

SUSTAINABILITY REPORT 2015

SCG



“ INNOVATION THAT CARES ”



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Message from President & CEO



The world in 2015 has encountered transformative changes unfolding at unprecedented speed; economically, socially and environmentally. One of the key drivers is falling crude oil prices with no end in sight. Alternative energy was marginalized, and climate change mitigation actions decelerated at this juncture where they need to be accelerated. In any case, 195 members of the United Nations agreed on a 2030 Agenda for Sustainable Development Goals, together with the Paris Agreement at COP21 to limit global warming to well below 2 degrees Celsius. Closer to home, the ASEAN Economic Community is emerging as an integrated hub of production and a common market bound to be a stronger player in the world's economy.

Progresses in SCG's sustainability actions across the entire supply chain in 2015 are for examples; all five SCG cement plants and Map Ta Phut Olefins plant were certified Green Industry Level 5 or Green Network - which is the highest level. In addition, all SCG Chemicals plants were certified "Eco Factory", demonstrating our commitment to Green Manufacturing. This is also reflected in the result of Community Satisfaction Survey conducted in 2015, which shows an increased satisfaction rate at 89% among communities around the plants on the issue of our safety and environmental management performance. Furthermore, Vina Kraft paper plant in Vietnam passed the Environmental

Performance Assessment Program (EPAP) at Level 4: Business Integration; the first ASEAN operations to have achieved the certification at that level.

Regarding upstream and downstream of the supply chain, SCG had successfully completed the Supplier Development for Sustainability project with 15 suppliers. Direct outcomes are tangible to the supplier themselves now that they have the capacity to overcome quality improvement challenges to improve productivity, to use less resource particularly energy and water, to reduce waste and to develop an inventory system and logistics. With adjusted revenue accounting formulas and a better validation process of its eco-friendliness, SCG eco value line of products and services accounts for 26% of overall revenue from sales. With our relentless focus on responding to the customers' needs and quality of life, SCG Packaging has developed "FEST" as a new option of safe food packaging for a sustainable society.

Due to consistent efforts in improving cement fleet in Saraburi province over the years, we have finally certified for the ISO 39001: Road Traffic Safety Management System. This will serve as a prototype to enforce similar practices to other routes. SCG's Skills Development School founded in 2011 to train our truck drivers to be professional and safety-conscious has reached out to collaborate with the National Institute of Emergency Medicine and District Health Office to train ambulance drivers and EMS teams. We also handed over the "safe driving" curriculum to a traffic watch radio station, organized a Project for Competent Taxi Drivers and a "Safety We Care" event to raise awareness of the safe transport. We continue to partner with others in the public, private sector and educational institutions on this issue.

On social responsibility, the SCG Conserving Water for Tomorrow Project - which has been running for over 10 years - won a national award (Outstanding Project Category) in the field of conservation and environment. Two project sites in Lampang province have been transformed into Learning Centers to showcase good practice for other communities to study and apply this sustainable model according to their own context.

Droughts brought about by climate change impact affected many parts of Thailand in 2015, SCG, therefore, organized a project called "SCG: United against Drought" to distribute water storage tanks to communities around our facilities and others.

To address the shortage of workers with vocational qualification, the SCG Foundation has been operating "Specialists...the Makers of the Nation Project" since 2013 to prepare new crops of talents for the employment market.

Beyond Thailand, SCG in partnership with the Crown Property Bureau and Banphaeo Hospital Public Organization successfully implemented "Sharing a Brighter Vision" project to perform cataract surgery for the local people of Mon State at the General Hospital of Mon State in Myanmar.

With our experience and track records in managing sustainability from the economic sector, SCG is providing input in the process driven by the current government to formulate a National Development Strategy that seeks to close inequality gaps, advance human development, and increase Thailand's competitiveness in the market.

Our commitment to sustainability-guided operations has won SCG multiple awards and recognition, a source of pride for SCG and our stakeholders for the collective collaboration. SCG is the leader in the Construction Materials Industry of Dow Jones Sustainability Indices for the 5th consecutive year, and won citations as an outstanding company in ESG (Environmental, Social and Governance).

SCG hosted Innovation for Sustainability 2015 under the theme "Power of Collaboration" as a platform to engage stakeholders and raise public awareness on the importance of collaboration, the sharing and fostering of innovations, and together as a strong network, ensure translating those innovations into concrete contributions toward sustainability.



Roongrote Rangsiyopash
President & CEO, SCG

Sustainability Highlights



HVA Products and Services

2014	2015
35 percent	37 percent

of revenue from sales



"SCG eco value" Products and Services

2014	2015
31 percent	26 percent

of revenue from sales



Environmental Investment (percent of revenue from sales)

2014	2015
2,542 million baht (0.52 percent)	3,016 million baht (0.69 percent)



Research & Development Investment (percent of revenue from sale)

2014	2015
2,710 million baht (0.56 percent)	3,510 million baht (0.80 percent)



Green Procurement Purchased

2014	2015
8,172 million baht	9,838 million baht



Alternative Fuel

2014	2015
12.5 percent	10.9 percent



Hazardous/Non-hazardous Waste to Landfill

2014	2015
0.0/4.6 percent	0.0/0.2 percent



Carbon Label Certified (Carbon Reduction Label and Carbon Footprint Label)

2014	2015
166 items	132 items



Lost Time Injury Frequency Rate (Employee/Contractor)

2014	2015
0.05/0.06 Case/200,000 man-hour	0.07/0.06 Case/200,000 man-hour



Social Contribution

2014	2015
555 million baht	591 million baht



Enhance Professional Skill of Fleet Carrier Employees through Trainings from Skills Development School

2014	2015
12,919 persons	12,564 persons



Number of Check Dam

2014	2015
65,440 units	68,445 units



Sharing Opportunities, Drawing the Future Program

2014	2015
132 projects 14.4 million baht	130 projects 15.9 million baht



Dow Jones Sustainability Indices (DJSI)/ Robeco Sustainable Asset Management

2014	2015
Industry Leader for the 4 th Consecutive Year, Ranked Gold Class for the 7 th Consecutive Year	Industry Leader for the 5 th Consecutive Year, Ranked Gold Class for the 8 th Consecutive Year



About SCG

- For more than 100 years, SCG has operated its business in line with corporate governance and sustainable development framework since its inception by Royal Decree of His Majesty King Rama VI in 1913. SCG now expands its business across ASEAN, with 200 subsidiaries and a workforce of 52,000 employees. SCG is at the forefront of leading companies with sustainable growth in ASEAN.

- SCG's core business consists of SCG Cement-Building Materials, SCG Chemicals and SCG Packaging.

- SCG is committed to innovation in every aspect of its operation: products and services, processes, and business models. We seek to create value, respond to needs of customers and stakeholders, and protect the well-being of communities where we operate. At the same time, we build the capacity of our business partners, as they too are part of sustainability.

- SCG operates our business within the sustainability framework with a clear policy, practice and guidelines relating to environmental conservation, occupational health and safety. SCG is a member of the World Business Council for Sustainable Development (WBCSD) since 2000. SCG Cement-Building Materials is the first Thai company to become a member of the Cement Sustainability Initiative (CSI) under WBCSD. SCG Packaging is also a member of the Sustainable Forest Products Industry (SFP) under WBCSD.

