute Net CO_2***	million tons of CO_2	14.68	15.91	15.42	15.15	20.62*	
Specific Gross CO_2***	kgCO_2/ton Cementitious	662	669	647	630	639*	
Specific Net CO_2***	kgCO_2/ton Cementitious	651	658	634	616	623*	
Heat consumption***	MJ/ton clinker	3,372	3,455	3,479	3,448	3,466*	
Alternative fossil fuel***	% by heat	5.0	4.9	6.2	6.6	7.7*	2.5.1
Biomass***	% by heat	6.1	7.0	11.3	11.7	12.2*	2.5.1
Alternative raw material in clinker produced***	%	0.9	1.3	1.4	1.5	1.6	
Alternative raw material in cement produced***	%	13.4	13.8	9.6	8.4	8.4	2.5.1
Total alternative raw material***	%	3.9	4.5	3.5	3.4	3.5	
Clinker factor***	%	75.6	74.8	74.4	72.9	74.2*	2.5.1
Clinker produced with monitoring of Dust, NO_x, SO_2, VOC/THC, Heavy Metal, PCDD/F (KPI1)***	%	99.17	99.24	99.29	99.41	99.41	
Clinker produced using CEMs measurement of Dust, NO_x, SO_2, emissions (KPI2)***	%	86.56	90.15	87.31	95.82	80.97	
Dust emissions (KPI3)***	tons	498	635	767	794	807	
Specific dust emissions (KPI3)***	g/ton clinker	29	34	41	42	44	
NO_x emissions (KPI3)***	tons	21,015	22,631	21,602	26,406	29,680	
Specific NO_x emissions (KPI3)***	g/ton clinker	1,205	1,201	1,155	1,409	1,632	
SO_2 emissions (KPI3)***	tons	717	561	760	992	1,035	
Specific SO_2 emissions (KPI3)***	g/ton clinker	41	30	41	53	57	
Clinker produced with monitoring of Dust, NO_x, SO_2 (KPI4)***	%	100	100	100	100	100	
VOC/THC emissions (KPI3)***	tons	801	632	641	385	430	
Specific VOC/THC (KPI3)***	g/ton clinker	46	34	34	21	24	
Mercury emissions (KPI3)***	kg	14.53	112.28	84.21	32.95	29.51	2.3.8
Specific Mercury emissions (KPI3)***	mg/ton clinker	0.84	6.00	4.50	1.72	1.63	
Clinker produced with monitoring of VOC/THC and Mercury (KPI4)***	%	99.17	99.24	99.29	99.41	99.41	
HM1 emission****	kg	NA	NA	NA	NA	23.41	
Specific HM1 emission****	mg/ton clinker	NA	NA	NA	NA	1.29	
HM2 emission*****	kg	NA	NA	NA	NA	527.94	
Specific HM2 emission*****	mg/ton clinker	NA	NA	NA	NA	29.2	
Dioxin emission (PCDD/F) (KPI3)***	mg	237	271	72	89	99	
Specific Dioxin (PCDD/F) (KPI3)***	ng/ton clinker	18.64	14.47	4.81	5.54	5.47	
Clinker produced with monitoring of Dioxin (PCDD/F) (KPI4)***	%	72.96	92.14	79.86	99.41	76.1	

	Unit	2017	2018	2019	2020	2021	DJSI**
Quarries where rehabilitation plan is implemented***	number of site	4	4	4	4	4	
	%	100	100	100	100	100	
Quarries with community engagement plan in place	%	100	100	100	100	100	
Quarries with high biodiversity value where biodiversity management is implemented***	number of site	4	4	4	4	4	2.4.2
	%	100	100	100	100	100	
Total water withdrawal***, ******	million cubic meter	10.28	10.24	10.12	10.28	9.89	
Specific water withdrawal***, ******	liter/ton Cementitious	448	433	433	418	413	
Health and Safety							
Number of Fatality Work-Related Injury (From Workplace and Transportation)							
- Employee***	cases	0	0	0	0	0	3.7.2
- Contractor***	cases	2	0	2	5	3	3.7.2
- Third party***	cases	4	3	9	1	2	
Fatality Work-Related Injury Rate of Employee***	cases/10,000 employees	0	0	0	0	0	
Lost Time Injury Frequency Rate of Employee***	cases/1,000,000 hours worked	NA	NA	0.15	0.16	0.076	3.7.3
Lost Time Injury Frequency Rate of Workplace Contractor***	cases/1,000,000 hours worked	0.06	0.07	0.25	0.06	0.124	3.7.4
Severity Work-Related Injury Rate of Employee***	days/1,000,000 hours worked	NA	NA	6.70	0.98	3.058	

NA = Not Available

* In 2021, the scope of disclosure covered performance from Thailand and abroad operations

** Reference based on DJSI 2021 Questionnaire

*** Within Deloitte's limited assurance scope (Page 152-153)

**** HM1 included Cadmium (Cd) and Thallium (Tl)

***** HM2 included Antimony (Sb), Arsenic (As), Lead (Pb), Chromium (Cr), Cobalt (Co), Copper (Cu), Manganese (Mn), Nickel (Ni), and Vanadium (V)

****** Water consumption = water withdrawal-water discharge (SCG's cement plants have no water discharge, thus water consumption = water withdrawal)

SCG's Key Activities on Human Rights Risks in 2021

Salient Human Rights Issues

Scope	Salient Human Rights Issues	People Affected and Number of Companies	Mitigation Plans and Remediation Actions	Results Monitoring
SCG's Own Operations	**Personal Data Protection** Full protection of stakeholder rights in compliance with personal data protection laws	Customers, shareholders, SCG's employees, contractors and suppliers and related parties (342 companies)	• Announce SCG Privacy Policy to establish a standard of personal data management for SCG's employees. • Introduce personal data protection processes and control to every step in compliance with the law and SCG Privacy Policy, such as designating Data Protection Officers (DPOs), creating records of processing and data flow diagrams, developing relevant legal documents, and adopting privacy management software. • Create a data subject's right management system, allowing data owners to exercise legal rights. • Heighten data leakage prevention measures to prevent illegal data access, use, disclosure, and editing. • Train employees to be aware of the importance of personal data protection.	• All companies of which their operations are significant and included in SCG's consolidated financial statements fully complied with personal data protection laws (both Thai laws and those of other countries where applicable) through the use of the 3 Line of Defense System, consisting of: 1st Line refers to data users, who must comply with personal data protection laws and SCG Privacy Policy. 2nd Line refers to DPO and Compliance. SCG DPO and DPO Office were also established to oversee SCG's overall legal compliance. 3rd Line refers to the Internal Audit Office, responsible for governance. • SCG employees were equipped with basic knowledge about personal data protection laws and strictly complied with SCG Privacy Policy through annual training and Ethics e-Testing on personal data protection.
	Occupational Health and Safety in Workplace and Transportation Lost time injury and fatality	Employees of SCG and subsidiaries (265 companies)	• Communicate, educate to raise awareness and safety culture through the Occupational Health and Safety Management System or the SCG Safety Framework both Thailand and abroad. • Communicate, educate, and monitor compliance with standards for high-risk operations and SCG Life Saving Rules in the production process, workplace, travelling and transportation. • Promote investigation and analysis of incidents to identify root causes and establish corrective/ preventive measures to avoid recurrence.	100% of SCG's plants/subsidiaries in Thailand passed SPAP assessment 59% of SCG's plants/subsidiaries in Thailand achieved standard level or above 2 subsidiary companies had fatality work-related injury cases 20 subsidiary companies had lost time work-related injury cases
	Human Rights During the COVID-19 Pandemic	Employees of SCG and subsidiaries (265 companies) and communities	• Establish COVID-19 measures and guidelines for employees and contractors to minimize work-related health impacts, such as an initiative to convert learning and development programs into virtual classrooms and operational practices in plants, offices, transportation, external visitors, travels, working from home, and organizing meetings/seminars. • Promote access to vaccination for all employees. • Promote access to vaccination in communities in collaboration with BMA and the Social Security Office and establish vaccination sites in Bangkok and Rayong. • Promote the development of COVID-19 innovations, such as Negative/ Positive Pressure Isolation Chamber, Patient Isolation Capsule, Modular Screening Unit, and SCGP Paper Beds. • Conduct surveys and dialogues to obtain opinions from communities and develop approaches to different matters through engagement fostering.	Employees and communities in every location where SCG operates

Scope	Salient Human Rights Issues	People Affected and Number of Companies	Mitigation Plans and Remediation Actions	Results Monitoring
Operations of Contractors and Suppliers	**Personal Data Protection** Full protection of stakeholder rights in compliance with personal data protection laws	SCG's contractors/ suppliers (6,976 companies)	• Fully follow every step of personal data protection processes and control to every step in compliance with the law and SCG Privacy Policy.	SCG's contractors/suppliers were treated in full compliance with personal data protection laws.

	Occupational Health and Safety in Workplace and Transportation Lost time injury and fatality	SCG's contractors/ carriers (1,152 companies)	• Develop a contractor safety management system and conduct assessments periodically.
			  • Officially inform contractors of safety rules that SCG enforces and require them to sign an agreement acknowledging their willingness to comply with SCG Life Saving Rules since auction and clearly addressed in the employment contract (for both recurring and employment agreements).
			  • Implement screening and control measures for contractors before entry to the on-site area and before and during operations as well as clarify and review risks to workers to ensure they understand how to operate safely.
			• Establish transportation safety standards as well as control and assess carriers to ensure that they comply with prescribed regulations and standards.
			• Encourage carriers to comply with the law and constantly monitor their drivers through GPS and in-cab cameras.
			• Review carrier assessment guidelines to enhance safety and promote professionalism in transportation.
			• Encourage contractors to continuously improve their safety standards.
			• Enhance safety standards for high-risk operations related to services and solutions.
			• Promote investigation and analysis of incidents to identify root causes and establish corrective/ preventive measures to avoid recurrence.
				85% of operation contractors certified under contractor safety management
				100% of major carriers certified under Fleet Carrier Standards
				5 contractors had fatality work-related injury cases.
				25 contractors had lost time work-related injury cases.