- WBCSD is developing its Action 2020 guideline, which will lead to the realization of Vision 2050. As a WBCSD member, SCG is actively monitoring and contributing to this to align with Vision 2050.

- SCG is a member of the United Nations Global Compact, showing in our commitment to comply with international best practices. Since 2012, SCG achieved the Advanced Level of compliance that covers 24 aspects governing areas such as human rights, labor practices, the environment, anti-corruption, value chain, transparency and certification.

- In disclosing sustainability information to stakeholders, SCG adopts the Global Reporting Initiative approach (GRI-G4.)

Our Core Businesses

SCG Cement-Building Materials



SCG founded its first business operation in 1913 to produce and distribute a variety of cement and concrete products. In 1938, SCG ventured into production of building materials such as roofing tiles, ceiling and wall materials, and ceramic tiles. In 1962, SCG Distribution was established to handle trading, logistics and warehousing.

These three businesses have subsequently been consolidated in the name of SCG Cement-Building Materials to leverage our competitive advantage, innovation and services to deal with increasingly diverse needs of customers and to facilitate our expansion in ASEAN.

SCG Cement-Building Materials operates with full commitment to environmental friendliness and optimum use of natural resources in line with the sustainability framework. Our key principles include:

- Define environment and safety standards, including SCG Green Port Standard applied to in the process of transferring, transporting, and storage of coal and clinker.

- Give importance to sustainable management of resources and environment. These include turning concrete waste into substitute raw material in public work, sorting and reusing of rock and sand, and turning waste from cement quarry to be used as a substitute for natural sand.
- Increase energy efficiency and mitigate Greenhouse Gas Emissions through actions such as changing the clay powder production process from Wet Process to Dry Grinding.
- Prepare to cope with drought and water shortage projected to affect our facilities. We do this through daily monitoring of water level at raw and public water sources, along with the development of contingency supply sources such as using shale quarry space as a rainwater storage facility.
- Improve efficiency of trapping particles from main stack. Measures implemented include changing from Electrostatic Precipitator to Bag Filter system, employing a hybrid system.
- Develop products that are SCG eco value certified, which helps GHGs mitigation, or reuse materials in process.

All cement production plants of SCG Cement-Building Materials in Thailand have been certified Green Industry Level 5 which is the highest level from the Ministry of Industry.

SCG Chemicals



SCG Chemicals is an integrated chemicals business founded in 1983. The business manufactures vast array of chemical products ranging from upstream, including olefins; midstream, including styrene monomer, PTA, and MMA; to downstream, including four types of plastic pellets (polyethylene, polypropylene, polyvinyl chloride and polystyrene). SCG Chemicals is recognized as one of Thailand's largest integrated chemicals producers, as well as a leading player in Asia-Pacific region.

SCG Chemicals accords top priority to research and development, striving to add value to its products by fostering innovation and developing new products that are environmentally friendly and sustainable.

Key sustainability actions implemented by SCG Chemicals include:

- Incorporated the Eco Factory guidelines of The Federation of Thai Industries with the operations system to enhance eco-efficiency, add value to the products, and minimize environmental impact.
- Developed process of eco-production and service. As a result, revenue from sales of SCG eco value is accounted for 36% of the overall sales of SCG Chemicals.
- Supported the establishment of 12 community enterprises in Map Ta Phut, Rayong, building eco-communities that sustainably generate income. This, in turn, will help shape Rayong into an eco-industrial town.

All the efforts in 2015 resulted in SCG Chemicals becoming the first chemical business in Thailand to have all its plants achieve eco-factory certification from The Federation of Thai Industries. At the same time, the company also collaborated with Community Partnership Association to support other plants to operate in line with the Eco Factory guidelines.

Furthermore, SCG Chemicals was the first chemical company in Thailand to achieve Green Industry Level 5, which is the highest level, from the Ministry of Industry.

SCG Packaging



SCG Paper Public Company Limited has rebranded the business to SCG Packaging Public Company Limited on the 2nd of June 2015, reflecting the strategic shift of focus towards packaging - which is growing strongly as a sector. This also corresponds to the objective to expand the packaging business into ASEAN. Our top priority is to sustainably offer fully-integrated packaging related products and services to customers; as seen from the development of high quality packaging products and services such as Flexible Packaging; a non-paper packaging.

SCG Packaging operates its business within the sustainability framework, taking into account risk and opportunity of material issues and mainstreaming it in our business strategy. This is to ensure that business

continues to grow amidst rapid changes. At the same time, the company takes into account stakeholders' interest in order to strike a balance - economically, socially and environmentally.

Key sustainability considerations of SCG Packaging include:

- Selection of top line eco-friendly machineries and manufacturing technologies. The company also promotes energy efficiency, reduce the use of natural resources and utilize the energy derived from materials left over from manufacturing process.
- Achieving SCG eco value standard from paper and packaging product development for offering high quality and eco-friendly products and services to consumers.
- Engaging with communities around factories and stakeholders to ensure sustainable co-existence, dialogue and collaboration for solutions to problems through various social projects.
- Awareness-raising activities on environmental conservation targeting the youth and young population from communities around the plants.

Business Philosophy and Vision

• SCG believes in the ethical conduct of our business. The company's Board of Directors, management and employees at all levels consistently comply with this business philosophy. SCG is thus recognized as a leading, credible enterprise that conducts its business with transparency, accountability

and the treatment of all our stakeholders equally.

• SCG has defined a vision that provides a key goal in which all employees work hard to realize.

SCG Business Philosophy

Adherence to Fairness

- Treat all stakeholders with fairness and equality
- Integrity, transparency, and accountability
- Work equally without prejudice to any particular group

Dedication to Excellence

- Create innovation to respond to the needs of the society
- Dedicate to goals and better results
- Keep up to date with global trends and ready to respond to changes

Belief in the Value of Individuals

- Develop employees' potential at all levels consistently
- Work as a team, care and respect each other

Concern for Social Responsibility

- Comply with safety, occupational health, and environmental standards
- Recognize the value of natural resources
- Help preserve the environment, community, and participate in the social development

Open & Challenge

Open - Open Our Mind to Learning and Respect the Difference

- Open our mind, listen to others, and be flexible to learn regardless of our belief
- Eager to learn and have courage to say we do not know
- Collaborate and network both internal and external organization
- Be courage to admit our mistakes and ready to learn to move forward

Challenge - Challenge Ourselves for the Betterment

- Do not limit ourselves to past nor present success
- Think out of the box
- Be assertive to express our different opinion, and accept the agreement after open discussion
- Be courage to make decision in a timely manner, and willing to take and manage risks
- Ready to turn our thinking and learning into action before being forced



SCG Vision

SCG strives to become a regional market leader, whose business operations contribute to sustainable growth of ASEAN and communities wherever it operates. SCG is committed to creating value to its employees, suppliers, customers and stakeholders. Its world-class management conforms to corporate governance principles and high safety standards. SCG aims to enhance the quality of life and well-being of people through delivery of excellent products and services developed out of rigorous efforts, process, technology and innovations.

SCG seeks to be recognized as an innovative workplace of choice, and a role model in corporate governance and sustainability. SCG believes in the value and potential of employees, working together within a constructive, energetic and transparent atmosphere. SCG employees adhere to and comply with SCG Business Philosophy and SCG Code of Conduct.

SCG has valued the development of employees of diverse ethnicity, culture, and experiences to be committed to responding customers' needs, to have a wide vision, and be both smart and ethical people.

Corporate Governance

- SCG conducts business with responsibility, transparency and fairness, adhering to the principles that have been long practiced and are outlined in the SCG Code of Conduct on the basis of balanced and sustainable success.
- Corporate governance principles are organizational guidelines that are globally accepted and align with SCG's principles and code of conduct. The corporate governance ensures fairness and transparency, develops return benefits, and adds long-term economic value for shareholders whilst creating confidence among all stakeholders and enhancing the company's competitiveness to achieve sustainable growth.
- SCG publishes the corporate governance policy and guidelines in its *Corporate Governance Manual*. The content of this manual has been continually reviewed in accordance with the OECD Principles of Corporate Governance, DJSI Sustainability Assessment, ASEAN Corporate Governance Scorecard (ASEAN CG Scorecard), Stock Exchange of Thailand, and the Thai Institute of Directors (IOD).

Key Roles and Responsibility of the Board of Directors

1. Board of Directors

The Board of Directors is the driving force of the organization. Its roles and duties are to set strategies and policies pertaining to business operation of the company for its best benefits and fairness to all stakeholders under the principles of corporate governance. It is also tasked with overseeing and assessing the performance of SCG's management and the president/CEO to ensure that they are in line with set plans.

2. The Governance and Nomination Committee

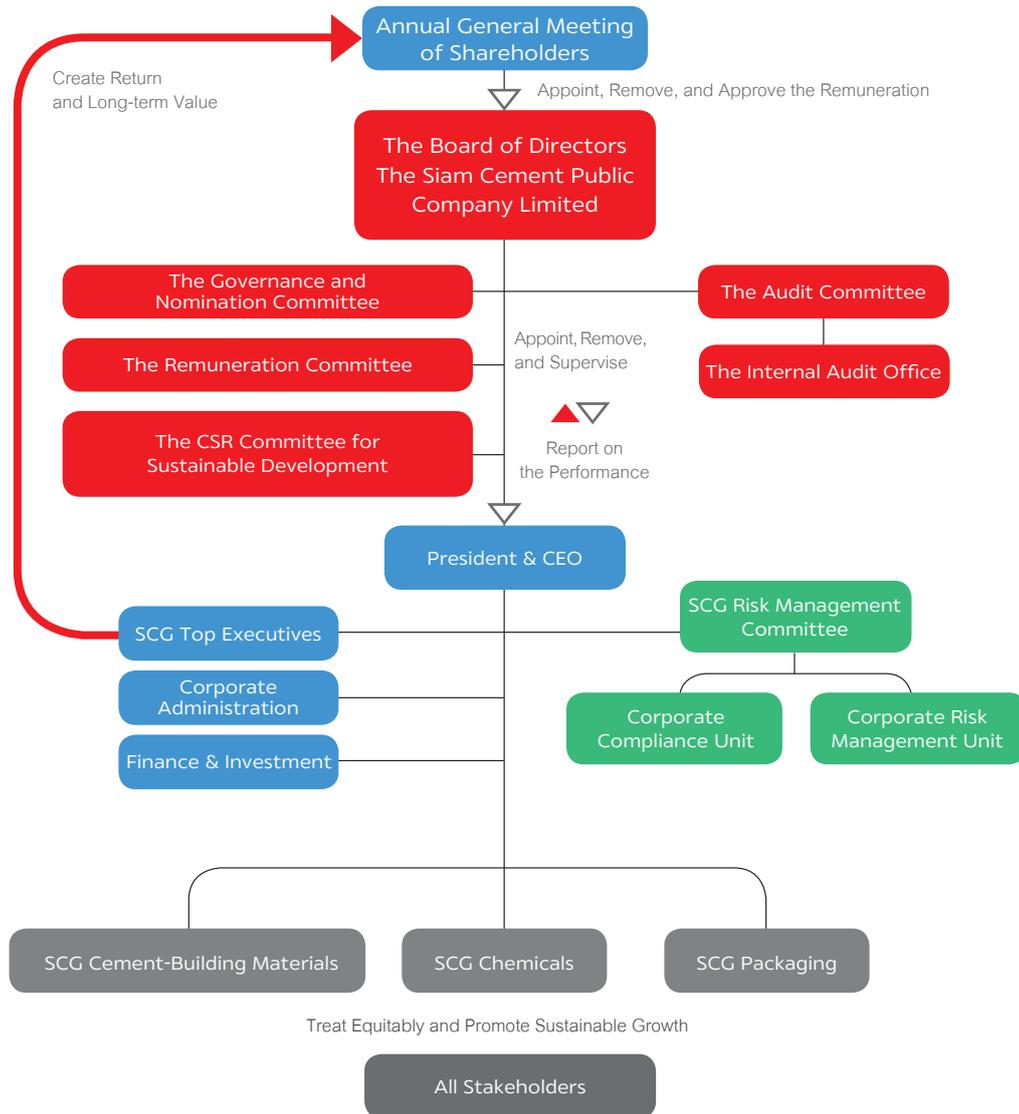
The Governance and Nomination Committee is entrusted with overseeing SCG's corporate governance matters, encompassing the establishment of policy and practice guidelines as well as monitoring the performance of the Board of Directors and the Management to ensure their compliance with SCG's corporate governance policy. The committee also monitors and evaluates the corporate governance practices together with periodically reviewing the guidelines to ensure their alignment with business operation and corporate governance practices at national and

international levels. In addition, the committee is in charge of the nomination of persons qualified to become directors replacing those who are retired by rotation, step down, or as the case may be.

3. The Audit Committee

The Audit Committee is responsible for reviewing corporate governance, risk management, legal and regulatory compliance, and internal control. The Internal Audit Office audits, evaluates, and advises operators (First Line) and supporting functions (Second Line), which is in line with the integrated organization management according to the Governance Risk Compliance and Control (GRC). Looking ahead, SCG will use the Risk Management Committee (RMC) as a mechanism in managing risks on SCG as a whole, business units, and company levels. Risk management unit together with compliance unit are responsible for communicating the policies, developing practice guidelines, monitoring outcomes, and submitting findings to the audit office to evaluate, investigate, and follow up with the efficiency and effectiveness before reporting to the Audit Committee.

SCG Corporate Governance Structure



Code of Conduct

SCG's Code of Conduct was first announced in 1987, and has been improved and updated periodically. The 6th and most recent revision was in 2015. The content was categorized and improved to cover regulations, policies, and guidelines applicable to all stakeholders and reflecting current key issues including human rights and labor, environment, health, safety, product and service safety, anti-corruption, gift and entertainment, disclosure, conducting business in other countries, and market competition.