	Human Rights During the COVID-19 Pandemic	SCG's contractors/ carriers (1,152 companies)	• Promote access to vaccination for all during outbreaks. • Promote access to vaccination in communities in collaboration with BMA and the Social Security Office and establish vaccination sites in Bangkok and Rayong. • Contribute to the introduction of COVID-19 innovation to society.	SCG's contractors in workplace and transportation
Operations of Joint Ventures	**Personal Data Protection** Full protection of stakeholder rights in compliance with personal data protection laws	SCG's joint ventures (77 companies)	• Fully follow every step of personal data protection processes and control to every step in compliance with the law and SCG Privacy Policy.	All SCG's joint ventures included in its consolidated financial statements fully complied with personal data protection laws.

Other Human Rights Issues

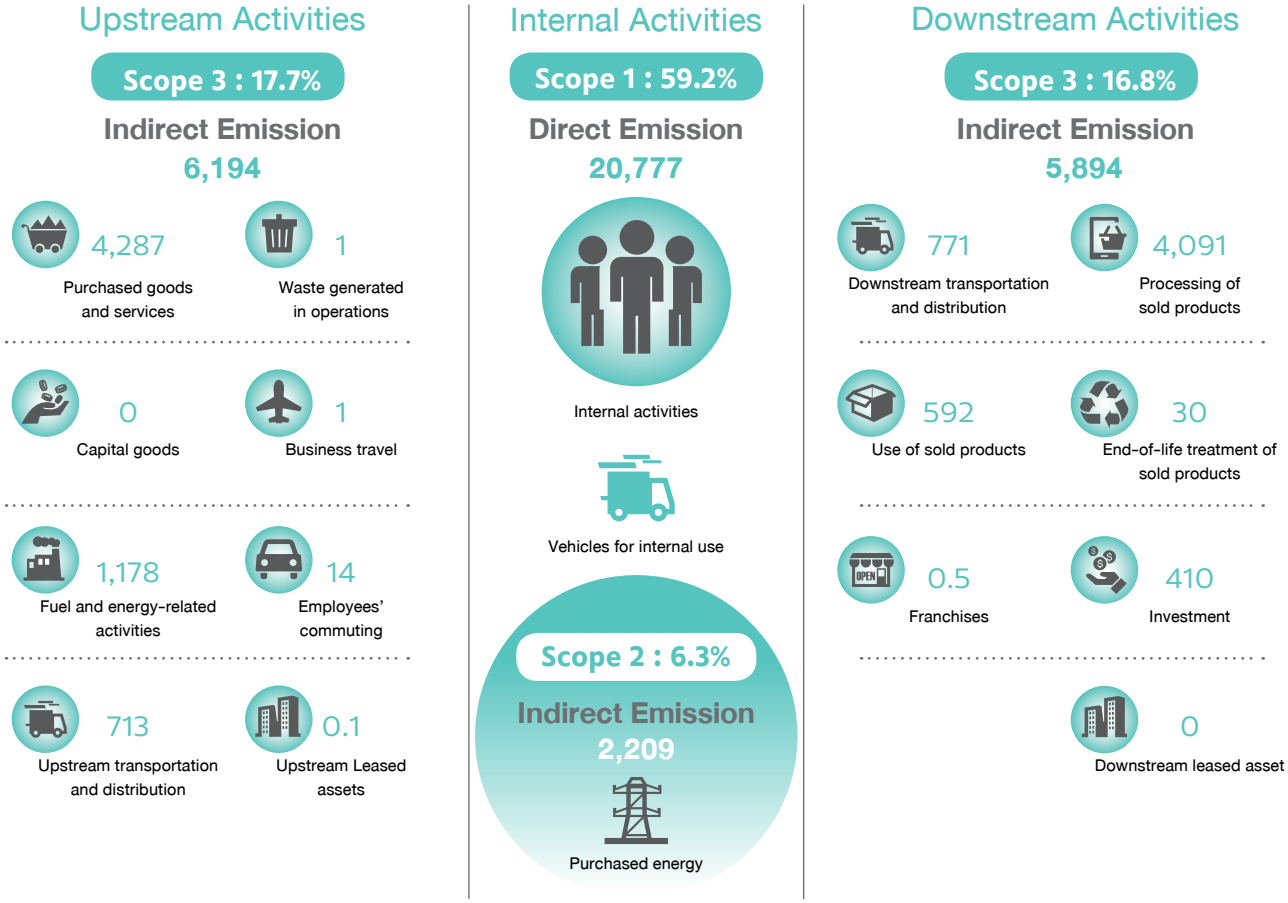
Scope	Other Human Rights Issues	People Affected and Number of Companies	Mitigation Plans and Remediation Actions	Results Monitoring
SCG's Own Operations	**Labor rights**	Employees of SCG and subsidiaries (265 companies)	• Promote freedom of association and collective bargaining. • Establish a standard for equitable remuneration for employees. • Promote the employment of people with disabilities in Thailand in compliance with the law.	86% participation in independent trade union or covered by collective bargaining agreements 100% Employment of people with disabilities in Thailand in compliance with the law
	Community rights Impacts from issues related to water, pollution, resource consumption, and safety	Communities	• Conduct surveys and dialogues to obtain opinions from communities and develop approaches to different matters through engagement fostering. • Be prudent and prevent potential impacts on communities.	14,000 households in every communities that attend water management project
Operations of Contractors and Suppliers	**Labor rights**	SCG's contractors/ suppliers (6,976 companies)	• Monitor and ensure that new and major contractors and suppliers demonstrate intent to comply with SCG Supplier Code of Conduct. • Conduct environmental, social and governance (ESG) risk assessment for contractors.	93% of contractors and suppliers demonstrated intent to comply with SCG Supplier Code of Conduct 100% of contractors and suppliers with procurement spending of over 1 million baht passed ESG risk assessment
Operations of Joint Ventures	**Labor rights**	SCG's joint ventures (77 companies)	• Demonstrate SCG's intent to enter into joint ventures with organizations that comply with human rights principles and laws. • Take part in establishing employment and labor right policies and ensure that compliance with such policies in the capacity as a director that represents SCG. • Promote and support compliance with labor right laws.	SCG's joint ventures included the consolidated financial statements operated in full compliance with the law.

GHG Scope 3 Emissions

SCG has expanded its greenhouse gas emission reporting to include GHG Scope 3 in accordance with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard (WRI/WBCSD). As such, it has collected and reported scope 3 emissions data of the carbon footprint of its products and of the organization using the guidelines of the Thailand Greenhouse Gas Management Organization (Public Organization) to management its GHG emissions across the value chain in collaboration with its stakeholders. SCG reported scope 3 emissions data of its manufacturing plants in Thailand across all 15 categories for the first time in 2021 and has planned to report the data of its plants overseas by 2022.

Scope 3 Emissions (Thailand) in 2021

Unit: Thousand tons carbon dioxide

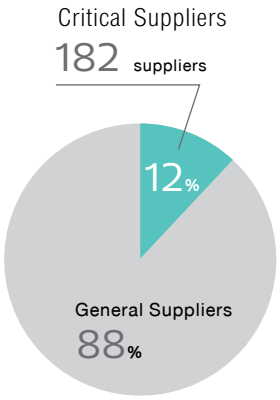


GHG Scope 3 Reporting Guidelines

1. Corporate Value Chain (Scope 3) Accounting and Reporting Standard
2. Technical Guidance for Calculating Scope 3 Emissions (Version 1.0)
3. Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain
4. Cement Sector Scope 3 GHG Accounting and Reporting Guidance

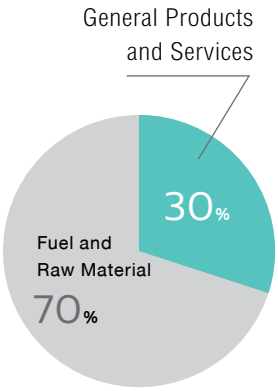
Supplier Governance and Enhance Towards Sustainability

Ratio of Procurement Spend on Products and Services by Group of Suppliers in 2021