Anti-corruption Policy

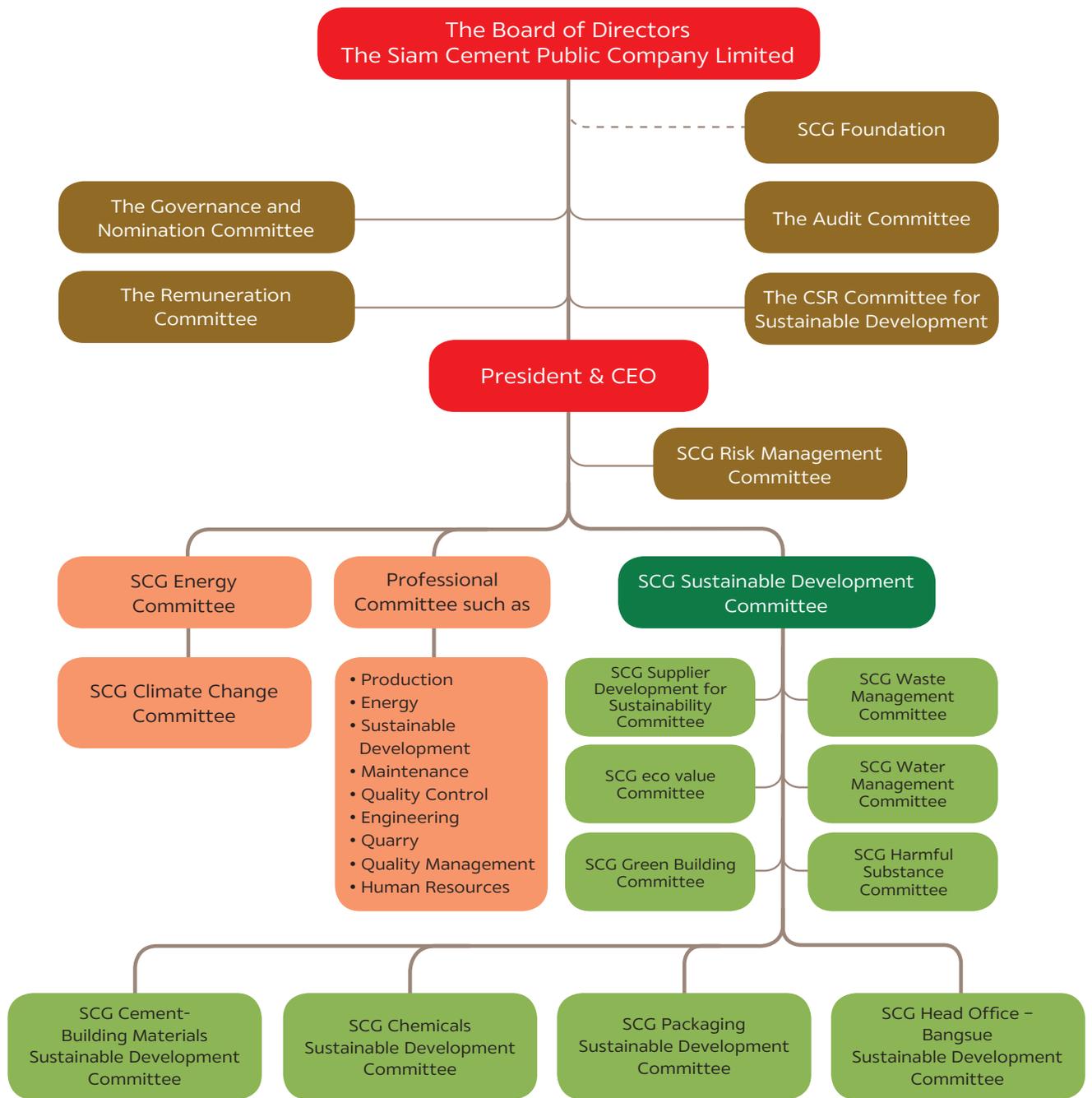
SCG gives precedence to anti-corruption and has embedded it in the organizational culture according to the four core values. The Siam Cement Public Company Limited was awarded Certified Company from the Private Sector Collective Action Coalition against Corruption (CAC) in 2013. The company has been continuously developed by taking into account social responsibility and all stakeholder groups according to the corporate governance and ethics, which is now pending recertification in 2016.

Sustainable Development Structure



Sustainable Development Committee

1. Cholanat	Yanaranop	President, SCG Chemicals	Chairman
2. Pichit	Maipoom	President, SCG Cement-Building Materials	Committee
3. Tanawong	Areeratchakul	President, SCG Packaging	Committee
4. Somchai	Wangwattanapanich	Vice President - Operations, SCG Chemicals	Committee
5. Aree	Chavalitcheewingul	Vice President - Regional Business SCG Cement-Building Materials	Committee
6. Nithi	Patarachoke	Vice President - Domestic Market SCG Cement-Building Materials	Committee
7. Chana	Poomee	Vice President - Operations SCG Cement-Building Materials	Committee
8. Chaovalit	Ekabut	Vice President - Finance and Investment & CFO, SCG	Committee
9. Yuttana	Jiamtragan	Vice President - Corporate Administration, SCG	Committee
10. Venus	Asavasitthithavorn	Director - Corporate Communication Office	Committee
11. Pimjai	Wangkiat	Director - Corporate Organization Development	Committee
12. Kittinan	Pora	Director - Center of Excellence and Sustainability Development	Committee and Secretary
13. Numpol	Limprasert	Sustainable Development Manager	Committee and Assistant Secretary



The CSR Committee for Sustainable Development

- Formulates policy and guideline, and allocates the budget for Corporate Social Responsibility (CSR) activities undertakings for sustainable development. Our guiding principle is the belief that a good quality of life marks the start of community and social development, leading to national development.

SCG Risk Management Committee

- Formulates policy, strategy, management framework and risk management plans.

- Defines structure and appoints person in charge of risk management. Moreover, the unit also supports and monitors compliance management.

- Consists of the president and vice president of each business unit. The SCG president & CEO serves as the chairman.

SCG Sustainable Development Committee

- Formulates and reviews policy, operational strategy and goal of sustainability.

- Listens to views of stakeholders, especially the expert.

- In charge of materiality formulation to ensure meaningful stakeholders engagement.

- Is currently chaired by the president of SCG Chemicals, with president and vice president of each business unit and corporate functions serving as members.

SCG Energy Committee

- Charts policy and guideline relating to sustainable energy, to ensure energy sufficient amount, energy efficiency, conservation and use of alternative energy for environmentally friendly.

- Communicates, advocates and raises awareness on energy conservation among employee so that SCG uses energy responsibly.



SCG Climate Change Committee

- Formulates policy, strategy, goal and plan to mitigate climate change impact and reduce greenhouse gas (GHG) emissions by SCG.
- Monitors closely the climate change situation, especially risk, vis-a-vis the SCG workforce.
- Raises awareness and knowledge about climate change for SCG people.

SCG Waste Management Committee

- Monitors and facilitates compliance with Zero Waste to Landfill policy and the 3Rs policy.
- Issues guidelines for SCG to manage waste in-house the best it can.
- Promotes and coordinates reuse/recycle of waste through R&D, focusing on adding value to waste within and beyond SCG.

SCG Water Management Committee

- Formulates, monitors and facilitates implementation of the SCG water resource management guideline with clearly-defined goal and indicator, aiming at optimization.
- Encourages and coordinates the reuse/recycle of brown water through R&D within and beyond SCG.