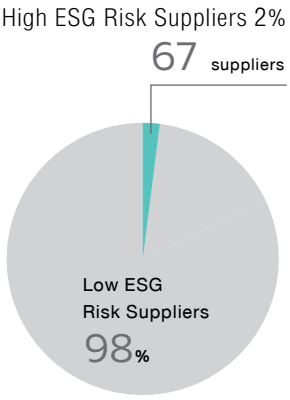


Active suppliers in 2021
9,438 suppliers

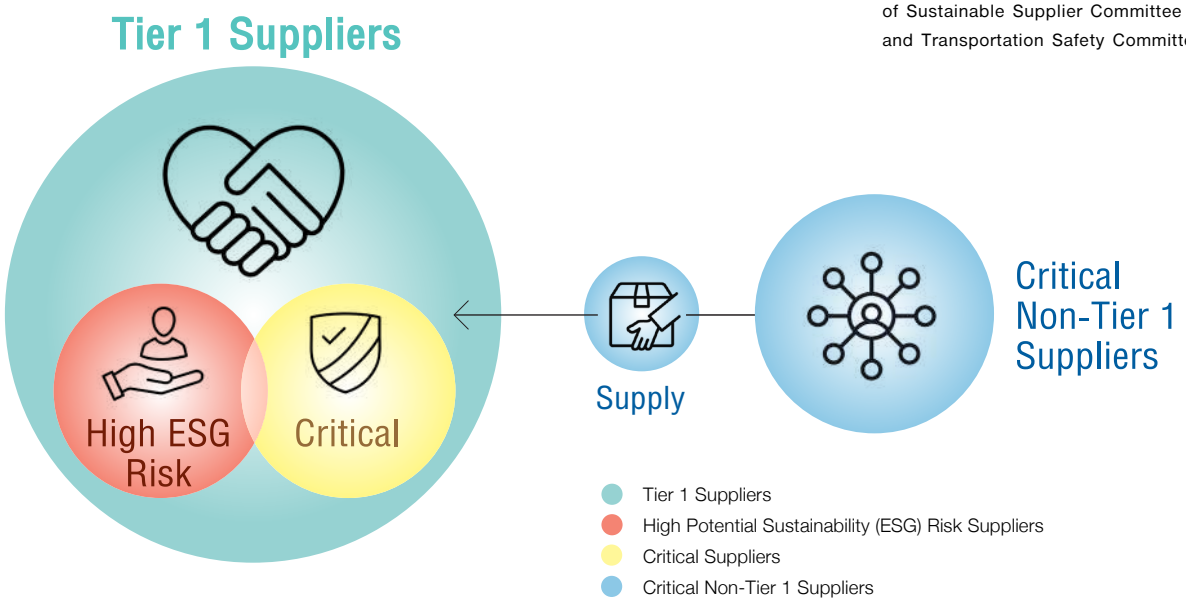
Ratio of Procurement Spend on Products and Services by Category in 2021



Ratio of Procurement Spend of High Potential Sustainability Risk Suppliers in 2021



Sustainability risk found relates to safety. Corrective actions have been monitored under the oversight of Sustainable Supplier Committee and Transportation Safety Committee.



Critical Suppliers
refer to manufacturers and distributors of products and services that are significant to SCG's business operations, such as high purchasing volume, critical component, or non-substitutable products.

High Potential Sustainability (ESG) Risk Suppliers
refer to manufacturers and distributors that are likely to cause negative impacts from their improper operations in the social (e.g. human rights, employee and labor care), environment (e.g. waste management) and governance (e.g. legal compliance) aspects.

Sustainability Risk	Number of Suppliers	Corrective Action
Work-related safety	0	• Utilize digital technology to detect and notify unsafe acts. • Set up safety target, implement as plan and monitor result closely with contractors/carriers.
Travel and transport related safety	67	

	Strategy	Implementation	Measurement	2017	2018	2019	2020	2021	Target
Economic	• Select and assess suppliers with the capability for sustainable business.	• Evaluate vendors in terms of quality, cost and delivery (QCD Supplier Evaluation).	• Evaluate suppliers under Approved Vendor List (AVL) with vendor evaluation (QCD Supplier Evaluation).	100%	100%	100%	100%	100%	100% suppliers under Approved Vendor List (AVL) receive vendor evaluation (QCD Supplier Evaluation).
	• Conduct risk assessment and supplier segmentation to formulate strategy and supplier development plan corresponding with the risk.	• Conduct a supplier assessment program and segmentation of critical suppliers with a systematic approach.	• Assess and classify critical suppliers.	100% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	
		• Conduct sustainability risk assessment and supplier segmentation since 2013.	• Assess sustainability risks (ESG Risk).	98% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	100% procurement spend	100% suppliers of the procurement spend pass the annual ESG risk assessment every year.
Environment	• Develop and enhance supplier's capability towards sustainability.	• Promote and audit suppliers for registration in the Green Procurement List. • Purchase products and services according to the Green Procurement List. 100%.	• Green procurement and products on the Green Procurement List.	10,909 million baht	9,698 million baht	7,852 million baht	8,579** million baht	9,548 million baht	-
				80 products	84 products	84 products	84 products	92 products	
		• Promote and support suppliers to participate in the assessment of Green Industry (GI)*	• Suppliers achieve the Green Industry Level 2 or higher certification.	777 suppliers	883 suppliers	1,053 suppliers	458 suppliers	481 suppliers	-
Social	• Develop and enhance supplier's capability towards sustainability.	• Raise awareness and behavioral change to create safety culture. • Use safety management system to uplift contractors safety standard. • Having contractors informed and signed for Life Saving Rules in every access for work.	• Operation contractors certified under Contractor Safety Management	89%	91%	87%	90%	85%	100% Operation contractors certified under Contractor Safety Management every year from 2012 onwards.
			• Major carriers certified under Fleet Carriers Standards.	100%	100%	100%	100%	100%	100% major carriers certified under Fleet Carriers Standards.
			• Lost Time Injury Frequency Rate (LTIFR) for contractors.	0.110 cases/ 1,000,000 Hours Worked	0.279 cases/ 1,000,000 Hours Worked	0.279 cases/ 1,000,000 Hours Worked	0.216 cases/ 1,000,000 Hours Worked	0.192 cases/ 1,000,000 Hours Worked	Reduce Lost Time Injury Frequency Rate of contractors and target for zero by 2022
Governance	• Select and assess suppliers with the capability for sustainable business.	• Developed SCG Supplier Code of Conduct in 2013. • Started supervising new and main suppliers to commit to comply SCG Supplier Code of Conduct continuously since 2014.	• Suppliers committed to comply with SCG Supplier Code of Conduct.	48% procurement spend	83% procurement spend	93% procurement spend	91% procurement spend	93% procurement spend	95% of the procurement spend comes from suppliers who commit to comply with SCG Supplier Code of Conduct by 2023.

* Green Industry: certification developed by the Ministry of Industry (Thailand) to encourage the industrial sector to operate a green business for sustainable development.

** Adjusted data due to data collection error

Subsidiaries Included in Sustainability Report 2021* (Thailand)

	Business/Company	Production	Raw Materials		Environment												Waste	Safety	Occupational Illness and Disease
			Total Raw Materials	Recycled Materials	Energy		Air				Water								
					Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
SCG																			
1	The Siam Cement Public Company Limited																		
Cement-Building Materials Business																			
	Subsidiaries																		
1	SCG Cement-Building Materials Co., Ltd.																✓	✓	✓
2	SCG Cement Co., Ltd.																✓	✓	✓
3	The Concrete Products and Aggregate Co., Ltd.	✓	✓	✓	NR	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
4	The Siam Cement (Kaeng Khoi) Co.,Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
5	The Siam Cement (Ta Luang) Co., Ltd. (Ta Luang/Khao Wong)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
6	The Siam Cement (Thung Song) Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
7	The Siam Cement (Lampang) Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
8	The Siam Refractory Industry Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
9	ECO Plant Services Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	✓
10	SCI Eco Services Co., Ltd.	✓	NR	NR	NR	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
11	Q Mix Supply Co., Ltd.																✓	✓	✓
12	Silathai Sanguan (2540) Co., Ltd.																✓	✓	✓
13	Green Conservation Solution Co., Ltd.																✓	✓	✓
14	CPAC Construction Solution Co., Ltd.																✓		
15	Silasanon Co.,Ltd																✓	✓	✓
16	SCG Building Materials Co., Ltd.																✓	✓	✓
17	The Siam Fibre-Cement Co., Ltd.																		
18	Siam Fibre Cement Group Co., Ltd. (Saraburi/Ta Luang/Thung Song/Nongkae/Lumpang)	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	SCG Landscape Co., Ltd. (Khonkaen/Thung Song/Ladkrabang/Lamphun/ Sriracha/Nongkae/Fence)	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓	✓
20	Siam Fiberglass Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓
21	Cementhai Gypsum Co., Ltd.																		
22	Cementhai Ceramics Co., Ltd.																		
23	SCG Distribution Co., Ltd.																✓		
24	BetterBe Marketplace Co., Ltd.																		
25	SCG International Corporation Co., Ltd.																✓	✓	✓
26	SCG Logistics Management Co., Ltd.																✓	✓	✓
27	Nexter Living Co., Ltd.																		
28	Nexter Ventures Co., Ltd.																		
29	SCG Experience Co., Ltd.																✓	✓	✓
30	SCG Skills Development Co., Ltd.																		

	Business/Company	Production	Raw Materials		Environment												Safety	Occupational Illness and Disease
			Total Raw Materials	Recycled Materials	Energy		Air				Water					Waste		
					Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
31	SCG Roofing Co., Ltd. (Saraburi/Saraburi Nuestile/Nakorn Prathom/ Chonburi/Nakorn Rajchasrima/Lamphun/Khonkaen/ Nakorn Sri Thammaraj/Nongkae)	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓
32	MRC Roofing Co., Ltd.																	
33	The Siam Sanitary Fittings Co., Ltd. (Pathumthani/Nakorn Rajchasrima)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
34	Saraburirat Co., Ltd.	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
35	Siam Sanitary Ware Co., Ltd.																✓	✓
36	Siam Sanitary Ware Industry Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓
37	Siam Sanitary Ware Industry (Nongkae) Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓
38	Quality Construction Products Public Company Limited (Bang Pa-in/Nongkae)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
39	Q-Con Eastern Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
40	SCGT Automobile Co., Ltd.																	
41	Panel World Co., Ltd.																✓	✓
42	Sosuco Ceramic Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓
43	SCG-Sekisui Sales Co., Ltd.																✓	✓
44	SCG Express Co., Ltd.																✓	✓
45	Jumbo Barges and Tugs Co., Ltd	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	NR
46	SCG Ceramics Public Company Limited (HK plant, NK1 plant, NKIE plant)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
47	Nexter Digital Co., Ltd.																✓	
48	SCG Living and Housing Solution Co., Ltd.																	
49	SCG Retail Holding Co., Ltd.																	
50	SCG Home Retail Co., Ltd.																	
51	Rudy Technology Co., Ltd.																	
52	SCG-PSA Holdings Co., Ltd.																	
53	Thai Connectivity Terminal Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	NR
54	Bangkok Interfreight Forwarding Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
55	SCG-Boonthavorn Holding Co., Ltd.																	
56	SCG Building and Living Care Consulting Co., Ltd.																	
	Joint Ventures, Associates and Other Companies																	
1	Sekisui-SCG Industry Co., Ltd.	✓	✓	✓	NR	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
2	Noritake SCG Plaster Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
3	SCG Nichirei Logistics Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4	BIMobject (Thailand) Co., Ltd.																	
5	CPAC SB&M Lifetime Solution Co., Ltd.																	
6	Siam Smart Data Co., Ltd.																	
7	Global House International Company Limited																	
8	Survey Marine Services Co., Ltd.																	
9	Siam Saison Co., Ltd.																	
10	The Siam Gypsum Industry Co., Ltd.																	
11	The Siam Gypsum Industry (Saraburi) Co., Ltd.																	
12	Siam Validus Capital Company Limited																	

	Business/Company	Production	Raw Materials		Environment												Safety	Occupational Illness and Disease
			Total Raw Materials	Recycled Materials	Energy		Air				Water					Waste		
					Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
Chemicals Business																		
	Subsidiaries																	
1	SCG Chemicals Co., Ltd.																✓	✓
2	Thai Polyethylene Co., Ltd.	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	SCG Plastics Co., Ltd.																✓	✓
4	SCG Performance Chemicals Co., Ltd.																✓	✓
5	Rayong Engineering & Plant Service Co., Ltd.																✓	✓
6	Protech Outsourcing Co., Ltd.																✓	✓
7	RIL 1996 Co., Ltd.	NR	NR	NR	NR	✓	NR	NR	NR	✓	NR	NR	✓	✓	✓	✓	✓	✓
8	Texplore Co., Ltd.																✓	✓
9	Vina SCG Chemicals Co., Ltd.																	
10	Rayong Pipeline Co., Ltd.																✓	✓
11	Thai Plastic and Chemicals Public Company Limited	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	TPC Paste Resin Co., Ltd.	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Nawa Plastic Industries Co., Ltd. (Rayong/Saraburi)	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓
14	Nawa Intertech Co., Ltd.	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	✓
15	Total Plant Service Co., Ltd.																	
16	SCG Ico Polymers Company Limited	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
17	Map Ta Phut Tank Terminal Co., Ltd.	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	✓
18	Map Ta Phut Olefins Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓
19	Rayong Olefins Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	Flowlab & Service Co., Ltd.																✓	✓
21	SMH Co., Ltd.																	
22	Repco Maintenance Co., Ltd.																✓	✓
23	WTE Company Limited																	
24	Circular Plas Company Limited																	
25	Kation Power Co., Ltd.																	
	Associates and Other Companies																	
1	Rayong Terminal Co., Ltd.	NR	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
2	Thai MMA Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
3	Grand Siam Composites Co., Ltd.	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓
4	Thai MFC Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓
5	Siam Tohcello Co., Ltd.	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓
6	Riken (Thailand) Co., Ltd.																	
7	Bangkok Synthetics Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

	Business/Company	Production	Raw Materials		Environment												Safety	Occupational Illness and Disease
			Total Raw Materials	Recycled Materials	Energy		Air				Water					Waste		
					Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
SCGP (Packaging Business)																		
	Subsidiaries																	
1	SCG Packaging Public Company Limited																✓	✓
2	Thai Paper Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	✓
3	Siam Kraft Industry Co., Ltd. (Kanjanaburi/Ratchaburi)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	The Siam Forestry Co., Ltd.	✓	✓	✓	✓	✓	NR	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	✓
5	Panas Nimit Co., Ltd.																NR	NR
6	Thai Panason Co., Ltd.																NR	NR
7	Thai Panadorn Co., Ltd.																NR	NR
8	Thai Panaram Co., Ltd.																NR	NR
9	Suanpa Rungsaris Co., Ltd.																NR	NR
10	Siam Panawes Co., Ltd.																NR	NR
11	Thai Panaboon Co., Ltd.																NR	NR
12	Thai Wanabhum Co., Ltd.																NR	NR
13	Phoenix Pulp & Paper Public Company Limited	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	SCGP Excellence Traning Center Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
15	SCG Paper Energy Co., Ltd.																✓	
16	Thai Cane Paper Public Company Limited (Kanjanaburi/Prachinburi)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	Thai Containers Group Co., Ltd. (Navanakorn/Pathumthani/Samutprakarn/ Ratchaburi/Songkhla/Chonburi/Prachinburi/ Saraburi/Kamphaeng Phet)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	Thai Containers Khonkaen Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
19	Thai Containers Rayong Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
20	Invenique Co., Ltd.																	
21	TC Flexible Packaging Co.,Ltd.																	
22	Orient Containers Co., Ltd. (Omnoi/Samutsakorn/Nakorn Prathom)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
23	Tawana Container Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
24	Prepack Thailand Co., Ltd. (Samutsakorn/Samut Songkhram/Rayong)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
25	Precision Print Co.,Ltd	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓
26	Conimex Co.,Ltd	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
27	Visy Packaging (Thailand) Limited																	
28	SCGP Solutions Co., Ltd.																	
29	SCGP-T Plastics Company Limited																	
30	SCGP Rigid Plastics Company Limited																	
31	International Healthcare Packaging Co., Ltd.																	
	Associates																	
1	Siam Nippon Industry Paper Co., Ltd.	✓	✓	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
2	Siam Toppan Packaging Co., Ltd.																	

	Business/Company	Production	Raw Materials		Environment												Safety	Occupational Illness and Disease
					Energy		Air				Water					Waste		
			Total Raw Materials	Recycled Materials	Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
Other																		
	Subsidiaries																	
1	Cementhai Holding Co., Ltd.																	
2	Cementhai Property (2001) Public Company Limited																	
3	Property Value Plus Co., Ltd.																	
4	SCG Accounting Services Co., Ltd.																	
5	SCG Legal Counsel Limited																	
6	CTO Management Co., Ltd.																	
7	SCG Cleanergy Co., Ltd.																	
8	SCG Learning Excellence Co.,Ltd																	
9	SCG HR Solutions Co., Ltd.																	
10	Bangsue Industry Co., Ltd.																	
11	Add Ventures Capital Co.,Ltd.																	
12	Add Ventures Capital International Co.,Ltd.																	
13	Siam GNE Solar Energy Co.,Ltd																	
14	AI Technology Co., Ltd.																	

* Economic performance covers all significant subsidiaries, joint ventures, associates and other companies according to Annual Report 2021

NR = Non Relevance (The data is not relevant or has no significance to the overall performance of SCG or is not included this year)

Office/Investment/Sales/Service where the collection of environmental, safety and occupational illness data is not necessary

Greenfield (less than 3 years) or newly acquired companies (less than 4 years) is not required to incorporate data into SCG

Subsidiaries Included in Sustainability Report 2021* (Abroad)

	Business/Company	Country	Production	Raw Materials		Environment													Safety	Occupational Illness and Disease
						Energy		Air				Water					Waste			
				Total Raw Materials	Recycled Materials	Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS				
Cement-Building Materials Business																				
	Subsidiaries																			
1	Khammouane Cement Co., Ltd.	Lao PDR	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	✓	
2	PT SCG Pipe and Precast Indonesia	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	NR	
3	PT Semen Lebak	Indonesia																		
4	PT SCG Readymix Indonesia	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR	
5	PT CPAC Surabaya	Indonesia																		
6	The Concrete Products and Aggregate (Vietnam) Co., Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR	
7	SCG Cement-Building Materials Vietnam Limited Liability Company	Vietnam																		
8	Vietnam Construction Materials Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR	
9	Song Gianh Cement Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR	
10	Mien Trung Cement One Member Company Limited	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	✓	NR	
11	Danang Cement One Member Company Limited	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	✓	NR	
12	Phu Yen Cosevco Cement Company Limited	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	✓	NR	
13	Cementhai Ceramics Philippines Holdings, Inc.	Philippines																		
14	Cementhai Gypsum (Singapore) Pte. Ltd.	Singapore																		
15	SCG Concrete Roof (Vietnam) Co., Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	✓	NR	
16	SCG Concrete Roof (Cambodia) Co., Ltd.	Cambodia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR	
17	SCG Cement-Building Materials Philippines, Inc.	Philippines	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	✓	NR	
18	PT SCG Lightweight Concrete Indonesia	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR	
19	SCG International Australia Pty. Ltd.	Australia																		
20	SCG International China (Guangzhou) Co., Ltd.	China																		
21	SCG International Hong Kong Limited	Hong Kong																		
22	SCG International (Philippines) Corporation Co., Ltd.	Philippines																		
23	SCG International USA Inc.	USA																		
24	PT SCG International Indonesia	Indonesia																		
25	SCG International Laos Co., Ltd.	Lao PDR																		
26	SCG Marketing Philippines Inc.	Philippines																		
27	SCG International Malaysia Sdn. Bhd.	Malaysia																		
28	SCG International (Cambodia) Co., Ltd.	Cambodia																		
29	SCG International Middle East Dmcc	UAE																		
30	SCG International Vietnam Co., Ltd.	Vietnam																		
31	SCG International India Private Limited	India																		
32	Oitolabs Technologies Private Limited	India																		