SCG Harmful Substance Committee

- Formulates policy and advocates for risk assessment of harmful substance use and ensuring that implementation of SCG harmful substance management guideline is in line with specific goal and indicator.
- Encourages and facilitates reduced use of harmful substances or use of substitutes through R&D work, within and outside the SCG.

SCG Supplier Development for Sustainability Committee

- Formulates policy, strategy, goal and work plan for Upstream Supply Chain sustainability development. This work is built upon the successful foundation laid by the implementation of the Green Procurement, SCG Contractor Safety Certification Program and SCG Code of Conduct.

SCG eco value Committee

- Regulates value creation at Downstream Supply Chain, to provide options of green product and service to the customer.

SCG Green Building Committee

- Deliberates and implements green building standards at SCG Headquarters in Bangsue to be energy efficient, environmentally friendly and appropriate surrounding for the good quality of employee life.
- Defines strategy, guideline and action to enhance opportunity for business and green product and service of SCG.

Sustainable Management Approach

- SCG adheres to conducting its business with ethics, and responsibility to all stakeholders for sustainable mutual benefits. SCG has set its Sustainable Development Framework in accordance with global practices, covering three dimensions of economy, society and the environment, with corporate governance as an overarching principle. It is to ensure that operations by our business units are aligned.

- SCG is dedicated to creating value to the society through its environmentally friendly business operation. SCG is willing to share knowledge, experiences and success by engaging with all parties such as its relevant businesses throughout upstream and downstream, business organizations, institutes, including social and community-based enterprise to empower the society with strong and sustainability.

Corporate Governance

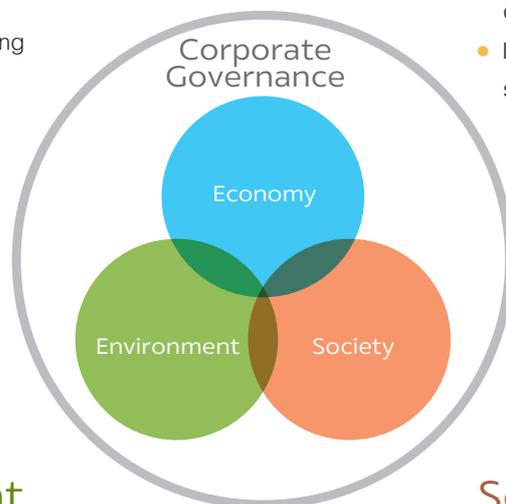
Supervises our business management to ensure fairness, transparency and accountability in accordance with its business philosophy "Adherence to Fairness".

- Good corporate governance
- Risk management
- Disclosure and reporting

Economy

Creates values not exclusively for profitability, but creates mutual benefits for all stakeholders.

- Contributes to national economic growth through value generated by our operations.
- Income distribution among our stakeholders.



Environment

Commits to conservation of the environment and natural resources, using resources wisely and maintaining ecological balance.

- Energy and climate change
- Water management
- Waste management
- Biodiversity and ecosystem
- Environmentally friendly products and services
- Logistics management

Society

Conducts business with ethics and concern for social responsibility. Participates in improving the quality of life where SCG operates.

- Community investment and donation
- Labor practices and human rights
- Human resources and human capital development
- Health and safety
- Stakeholder engagement

SCG Sustainable Supply Chain

SCG Sustainable Supply Chain provides a framework to ensure sustainability in business operations, society and environment. This is how the process works.



1. Being World Class and Eco-friendly Operation

- Improve efficiency and effective processes towards Operational Excellence as prescribed by our business philosophy "Dedication to Excellence". World class operation involves clearly defined goals and indicators per issue, long term and short term, incorporating systems and standards including Total Quality Management, Total Productive Maintenance and Integrated Business Excellence (IBE). For monitoring, evaluation and credibility among stakeholders in safety and environment issues, we have implemented the Safety Performance Assessment Programme (SPAP) and Environmental Performance Assessment Programme (EPAP).

- SCG values our human capital and we are committed to capacity development of our employees and contractors by our business philosophy "Belief in Value of Individuals". In 2015, we established SCG Learning Council to improve learning efficiency. As SCG expands its operations in ASEAN, we make sure to apply the same systems and standards to wherever we operate to harmonize our sustainable practices.

2. Improving Management Capacity of Upstream Supply Chain

- Following our successful Green Procurement practice and SCG Contractor Safety Certification System, we expand to strengthen sustainable development practice to our suppliers and contractors.

3. Creating Value Added to Downstream Supply Chain

- Producing value added and environmentally friendly products and services to respond to the customers' needs in a sustainable manner.

4. Promoting Sustainable Development Concept to Others Organizations

- Promoting social dialogue on Sustainable Development in line with our business philosophy "Concern for Social Responsibility". SCG is committed to contribute beyond the sphere of direct stakeholders.