	Business/Company	Country	Production	Raw Materials		Environment												Safety	Occupational Illness and Disease
						Energy		Air				Water					Waste		
				Total Raw Materials	Recycled Materials	Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
33	Unify Smart Tech Joint Stock Company	Vietnam																	
34	Myanmar CBM Services Co., Ltd.	Myanmar																	
35	Prime Group Joint Stock Company	Vietnam																	
36	Prime Trading, Import and Export One Member Limited Liability Company	Vietnam																	
37	Prime International Import-Export and Service Trading Company Limited	Vietnam																	
38	Prime-Ngoi Viet Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
39	Prime Pho Yen Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
40	Prime-Yen Binh Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR
41	Prime-Tien Phong Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR
42	Prime-Vinh Phuc Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR
43	Prime-Truong Xuan Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
44	Buu Long Industry and Investment Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
45	PT Semen Jawa	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
46	SCG Logistics Lao Co., Ltd.	Lao PDR																✓	
47	SCG Logistics Management (Cambodia) Co., Ltd.	Cambodia																✓	
48	Mawlamyine Cement Limited	Myanmar	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
49	Prime Dai An Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
50	PT KIA Serpih Mas	Indonesia																	
51	Kampot Cement Co., Ltd.	Cambodia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
52	PT KIA Keramik Mas	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR
53	PT Keramika Indonesia Assosiasi, Tbk.	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	NR
54	PT Kokoh Inti Arebama Tbk.	Indonesia																	
55	Prime Dai Viet Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR
56	Prime Thien Phuc Joint Stock Company	Vietnam																	
57	Prime Phong Dien Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
58	Prime Dai Loc Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR
59	CPAC Cambodia Co., Ltd.	Cambodia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
60	Mariwasa-Siam Ceramics, Inc.	Philippines	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR
61	SCG Myanmar Concrete and Aggregate Co., Ltd.	Myanmar	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
62	PT Surya Siam Keramik	Indonesia																	
63	SCG Builk One Philippines, Inc.	Philippines																	
64	Prime Hao Phu Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
65	SCG-Boonthavorn (Cambodia) Co., Ltd.	Cambodia																	
66	Prime Dai Quang Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
67	SCG-Shwe Me Logistics (Myanmar) Co., Ltd.	Myanmar																✓	NR
68	Jumbo Barges (Cambodia) Co., Ltd.	Cambodia																	
69	Smart Build Bangladesh Co., Ltd.	Bangladesh																	

	Business/Company	Country	Production	Raw Materials		Environment													Safety	Occupational Illness and Disease
						Energy		Air				Water					Waste			
				Total Raw Materials	Recycled Materials	Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
70	Mingalar Motor Co., Ltd.	Myanmar																		
71	PT Siam-Indo Gypsum Industry	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	NR	✓	NR
72	PT Siam-Indo Concrete Products	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
73	PT Pion Quarry Nusantara	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
74	Home Center Quang Ninh Joint Stock Company	Vietnam																		
75	PT SCG Barito Logistics	Indonesia																✓		
76	PT Renos Marketplace Indonesia	Indonesia																		
77	PT Tambang Semen Sukabumi	Indonesia																✓		
78	Kampot Land Co., Ltd.	Cambodia																		
	Joint Ventures, Associates and Other Companies																			
1	China ASEAN Supply Chain Management Co., Ltd.	China																		
2	Green Siam Resources Corporation	Philippines																		
3	Mariwasa Holdings, Inc.	Philippines																		
4	CMPI Holdings, Inc.	Philippines																		
5	PT Catur Sentosa Adiprana Tbk	Indonesia																		
6	PT Catur Mitra Sejati Sentosa	Indonesia																		
7	PT Catur Sentosa Berhasil	Indonesia																		
8	PT Catur Sentosa Anugerah	Indonesia																		
9	Anhui Conch-SCG Refractory Co., Ltd.	China																		
10	PT M Class Industry	Indonesia																		
11	PT Caturaditya Sentosa	Indonesia																		
12	PT Catur Logamindo Sentosa	Indonesia																		
Chemicals Business																				
	Subsidiaries																			
1	SCG Chemicals Trading Singapore Pte. Ltd.	Singapore																		
2	Long Son Petrochemicals Co., Ltd.	Vietnam																		
3	SCG Chemicals (Singapore) Pte. Ltd.	Singapore																		
4	Tuban Petrochemicals Pte. Ltd.	Singapore																		
5	Hexagon International, Inc.	USA																		
6	SENFI Norway AS	Norway																		
7	Norner AS	Norway																		
8	Norner Research AS	Norway																		
9	SCGN AS	Norway																		
10	PT TPC Indo Plastic and Chemicals	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	✓	✓	✓	✓	✓	✓	
11	Chemtech Co., Ltd.	Vietnam	✓	NR	NR	NR	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓		
12	HTEXplore S.R.L.	Italy																		
13	SENFI UK Limited	UK																		
14	SENFI Swiss GmbH	Switzerland																		
15	Grand Nawaplastic Myanmar Co., Ltd.	Myanmar																		

	Business/Company	Country	Production	Raw Materials		Environment												Safety	Occupational Illness and Disease
						Energy		Air				Water					Waste		
				Total Raw Materials	Recycled Materials	Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
16	Viet-Thai Plastchem Co., Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	
17	TPC Vina Plastic and Chemicals Corporation Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	
18	Nawaplastic (Cambodia) Co., Ltd.	Cambodia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	
19	PT Nusantara Polymer Solutions	Indonesia																	
20	Binh Minh Plastics Joint Stock Company	Vietnam	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	
21	North Binh Minh Plastics Limited Company	Vietnam																	
22	PT Berjaya Nawaplastic Indonesia	Indonesia																	
	Associates and Other Companies																		
1	SCG Plastics (China) Co., Limited	Hong Kong																	
2	SCG Plastics (Shanghai) Co., Ltd.	China																	
3	A.J. Plast (Vietnam) Company Limited	Vietnam																	
4	PT Siam Maspion Terminal	Indonesia																	
5	PT Trans-Pacific Polyethylene Indonesia	Indonesia																	
6	PT Trans-Pacific Polyethylindo	Indonesia																	
7	PT Chandra Asri Petrochemical Tbk	Indonesia																	
8	Chandra Asri Trading Company Pte. Ltd.	Singapore																	
9	Mitsui Advanced Composites (Zhongshan) Co., Ltd.	China																	
10	Da Nang Plastics Joint Stock Company	Vietnam																	
11	Binh Minh Viet Trading Investment Real Estate Joint Stock Company	Vietnam																	
SCGP (Packaging Business)																			
	Subsidiaries																		
1	SCGP Solutions (Singapore) Pte. Ltd.	Singapore																	
2	Go-Pak UK Limited	UK																	
3	Go-Pak Vietnam Limited	Vietnam																	
4	Go-Pak Paper Products Vietnam Co., Ltd.	Vietnam																	
5	SCGP Rigid Packaging Solutions Pte. Ltd.	Singapore																	
6	Deltalab Global, S.L.	Spain																	
7	Deltalab, S.L.	Spain																	
8	Keylab, S.L.U.	Spain																	
9	Nirco, S.L.	Spain																	
10	Envases Farmaceuticos, S.A.	Spain																	
11	Equilabo Scientific, S.L.U.	Spain																	
12	Sanilabo, S.L.U.	Spain																	
13	United Pulp and Paper Co., Inc.	Philippines	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR
14	Vina Kraft Paper Co., Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	NR
15	New Asia Industries Co., Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR
16	Alcamax Packaging (Vietnam) Co., Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR
17	AP Packaging (Hanoi) Co., Ltd.	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	NR

	Business/Company	Country	Production	Raw Materials		Environment												Safety	Occupational Illness and Disease
						Energy		Air				Water					Waste		
				Total Raw Materials	Recycled Materials	Thermal	Electricity	Dust	SO_x	NO_x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
18	Packamex (Vietnam) Co., Ltd.	Vietnam																	
19	PT Indoris Printingdo	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR
20	PT Indocorr Packaging Cikarang	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR
21	Duy Tan Plastics Manufacturing Corporation Joint Stock Company	Vietnam																	
22	Duy Tan Long An Co., Ltd.	Vietnam																	
23	Duy Tan Precision Mold Co., Ltd.	Vietnam																	
24	Duy Tan Binh Duong Plastics Co., Ltd.	Vietnam																	
25	Mata Plastic Co., Ltd.	Vietnam																	
26	TCG Solutions Pte. Ltd.	Singapore																	
27	Interpress Printers Sendirian Berhad	Malaysia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	NR	✓	NR
28	PT Primacorr Mandiri	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	NR
29	Bien Hoa Packaging Joint Stock Company	Vietnam																	
30	PT Fajar Surya Wisesa Tbk.	Indonesia	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	✓	NR	NR	NR	✓	✓	NR
31	PT Dayasa Aria Prima	Indonesia																	
32	PT Indonesia Dirtajaya Aneka Industri Box	Indonesia																	
33	PT Bahana Buana Box	Indonesia																	
34	PT Rapipack Asritama	Indonesia																	
35	Tin Thanh Packing Joint Stock Company	Vietnam	✓	NR	NR	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	NR
	Associates																		
1	P&S Holdings Corporation	Philippines																	
Other																			
	Subsidiaries																		
1	Cementhai Captive Insurance Pte. Ltd.	Singapore																	
2	SCG Vietnam Co., Ltd.	Vietnam																	
3	PT SCG Indonesia	Indonesia																	
4	A.I. Tech Inter Private Limited	Singapore																	

* Economic performance covers all significant subsidiaries, joint ventures, associates and other companies according to Annual Report 2021

NR = Non Relevance (The data is not relevant or has no significance to the overall performance of SCG or is not included this year)

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Deloitte.