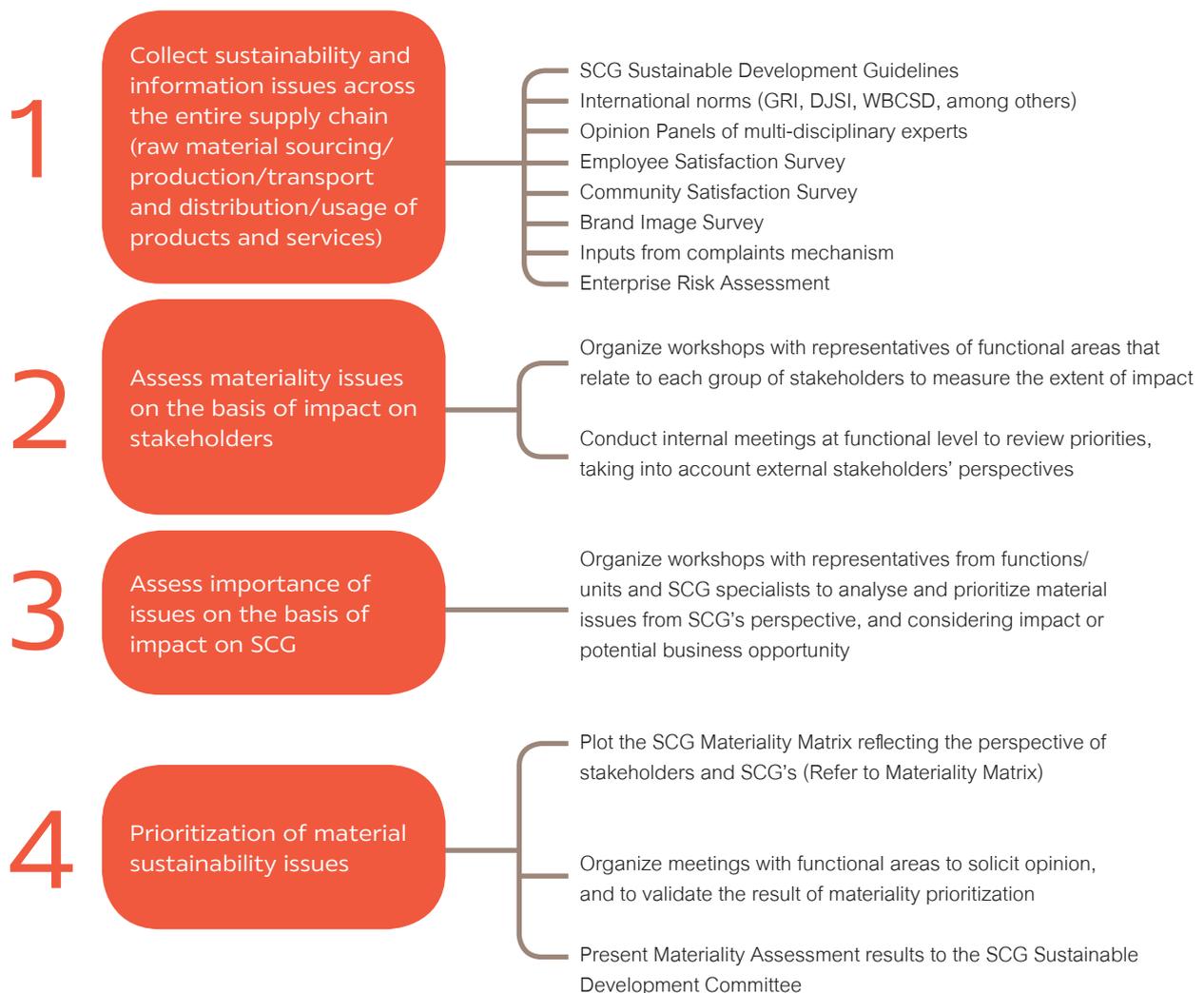
SCG and Sustainability Development

Materiality

To ensure prompt and proper management of material sustainability issues, while taking into account enterprise resources and preparedness, SCG has compiled and prioritized material issues relating to business operations. The process was conducted as guided by the Global Reporting Initiatives version 4 (GRI-G4,) and Dow Jones

Sustainability Assessment (DJSI) Criteria. In materiality prioritization, we resorted to participatory approach to make sure that we manage these issues in response to stakeholders' needs effectively.

Materiality assessment steps undertaken:



SCG Materiality Matrix 2015



2015 Performance

In managing material sustainability issues of 2014, we found that certain issues required greater clarity in terms of relevance to internal and external stakeholders of SCG and core businesses; and that details on some issues were incomplete - which may affect successful management to achieve goals of responding to stakeholders' needs. SCG therefore conducted a review of 2014 materiality issues according to the following process.

1. Review implications of each issue, alongside the level of impact they may have on business inside Thailand and in ASEAN which may differ. The review was conducted to exclude certain procedural issues (e.g. risk management, stakeholder engagement, international production standard) in order to make objectives clearer.

2. Deliberate on issues arisen from risk assessment (current and projected risks) with potential impact on SCG businesses, such as climate change, environmental law, product and service innovation. This step enables planning, contingency planning and formulation of business

strategy, as well as enterprise resource management to grow the business.

3. Organize Opinion Panel for specific groups of stakeholders to arrive at clearer perspectives. For example, on the theme of customer relationship, we invited representatives of consumer groups, people who use SCG products, marketing experts and relevant functions to informally express their views to our top management.

4. Present results of 2015 Materiality Review to SCG Sustainable Development Committee for their comments and then disseminate among functions and units responsible for implementation.

The following chart shows the importance of materiality issues, in the order of the scores received during the Review, along with the location in this report where the contents appear. The headings of this report do not reflect the prioritized order of these issues. Rather, we structure the headings in this report in line with the flow and relevance of substance under each heading.

Materiality Aspect	Location in this Report	Scope of Reporting	Page
Material Issues			
Health and safety	Health and Safety	Occupational health and safety/safety process/safety design/personal safety/transport safety	44-51
Risk and crisis management	Risk and Opportunity	Risk management and business continuity management	27-30
Governance	Corporate Governance and Corporate Governance Practice	Anti-corruption/SCG Code of Conduct/compliance/disclosure	14-15, 40-43
Energy and climate change	Energy and Climate Change	Energy efficiency/alternative energy/climate change mitigation	59-65
Human capital development	Employee Development	Human capital development/career path/learning process	55-58
Stakeholder engagement	Stakeholder Engagement	Stakeholder's participation/participatory approach/stakeholder's role and responsibility/evaluation	31-35
Labor practice and human rights	Employee Caring	Employee caring	52-54
Customer relationship management	Customer Relationship Management	Sales and distribution outlets/communicating products and services information/complaints mechanism/social media/customer retention	89-94
Water management	Water Management	Efficient water management/water recycling/wastewater management	66-73
Waste management	Industrial Waste Management	Industrial waste management/reuse/from waste to value	79-82
Supply chain management	Create Sustainable Value towards Supplier	Green Procurement/Suppliers Development for Sustainability Program	95-101
Other Issues			
Corporate Social Responsibility	Community Involvement/Sustainable Products and Services	Social and community contribution	108-115
	Sustainable Products & Services	Development of products and services that genuinely respond to customer's needs.	83-88
Biodiversity	Biodiversity and Ecosystem	Quarry rehabilitation and sustainable reforestation	102-107
Raw material usage	Material Use & Recycling Strategy	Raw material handling/recycling/from waste to raw material	74-78
Environment policy and management	Sustainable Management Structure/Sustainable Management Approach	Organization & sustainable management approach	16-19, 20-21
Water Stressed Areas	Water Management	Sustainable community/reducing the risk of natural disasters	66-73
Air quality management	Not covered in this Report	-	
International production standards	Not covered in this Report	-	

Risk and Opportunity

- Enterprise Risk Management is a key process contributing to the attainment of the organization's objectives and goals, and ultimately leading to the value added for the organization, shareholders, and other stakeholders, as well as contributing to SCG's sustainable growth.

- SCG classifies risks into eight categories, and prescribes Risk Appetite for common understanding across the organization. Given

their significant and widespread impacts these risks may have on its operation, SCG holds as top priority prevention of any risk to health, safety and environment, compliance, and reputation. SCG, however, can accept some types of risks on the basis of Risk-Return Trade Off, and the risk limit has been established in terms of monetary value.

SCG Eight Risk Categories



Risk Management Process

The SCG risk management process focuses on both downside impacts and business opportunities that may arise from a risk event and the incorporation of risk management as part of working processes, leading ultimately to a risk culture. In order to enable practical application at work, SCG designated three primary

areas to manage risks comprising (1) medium- and long-term strategic risk management, (2) investment project risk management and (3) operational risk management. The risk management processes of the above three areas, as documented in the SCG Risk Management Manual, are as follow:

Risk Management Process



1. Risk/Opportunity Identification

Aiming at a forward-looking approach using Key Risk Indicators.

2. Risk/Opportunity Assessment

Applying Common Risk Metrics, whereby Risk Owners apply tools such as a Risk Map, Scenario Analysis, Correlation Analysis, Benchmarking, and Critical Process Identification for crisis management, to assess the likelihood and impact of risk in order to prioritize which risks require urgent actions or simply careful monitoring.

3. Risk Response

In cases where the residual risk remains higher than the designated risk limit, countermeasures must be in place. In the case of a crisis, an Emergency Response Plan and Business Continuity Plan must be activated. With the advent of potential business opportunities, plans must be drawn up to exploit those opportunities.

4. Reporting and Monitoring

Risk management results are reported to the Risk Management Committee of Business Units and SCG respectively.

Risk Management Measures

SCG gives importance to managing four types of risks with significant impact on sustainable development, according to the established risk appetite statement. They are Safety and Health Risk, Environment Risk, Compliance Risk, and Reputation Risk. (For Risk Assessment Framework and more details on risks, please refer to the Annual Report of 2015).

Safety and Health Risk

- The SCG Safety Framework is instituted as basic practice, reinforced by OHSAS 18001, as well as the Safety Performance Assessment Program (SPAP). We conduct compilation and analysis of accident statistics to identify risk spots and establish SCG's Safe Work Practices Standard to prevent recurrence of the incidents. We also organize activities to raise awareness, instill a culture of safety, and promote SCG Safety Principles.

- In 2015, as a result of preventive measures, the Process Safety Accident rate was reduced by 10 percent compared to the previous year. SCG enforces similar safety standards and culture wherever it operates outside Thailand. It has scaled up the SCG Contractor Safety Certification System to propagate good safety practices in society.

Environment Risk

- SCG has a Sustainable Development Framework to guide, supervise and support operations to ensure that our business does not harm the environment and global resources. We apply the Environmental Performance Assessment Program (EPAP) to leverage our performance to achieve international practices. On top of this, we endeavor to become a role model as a sustainable business organization.

- SCG is fully aware that energy use is the main source of Greenhouse Gas Emissions and global warming. SCG has invested in improving our process to be more energy-efficient and achieve our set targets. As a result of constant improvement and monitoring, SCG has been able to bring energy costs down by 1,176 million baht in 2015, and increase the share of alternative energy in the overall energy portfolio to 10.9 percent. We have developed products and services that are energy efficient and with a low carbon footprint.

- SCG employs strategies to deal with activities that may impact the ecosystem or biodiversity, such as mining. Among the actions include a framework for biodiversity conservation around mining areas, forging a network of collaboration with stakeholders and experts to customize approach for areas with unique attributes, and ensure that our operation complies with international standard regarding the sustainable management of biodiversity.

- On the Corporate Social Responsibility front, SCG continues its consistent effort in implementing projects that contribute to society and empower communities to protect the environment around them. Examples include the SCG Conserving Water for Tomorrow Project, and the check dams project.

Compliance Risk

- SCG has established the compliance governance structure to ensure compliance of laws, regulations, relevant standards and social commitment. The structure consists of the corporate compliance Unit, the BU compliance unit/committee and the SCG Compliance Committee responsible for formulating strategies, steering and facilitating SCG compliance policy implementation across the organization.

- The SCG Compliance Management System in accordance with the ISO 19600 standard, functions to regulate compliance among staff.

Reputation Risk

- SCG has set the brand governance structure to effectively and efficiently manage the brands. The SCG Brand Committee is in charge of formulating the brand policy at the national level and ASEAN-wide. In each of the Strategic Countries, the national Brand Committee is mandated to handle in-country branding.

- Employing the Brand Protection Strategy, SCG has an effective communication system in place to ensure proper communication with external parties and create a common understanding and consistent practice across the organization in both normal situations and during a crisis. SCG focuses on sensitizing its employees to be aware of risks that may affect the organization's reputation, and to continue developing employees' risk assessment capacity.

- Brand Building constitutes another key strategy for SCG in its drive to strengthen the brand itself and competitiveness in the market. In moving forward, we continue to consolidate products and services under the single brand of SCG across ASEAN to reinforce brand identity and recognition. To this end, we have organized various campaigns and public activities as well as conducted the brand perception surveys the results of which have been used for assessing expectations, opportunity and risk that will feed into formulating strategies.

Emerging Risks

In 2015, a number of risks resulting from external factors occurred, and are projected to continue to unleash impacts. Instances like Thailand's domestic political situation, Thai and global economies growing at rates below forecast, the fall of global crude oil prices, the persistent drought that may either disrupt business operations or harm the company's reputation due to the competition for water resources among the industrial and agricultural sectors and the community. It is projected that in 2016, drought is likely to remain the key risk for SCG. SCG's Business Continuity Management Unit closely monitors the drought situation, regularly exercises the business continuity plan through drills to ensure preparedness and liaises with key relevant parties to organize corporate social responsibility activities.

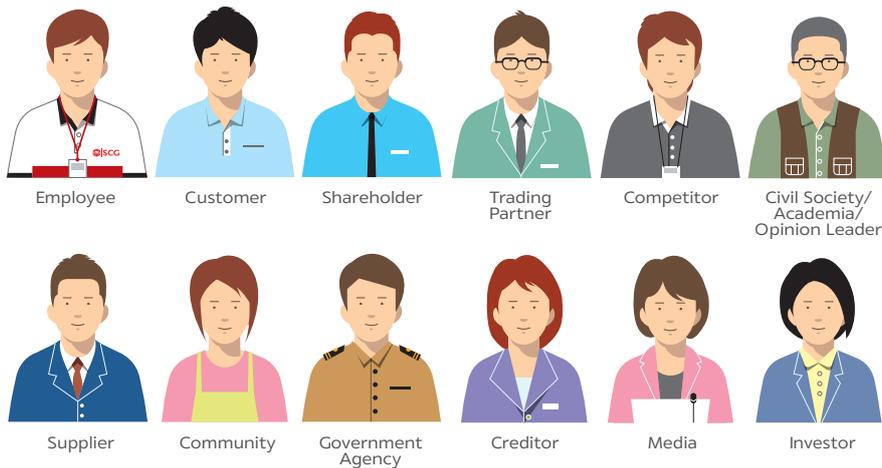
- Results from our long-term risk analysis and assessment show that the risk from lower level of Thailand's potential economic growth compared to that of the past is a key emerging risk. SCG is competitive enough to increase its exports and increase its share of business from within ASEAN; given the fact that many ASEAN economies are expanding rapidly with opportunities arising as a result of the ASEAN Economic Community.

- There are other key emerging risks over the horizon. For example, Thailand's domestic energy sources are forecasted to be depleted over the long term, making the country more dependent on energy imports, which would likely lead to an increase in energy prices impacting SCG's energy cost. Cyber attack poses yet another type of risk as SCG increasingly conducts transactions online in the age of the Digital Economy.

- SCG realizes that these key trends present both opportunities and risks for business. It continuously conducts impact assessment of these trends, for example, megatrends, regulatory trends and market trends, and uses the results to refine business strategies/directions in order to grow the business or develop mitigation plans as appropriate.

- In 2016, SCG remains committed to quality development and sustainability of its risk management system, by advancing the competency of our employees and cultivating the risk culture, while continuing to improve connectivity and integration of risks-related data across the organization.

Stakeholder Engagement



• Changes in the economic system and its mechanism, together with trading and market conditions make business operations more complicated. Equally challenging is the fact that stakeholders expect business enterprises to come up with socio-economic and environmental responsiveness, not only where they impact the business directly but also to play a role in social development and environment sustainability.

• Engaging with stakeholders is most concern for SCG. In a globalized world, stakeholders take on a broader definition to include anyone with interest in SCG business. Our stakeholders are thus diverse such as society, community, government agency, customer, trading partner, employee, shareholder and investor.