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INDEPENDENT LIMITED ASSURANCE REPORT ON SCG SUSTAINABILITY REPORT 2021

To SCG Sustainable Development Committee of The Siam Cement Public Company Limited

Scope of our work

The Siam Cement Public Company Limited ("SCG") has engaged Deloitte Touche Tohmatsu Jaiyos Audit Co., Ltd. ("we" or "us") to perform limited assurance procedures on selected subject matter ("the Subject Matter") for the year ended December 31, 2021 presented in the SCG Sustainability Report 2021 ("the Sustainability Report") in accordance with the reporting criteria ("the Criteria").

Subject Matter

The selected Subject Matter chosen by SCG comprises:

a) Environmental dimension performance indicators expressed numerically
   - Energy consumption (petajoules)
   - Greenhouse gas emissions scope 1 & 2 (million tons)
   - Water withdrawal (million cubic meters) and recycled water (million cubic meters)
   - Water discharge (million cubic meters)
   - Total weight of waste by type and disposal method (thousand tons)
   - Oxides of Nitrogen (NO_x), Oxides of Sulfur (SO_x), dust and other significant air emissions data (tons)

b) Social dimension performance indicators
   - Number and rate of fatalities, high-consequence work-related injuries, recordable work-related injuries and number of hours worked
   - Number of fatalities as a result of work-related ill health, number of cases of recordable work-related ill health
   - Ratio of the basic salary and remuneration of women to men

Criteria

The selected Subject Matter above included in the Sustainability Report has been assessed according to the reporting principle prepared by SCG in "About this report" which is in accordance with the Sustainability Reporting Standards - Comprehensive issued by the Global Reporting Initiative (GRI Standards), the WBCSD/WRI Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, and Sustainability Framework Guidelines issued by Global Cement and Concrete Association (October 2019), where relevant, and influenced by Sustainability Accounting Standards issued by Sustainability Accounting Standards Board (SASB), where relevant.

Basis of our work and level of assurance

We carried out limited assurance in accordance with International Standard on Assurance Engagements 3000 ("ISAE 3000") "Assurance Engagements other than Audits or Reviews of Historical Financial Information" and International Standard on Assurance Engagements 3410 ("ISAE 3410") "Assurance Engagements on Greenhouse Gas Statements".

To achieve limited assurance ISAE 3000 and ISAE 3410 require that we review the process and systems used to compile the areas on which we provide assurance. It does not include detailed testing of source data or the operating effectiveness of processes and internal controls. This provides less assurance and it substantially less in scope than a reasonable assurance engagement.

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

We have applied International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedure regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Inherent limitation

Inherent limitation exists in all assurance engagements due to the selective testing of the information being examined. Therefore fraud, errors or non-compliance may occur and not be detected. Additionally, non-financial data may be subject to more inherent limitations than financial data, given both its nature and the methods used for determining, calculating and estimating such data. Greenhouse gases quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

Key assurance procedures

Considering the risk of material error, we planned and performed the work to obtain all the information and explanations considered necessary to provide sufficient evidence to support our assurance conclusion.

The assurance procedures included the following work:

- interviewing SCG's management, included the Sustainable Development team and those with operational responsibility for performance in the areas we are report on
- visiting selected 9 sites of the three business units:
  - SCG Cement-Building Materials
    - 2 sites of Cement business, including The Siam Cement (Kaeng Khoi) Co., Ltd. and Kampot Cement Co., Ltd.
    - 2 sites of Building Materials business, including SCG Ceramics PCL. (Nongkae 1 plant) and Prime Vinh Phuc Joint Stock Company
  - 3 sites of SCG Chemicals, including Rayong Olefins Co., Ltd., Thai Plastic and Chemicals PCL. and TPC Vina Plastic and Chemicals Corporation Ltd.
  - 2 sites of SCG Packaging, including Siam Kraft Industry Co., Ltd. (Kanjanaburi plant) and Vina Kraft Paper Co., Ltd.
- completing analytical procedures
- reviewing the appropriateness of management review and reporting processes
- reviewing the process which the management used in materiality assessment
- performing testing of selected data on sampling basis, and
- reviewing the process for consolidating data at a business level and corporate level.

As a limited assurance engagement generally comprises of making enquiries, primarily of management, and applying analytical procedures and the work is substantially less detailed than that undertaken for a reasonable assurance engagement the level of assurance is lower than would be obtained in a reasonable assurance engagement.

Respective responsibilities of the Management and Independent assurance provider

The management of SCG is responsible for the preparation of the Sustainability Report which is accordance with the Sustainability Reporting Standards - Comprehensive issued by the Global Reporting Initiative (GRI Standards), Sustainability Accounting Standards issued by Sustainability Accounting Standards Board (SASB), the WBCSD/WRI Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, and Sustainability Framework Guidelines issued by Global Cement and Concrete Association (October 2019), where relevant and determining the adequacy of the Criteria to meet the reporting needs of SCG. Management's responsibility also includes designing, implementing and maintaining of internal control system relevant to the preparation and fair presentation of the selected Subject Matter that is free from material misstatement, whether due to fraud or error.

Our responsibility is to independently express limited assurance opinion in accordance with ISAE 3000 and ISAE 3410 on the selected Subject Matter.

Limitation of Use

This report has been prepared in accordance with our engagement terms, solely for the SCG Sustainable Development Committee as a body, for the purpose of reporting on the selected Subject Matter within the Sustainability Report. To the fullest extent permitted by the law, we do not accept or assume responsibility to anyone other than the SCG Sustainable Development Committee for our work or for this report, or for any other purpose other than that for which this report was prepared.

Our assurance opinion

Based on the work described above, nothing has come to our attention that causes us to believe that the selected Subject Matter for the year ended December 31, 2021 included in the SCG Sustainability Report 2021 has not been prepared, in all material respects, in accordance with the Criteria.

Kasiti Ketsuriyonk
Partner
Deloitte Touche Tohmatsu Jaiyos Audit Co., Ltd.

Bangkok, Thailand
February 23, 2022

GRI Content Index

SCG follows the Global Reporting Initiative's (GRI) Sustainability Reporting Standards in our Sustainability Report. This report has been prepared in accordance with the GRI Standards: Comprehensive option. General and topic-specific disclosures with a reference to external assurance in the GRI content index have been externally assured by an independent third party Deloitte Touche Tohmatsu Jaiyos Audit Co., Ltd. The Independent Assurance Reports is available in SCG's Sustainability Report on page 152 and 153. The index below shows where the GRI disclosures are addressed in the Annual Report (AR), the Sustainability Report (SR) on SCG's website.

Standard	Disclosure	Location (AR, SR, others)	Disclosure/Comment	Assurance
GRI 102: General Disclosures (2016)				
Organizational profile				
102-1	Name of the organization	AR Cover, AR211, SR Front & Back Cover		
102-2	Activities, brands, products, and services	AR18-35, SR7, SR12-17		
102-3	Location of headquarters	AR211, SR Back Cover		
102-4	Location of operations	AR114-135		
102-5	Ownership and legal form	AR211		
102-6	Markets served	AR17, SR7		
102-7	Scale of the organization	AR14-17, SR118-119		
102-8	Information on employees and other workers	AR187-188, SR131-133		
102-9	Supply chain	SR96-97, SR140-141		
102-10	Significant changes to the organization and its supply chain	AR16, SR12-17		
102-11	Precautionary Principle or approach	AR72-83		
102-12	External initiatives	AR5-7, AR90-95, SR56-57		
102-13	Membership of associations	SR8-9, SR60, SR134-135		
Strategy				
102-14	Statement from senior decision-maker	AR5-7, SR4-5		
102-15	Key impacts, risks, and opportunities	AR72-83		
Ethics and integrity				
102-16	Values, principles, standards, and norms of behavior	AR141-164		
102-17	Mechanisms for advice and concerns about ethics	AR141-177		
Governance				
102-18	Governance structure	AR165, SR30-33		
102-19	Delegating authority	AR165-177, SR36-37		
102-20	Executive-level responsibility for economic, environmental, and social topics	AR146-148, SR36-37		
102-21	Consulting stakeholders on economic, environmental, and social topics	AR148-156, SR50-57		
102-22	Composition of the highest governance body and its committees	AR165, SR30-33		
102-23	Chair of the highest governance body	AR165-177		

Standard	Disclosure	Location (AR, SR, others)	Disclosure/Comment	Assurance
102-24	Nominating and selecting the highest governance body	AR143-145		
102-25	Conflicts of interest	AR155		
102-26	Role of highest governance body in setting purpose, values, and strategy	AR165-177, AR199, SR36-40		
102-27	Collective knowledge of highest governance body	AR146-148, AR165		
102-28	Evaluating the highest governance body's performance	AR145-147		
102-29	Identifying and managing economic, environmental, and social impacts	AR72-83		
102-30	Effectiveness of risk management processes	AR72-83		
102-31	Review of economic, environmental, and social topics	AR191, SR39-40	Frequency of the board's review of sustainability impacts, risks, and opportunities	
102-32	Highest governance body's role in sustainability reporting	AR5-7, AR199, SR4-5		
102-33	Communicating critical concerns	AR73-74		
102-34	Nature and total number of critical concerns	AR72-83		
102-35	Remuneration policies	AR182-187		
102-36	Process for determining remuneration	AR181-183		
102-37	Stakeholders' involvement in remuneration	AR181-183		
102-38	Annual total compensation ratio	AR185-187		
102-39	Percentage increase in annual total compensation ratio	AR185-187		
Stakeholder engagement				
102-40	List of stakeholder groups	AR148-155, SR50-57		
102-41	Collective bargaining agreements	SR131-133	100% of employees are covered by collective bargaining agreements	
102-42	Identifying and selecting stakeholders	AR148-155, SR50-57		
102-43	Approach to stakeholder engagement	AR148-155, SR50-57		
102-44	Key topics and concerns raised	AR148-155, SR50-57		
Reporting practice				
102-45	Entities included in the consolidated financial statements	AR114-135		
102-46	Defining report content and topic Boundaries	SR114-117		
102-47	List of material topics	SR28-29		
102-48	Restatements of information	SR114		
102-49	Changes in reporting	SR114		
102-50	Reporting period	SR114		
102-51	Date of most recent report	SR114		
102-52	Reporting cycle	SR114		
102-53	Contact point for questions regarding the report	SR114		
102-54	Claims of reporting in accordance with the GRI Standards	SR114		
102-55	GRI content index	SR154-159		
102-56	External assurance	SR152-153		
GRI 103: Management Approach (2016)				
103-1	Explanation of the material topic and its Boundary	SR28-29		
103-2	The management approach and its components	SR24-39		
103-3	Evaluation of the management approach	SR24-39		

Standard	Disclosure	Location (AR, SR, others)	Disclosure/Comment	Assurance
GRI 200: Economic				
GRI 201: Economic Performance (2016)				
201-1	Direct economic value generated and distributed	AR14, SR118-119		
201-2	Financial implications and other risks and opportunities due to climate change	AR74-81, SR42-43, SR60-63		
201-3	Defined benefit plan obligations and other retirement plans	-	Under company rules and regulations	
201-4	Financial assistance received from government	SR118-119		
GRI 202: Market Presence (2016)				
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	SR131-133		
202-2	Proportion of senior management hired from the local community	SR131-133		
GRI 203: Indirect Economic Impacts (2016)				
203-1	Infrastructure investments and services supported	SR118-119		
203-2	Significant indirect economic impacts	SR118-119		
GRI 204: Procurement Practices (2016)				
204-1	Proportion of spending on local suppliers	SR140-141	Share of General Products and Services Spend are Local Procurement Spend (suppliers in Thailand)	
GRI 205: Anti-corruption (2016)				
205-1	Operations assessed for risks related to corruption	AR201-202		
205-2	Communication and training about anti-corruption policies and procedures	AR201-202		
205-3	Confirmed incidents of corruption and actions taken	AR198		
GRI 206: Anti-competitive Behavior (2016)				
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	AR201-202		
GRI 300: Environmental				
GRI 301: Materials (2016)				
301-1	Materials used by weight or volume	SR120		
301-2	Recycled input materials used	SR120		
301-3	Reclaimed products and their packaging materials	-	Information of reclaimed products and packaging materials are collected by business unit for efficient production and quality improvement	
GRI 302: Energy (2016)				
302-1	Energy consumption within the organization	SR122-123		Yes
302-2	Energy consumption outside of the organization	-	Data was collected by SCG Logistics of it's inbound/outbound but for internal use only	
302-3	Energy intensity	SR122-123		
302-4	Reduction of energy consumption	SR20, SR42-43, SR122-123		
302-5	Reductions in energy requirements of products and services	SR92-93		

Standard	Disclosure	Location (AR, SR, others)	Disclosure/Comment	Assurance
GRI 303: Water and Effluents (2018)				
303-1	Interactions with water as a shared resource	SR100-101		
303-2	Management of water discharge-related impacts	SR100-101		
303-3	Water withdrawal	SR100-101, SR124-125		Yes
303-4	Water discharge	SR100-101, SR124-125		Yes
303-5	Water consumption	SR100-101, SR124-125		
GRI 304: Biodiversity (2016)				
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	SR104-105, SR127		
304-2	Significant impacts of activities, products, and services on biodiversity	SR104-105, SR127		
304-3	Habitats protected or restored	SR104-105, SR127		
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	SR104-105, SR127		
GRI 305: Emissions (2016)				
305-1	Direct (Scope 1) GHG emissions	SR42-43, SR121		Yes
305-2	Energy indirect (Scope 2) GHG emissions	SR42-43, SR121		Yes
305-3	Other indirect (Scope 3) GHG emissions	SR42-43		
305-4	GHG emissions intensity	SR121		
305-5	Reduction of GHG emissions	SR121		
305-6	Emissions of ozone-depleting substances (ODS)	-	Data not available	
305-7	Nitrogen oxides (NO_X), sulfur oxides (SO_X), and other significant air emissions	SR127		Yes
GRI 306: Waste (2020)				
306-1	Waste generation and significant waste-related impacts			
306-2	Management of significant waste-related impacts			
306-3	Waste generated			Yes
306-4	Waste diverted from disposal	-		Yes
306-5	Waste directed to disposal			Yes
GRI 307: Environmental Compliance (2016)				
307-1	Non-compliance with environmental laws and regulations	SR127		
GRI 308: Supplier Environmental Assessment (2016)				
308-1	New suppliers that were screened using environmental criteria	SR96-97, SR140-141	Environmental, Social and Governance (ESG) risk assessment were conducted 100% of procurement spent, including new suppliers	
308-2	Negative environmental impacts in the supply chain and actions taken	SR96-97, SR140-141	Number and coverage of supplier identified as having high Potential Sustainability (including environmental) Risk	
GRI 400: Social				
GRI 401: Employment (2016)				
401-1	New employee hires and employee turnover	SR131-133		
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	-	Employment contract of temporary or part-time employees	
401-3	Parental leave	SR131-133	Under company rules and regulations	

Standard	Disclosure	Location (AR, SR, others)	Disclosure/Comment	Assurance
GRI 402: Labor/Management Relations (2016)				
402-1	Minimum notice periods regarding operational changes	-	Under Labor Protection Act	
GRI 403: Occupational Health and Safety (2018)				
403-1	Occupational health and safety management system	AR74-75, AR88-89, SR46-47	Under OHSAS 18001/ISO 45001, Process Safety Management and SCG Safety Framework	
403-2	Hazard identification, risk assessment, and incident investigation	SR46-47	All companies are implemented regarding to OHSAS 18001/ ISO 45001 and SCG Safety Framework	
403-3	Occupational health services	AR74-75, AR88-89, SR46-47		
403-4	Worker participation, consultation, and communication on occupational health and safety	AR74-75, AR88-89, SR46-47		
403-5	Worker training on occupational health and safety	SR46-47		
403-6	Promotion of worker health	SR46-47		
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	AR74-75, SR46-47, SR96-97		
403-8	Workers covered by an occupational health and safety management system	SR142-151	100% of employees and contractors	
403-9	Work-related injuries	SR128-130		Yes
403-10	Work-related ill health	SR128-130		Yes
GRI 404: Training and Education (2016)				
404-1	Average hours of training per year per employee	AR152, SR132		
404-2	Programs for upgrading employee skills and transition assistance programs	AR150-152, SR108-109		
404-3	Percentage of employees receiving regular performance and career development reviews	SR108	100% of employees	
GRI 405: Diversity and Equal Opportunity (2016)				
405-1	Diversity of governance bodies and employees	AR167, SR38, SR131-133		
405-2	Ratio of basic salary and remuneration of women to men	SR131		Yes
GRI 406: Non-discrimination (2016)				
406-1	Incidents of discrimination and corrective actions taken	-	No case found	
GRI 407: Freedom of Association and Collective Bargaining (2016)				
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	-	No case found	
GRI 408: Child Labor (2016)				
408-1	Operations and suppliers at significant risk for incidents of child labor	-	No case found	
GRI 409: Forced or Compulsory Labor (2016)				
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	-	No case found	
GRI 410: Security Practices (2016)				
410-1	Security personnel trained in human rights policies or procedures	AR74, SR91	100% of security personnel were trained by contracted company in accordance with SCG Supplier Code of Conduct	
GRI 411: Rights of Indigenous Peoples (2016)				
411-1	Incidents of violations involving rights of indigenous peoples	-	No case found	

Standard	Disclosure	Location (AR, SR, others)	Disclosure/Comment	Assurance
GRI 412: Human Rights Assessment (2016)				
412-1	Operations that have been subject to human rights reviews or impact assessments	AR75, SR106-107, SR132, SR136-138		
412-2	Employee training on human rights policies or procedures	SR106-107		
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	AR76-77, SR96-97, SR106-107, SR136-138		
GRI 413: Local Communities (2016)				
413-1	Operations with local community engagement, impact assessments, and development programs	AR90-95, SR72-79, SR110-111		
413-2	Operations with significant actual and potential negative impacts on local communities	-	No case found	
GRI 414: Supplier Social Assessment (2016)				
414-1	New suppliers that were screened using social criteria	AR154, SR96-97, SR140-141		
414-2	Negative social impacts in the supply chain and actions taken	-	No case found	
GRI 415: Public Policy (2016)				
415-1	Political contributions	SR118		
GRI 416: Customer Health and Safety (2016)				
416-1	Assessment of the health and safety impacts of product and service categories	AR153, SR92-93	All products and services are assessed regarding health and safety impact by using the Product Hazard Analysis under ISO 9001	
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	-	No case found	
GRI 417: Marketing and Labeling (2016)				
417-1	Requirements for product and service information and labeling	SR92-93		
417-2	Incidents of non-compliance concerning product and service information and labeling	SR92-93	No case found	
417-3	Incidents of non-compliance concerning marketing communications	SR92-93	No case found	
GRI 418: Customer Privacy (2016)				
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	-	No case found	
GRI 419: Socioeconomic Compliance (2016)				
419-1	Non-compliance with laws and regulations in the social and economic area	SR136	No case found	

United Nations Global Compact (UNGC) Communication on Progress - Advanced Level

Criteria of UNGC Advanced Level		Disclose	
		AR	SR
Implementing the Ten Principles into Strategies & Operations	Criterion 1: The COP describes mainstreaming into corporate functions and business units	1	4-5
	Criterion 2: The COP describes value chain implementation	-	48-55, 92-97
- Robust Human Rights Management Policies & Procedures	Criterion 3: The COP describes robust commitments, strategies or policies in the area of human rights	75	25-29, 106-107, 136-138
	Criterion 4: The COP describes effective management systems to integrate the human rights principles	90-93, 150-151, 154, 155	106-107
	Criterion 5: The COP describes effective monitoring and evaluation mechanisms of human rights integration	75	106-107, 136-138
- Robust Labour Management Policies & Procedures	Criterion 6: The COP describes robust commitments, strategies or policies in the area of labour	75, 77, 150-153	25-29, 108-109
	Criterion 7: The COP describes effective management systems to integrate the labour principles		108-109, 131-133
	Criterion 8: The COP describes effective monitoring and evaluation mechanisms of labour principles integration		18-19, 20-21, 108-109, 131-133
- Robust Environmental Management Policies & Procedures	Criterion 9: The COP describes robust commitments, strategies or policies in the area of environmental stewardship	84-89, 94-97	18-19, 20-21, 28-29, 42-45, 60-63, 68-71, 92-105, 120-127
	Criterion 10: The COP describes effective management systems to integrate the environmental principles		
	Criterion 11: The COP describes effective monitoring and evaluation mechanisms for environmental stewardship		
- Robust Anti-Corruption Management Policies & Procedures	Criterion 12: The COP describes robust commitments, strategies or policies in the area of anti-corruption	201-202	90-91
	Criterion 13: The COP describes effective management systems to integrate the anti-corruption principle		
	Criterion 14: The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption		
Taking Action in Support of Broader UN Goals and Issues	Criterion 15: The COP describes core business contributions to UN goals and issues	-	18-19
	Criterion 16: The COP describes strategic social investments and philanthropy		110-111, 132
	Criterion 17: The COP describes advocacy and public policy engagement		8-9, 56-57
	Criterion 18: The COP describes partnerships and collective action		80-83, 84-87
Corporate Sustainability Governance and Leadership	Criterion 19: The COP describes CEO commitment and leadership	5-7	4-5
	Criterion 20: The COP describes Board adoption and oversight	165, 178	32-33, 39
	Criterion 21: The COP describes stakeholder engagement	148-155	50-55

AR = Annual Report
SR = Sustainability Report

Task Force on Climate-Related Financial Disclosures (TCFD)

Recommendations		Disclose	
		AR	SR
GOVERNANCE	Disclose the organization's governance around climate-related risks and opportunities.		
	a) Describe the board's oversight of climate-related risks and opportunities.	72-73	32-33, 36-37, 39
	b) Describe management's role in assessing and managing climate-related risks and opportunities.		
STRATEGY	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.		
	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	74	26, 28-29, 42-43, 60-63, 72-75, 98-99
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.		
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.		
RISK MANAGEMENT	Disclose how the organization identifies, assesses, and manages climate-related risks.		
	a) Describe the organization's processes for identifying and assessing climate-related risks.	72-83	26, 28-29, 32-33, 39, 42-43, 98-99
	b) Describe the organization's processes for managing climate related risks.		
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.		
METRICS and TARGETS	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.		
	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	-	42, 92, 98, 100
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	84	42, 121, 139
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	72, 84	42, 92, 98, 100, 121, 139

AR = Annual Report
SR = Sustainability Report

Sustainability Accounting Standards Board Response (SASB)

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/ REFERENCE
Activity Metrics	Production by major product line	Quantitative	Metric tons (t)	EM-CM-000.A RT-CH-000.A RT-CP-000.A	P.120
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	EM-CM-110a.1 RT-CH-110a.1 RT-CP-110a.1	P.121, 134
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-CM-110a.2 RT-CH-110a.2 RT-CP-110a.2	P.42
Air Quality	Air emissions of the following pollutants: (1) NO_x (excluding N_2O), (2) SO_x, (3) particulate matter (PM10), (4) dioxins/furans, (5) volatile organic compounds (VOCs), (6) polycyclic aromatic hydrocarbons (PAHs), and (7) heavy metals	Quantitative	Metric tons (t)	EM-CM-120a.1 RT-CH-120a.1 RT-CP-120a.1	(1) (2) (3) P.127 (4) (5) (7) P.134
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage alternative, (4) percentage renewable*	Quantitative	Gigajoules (GJ), Percentage (%)	EM-CM-130a.1 RT-CH-130a.1 RT-CP-130a.1	(1) (2) (3) (4) P.122-123, 134
Water Management	(1) Total fresh water withdrawn, (2) percentage recycled*, (3) percentage in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m^3), Percentage (%)	EM-CM-140a.1 RT-CH-140a.1 RT-CP-140a.1	(1) (2) (3) P.124-125, 135
	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	Quantitative	Number	RT-CH-140a.2 RT-CP-140a.3	P.127
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RT-CH-140a.3 RT-CP-140a.2	P.98-99
Waste Management	Amount of waste generated, percentage hazardous, percentage recycled*	Quantitative	Metric tons (t), Percentage (%)	EM-CM-150a.1 RT-CH-150a.1 RT-CP-150a.1	P.126

*Represents group level only

CONSTRUCTION MATERIALS Specific

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/ REFERENCE
Biodiversity Impacts	Description of environmental management policies and practices for active sites	Discussion and Analysis	n/a	EM-CM-160a.1	P.104-105, 135
	Terrestrial acreage disturbed, percentage of impacted area restored	Quantitative	Acres (ac), Percentage (%)	EM-CM-160a.2	3,507 ac, 7.89%
Workforce Health & Safety	(1) Total recordable incident rate (TRIR)* and (2) near miss frequency rate (NMFR)* for (a) fulltime employees and (b) contract employees	Quantitative	Rate	EM-CM-320a.1	(1) P.128 Safety KPIs are disclosed in accordance with GRI and GCCA. (2) P.129 (a) 7.071 Cases/ 200,000 hours worked (b) 0.236 Cases/ 200,000 hours worked
	Number of reported cases of silicosis	Quantitative	Number	EM-CM-320a.2	P.129
Product Innovation	Percentage of products that qualify for credits in sustainable building design and construction certifications	Quantitative	Percentage (%) by annual sales revenue	EM-CM-410a.1	P.118
	Total addressable market and share of market for products that reduce energy, water, and/or material impacts during usage and/or production	Quantitative	Reporting currency, Percentage (%)	EM-CM-410a.2	P.118
Pricing Integrity & Transparency	Total amount of monetary losses as a result of legal proceedings associated with cartel activities, price fixing, and anti-trust activities	Quantitative	Reporting currency	EM-CM-520a.1	No case found in 2021

*Represents group level only

CHEMICALS Specific

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/ REFERENCE
Community Relations	Discussion of engagement processes to manage risks and opportunities associated with community interests**	Discussion and Analysis	n/a	RT-CH-210a.1	P.53
Workforce Health & Safety	1) Total recordable incident rate (TRIR)* and (2) fatality rate* for (a) direct employees and (b) contract employees	Quantitative	Rate	RT-CH-320a.1	P.128 Safety KPIs are disclosed in accordance with GRI
	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Discussion and Analysis	n/a	RT-CH-320a.2	P.18-19, 26
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	Reporting currency	RT-CH-410a.1	P.118
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	Quantitative	Percentage (%) by revenue, Percentage (%)	RT-CH-410b.1	(1) P.129 (2) P.129
	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	Discussion and Analysis	n/a Community Relations	RT-CH-410b.2	P.93
Genetically Modified Organisms	Percentage of products by revenue that contain genetically modified organisms (GMOs)	Quantitative	Percentage (%) by revenue	RT-CH-410c.1	Not Applicable
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Discussion and Analysis	n/a	RT-CH-530a.1	Annual Report 2021, P.78-79
Operational Safety, Emergency Preparedness & Response	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)	Quantitative	Number, Rate	RT-CH-540a.1	P.129
	Number of transport incidents*	Quantitative	Number	RT-CH-540a.2	P.129

*Represents group level only
**Applies the same practice as SCG

CONTAINERS & PACKAGING Specific

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE/ REFERENCE
Activity Matric	Percentage of production as: (1) paper/wood, (2) glass, (3) metal, and (4) plastic	Quantitative	Percentage (%) by revenue	RT-CP-000.B	(1) 92% (4) 8%
	Number of employees	Quantitative	Number	RT-CP-000.C	P.7 Annual Report 2021, P.188
Product Lifecycle Management	Percentage of raw materials from: (1) recycled content, (2) renewable resources, and (3) renewable and recycled content	Quantitative	Percentage (%) by weight	RT-CP-410a.1	(1) P.120
	Revenue from products that are reusable, recyclable, and/or compostable	Quantitative	Reporting currency	RT-CP-410a.2	2,102 MB (recyclable polymer container)
	Discussion of strategies to reduce the environmental impact of packaging throughout its lifecycle	Discussion and Analysis	n/a	RT-CP-410a.3	P.16, 44-45
Product Safety	Number of recalls issued, total units recalled	Quantitative	Number	RT-CP-250a.1	Zero recall
	Discussion of process to identify and manage emerging materials and chemicals of concern	Discussion and Analysis	n/a	RT-CP-250a.2	P.93
Supply Chain Management	Total wood fiber procured, percentage from certified sources	Quantitative	Metric tons (t), Percentage (%)	RT-CP-430a.1	2,564,620 t, 100% FSC™-COC
	Total aluminum purchased, percentage from certified sources	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	RT-CP-430a.2	Not Applicable

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