Objectives

- To perceive stakeholders' perspective and expectations towards SCG and issues that may impact or present an opportunity for SCG to improve business execution or to properly create value to the stakeholders.
 - To reassure stakeholders that SCG's operations will not adversely affect the community and society. On the contrary, our work will contribute to and support the community and society in many ways.
-

Stakeholder Communications

Stakeholders	Key concerns	Actions	Outcomes
 <p>Customer</p>	<ul style="list-style-type: none"> Quality products and services Advice about SCG products and services Feedback channel for SCG products and services Ideas and inspiration for home building/ decoration 	<ul style="list-style-type: none"> Incorporate customer's needs in product development Facilitate access to information through <ul style="list-style-type: none"> - Improved website - 24-hour SCG Contact Center - Advice from SCG specialists - Social Media, such as Facebook 24-hour SCG Contact Center Present home decoration in magazine by showing real locations Product exhibition at Baanlaesuan Fair and the Association of Siamese Architects' Fair Provide Architect blogs advising product application 	<ul style="list-style-type: none"> Develop products and services that meet customer's needs, including Elder Care Solution, Cool House System, Top Hat Solution Customer satisfaction in SCG products and services Over 1.5 million customers access information through our websites and Facebook page: <ul style="list-style-type: none"> http://www.scgbuildingmaterials.com http://www.scghomesolution.com Customer satisfaction level for SCG Contact Center is at 99% Customers get ideas on how to apply SCG products Architects, as being the influencers, understand the characteristics of the product and can advise individual customers
 <p>Employee</p>	<ul style="list-style-type: none"> Business direction and adaptation Welfare and remuneration Learning on the job and outside of the job Job security and career path 	<ul style="list-style-type: none"> Ensure regular communications through internal magazines (SCG Connect, What's Up Magazine, Life & Living) and the Intranet Hold quarterly meeting between employees and executives Formal and informal opinion survey Annual employee satisfaction survey Review of staff competency and development plan to align with enterprise growth 	<ul style="list-style-type: none"> Employees are aware of SCG business moves and strategy Employees feedback contributes to the improvement of eHR system that is now accessible at all points and time and the launching of a medicare card that allows employees to seek treatment at designated hospitals without having to give advance and out of pocket payments Adjustment of Learning & Transformation Strategy to better suit staff development
 <p>Supplier</p>	<ul style="list-style-type: none"> Occupational Health and Safety compliance Competency and capacity development to align with SCG's business direction 	<ul style="list-style-type: none"> Visit suppliers to hear their problems and recommendations Study upon the impediment to suppliers' growth and formulate a project to improve their productivity 	<ul style="list-style-type: none"> Supplier Development for Sustainability Project is implemented, whereby SCG would provide advisory support for systematic solutions

Stakeholders	Key concerns	Actions	Outcomes
 Community	<ul style="list-style-type: none"> • Potential impact from company operations • Better quality of life and income generation for the community • Caring for the environment around the community 	<ul style="list-style-type: none"> • Needs assessment and opinion survey through community outreach annually • Community satisfaction survey, annually and every three years • Activities with the community 	<ul style="list-style-type: none"> • “One Manager One Community” and “One Cell One Village” project have been initiated to encourage employees at all levels to take part in community engagement program
 Shareholder	<ul style="list-style-type: none"> • Operating results and business growth • Short and long term strategy, taking risks and challenges into account 	<ul style="list-style-type: none"> • Annual shareholders meeting • Announcement of the company’s quarterly results and disclosure on the website • Quarterly analysts’ conference 	<ul style="list-style-type: none"> • Shareholders and investors are informed regularly about performance, progress and strategy • SCG is informed of the interest, concerns and views of the shareholder/investor, which provide input for our decision making
 Investor	<ul style="list-style-type: none"> • Transparency of management, with concern for economic, social and environmental balance 	<ul style="list-style-type: none"> • Annual plant visit and CSR activity 	
 Government Agency	<ul style="list-style-type: none"> • Full and transparent disclosure of information • Role model for peer enterprises in management with transparency and excellence 	<ul style="list-style-type: none"> • Prepare annual report and annual sustainability report • Organize an annual Opinion Panel • Communicate enterprise activities through articles and media 	<ul style="list-style-type: none"> • Inputs from the Opinion Panel contribute to improvement and actions: <ul style="list-style-type: none"> - Community Partnership Associations which brings together operators in Map Ta Phut industrial town to develop their business in tandem with advancing community livelihoods - Updating SCG Code of Conduct - Supplier Development for Sustainability Project
 Civil Society/ Academia/ Opinion Leader	<ul style="list-style-type: none"> • Employ SCG’s expertise and capability to give support or recommendations to public policy maker • Conducting the business with minimal disruption to the environment and community • Optimize natural resource usage 	<ul style="list-style-type: none"> • Organize plant visits • Implement CSR activities or projects to foster cooperation 	

Engagement Framework

SCG upholds Good Corporate Citizenship, particularly in communities where we operate, by respecting the right of stakeholders and extending fair treatment to every group of stakeholders. SCG stands ready to listen to their views and concerns, to build up their understanding and to formulate collaborative actions on key concerned issues, including the matters of social and environmental development.

SCG operates within the framework of Corporate Governance and Social Responsibility, as stipulated in the SCG Corporate Governance Handbook. Our employees work in strict compliance with the SCG Code of Conduct to prevent prejudice arisen from inappropriate conducts.

Given the diversity of stakeholders, each group may be impacted to various extent by our operations. Therefore, SCG promulgated a Stakeholder Engagement Policy so all employees fully understand and appreciate the importance of stakeholders, and for all functions to be on the same page regarding processes of stakeholder analysis, formulation of appropriate communication strategy, disclosure and participation. In 2011, SCG updated its Stakeholder Engagement Guideline that offers clearer instructions on how employees can engage more effectively with each group of stakeholders.

Approaches on Stakeholder Engagement



1. Define, screen and analyze stakeholders

Stakeholders are segmented in line with relevance to each business, to allow thorough analysis of risks and impacts.



2. Communicate

Define approach, pattern and procedure of communication to ensure consistent understanding and building strong relationship.



3. Disclose

Disclosure of accurate information, in a transparent and inclusive manner, to reassure that stakeholders receive adequate up-to-date information regularly.



4. Participate

Provide platforms and channels to gather suggestions, comments, complaints from stakeholders, provide constructive dialogue, with deliberation and response to stakeholder's needs.

Stakeholder Engagement Strategy

SCG categorizes stakeholders into 12 groups: namely the customer, employee, trading partner, supplier, community, shareholder, investor, creditor, governmental agency, media, civil society/academia/opinion leader and competitor. We organize annual meetings to brainstorm with involving functions to assess the role and importance of stakeholders, and to formulate an approach and level of engagement appropriate to the characteristics of each group. As deemed appropriate to target groups, we facilitate a complaints mechanism, conduct satisfaction surveys, meetings, stakeholder dialogue, and a collaboration to initiate projects. SCG compiles and uses feedback and expectations drawn from these

activities as input to improve engagement strategy, to create value, and competitiveness and to reinforce the trust that stakeholders have towards the organization.

Results of 2015 stakeholder analysis show that our key stakeholders remain the same as last year i.e. customer, employee, supplier, community, shareholder, investor, government agency, and civil society/academia/opinion leader. Each group has different interests and expectations, so SCG designs a range of channels to communicate necessary information required by each group. Besides, those communication channels will also be the paths for stakeholders to give expression to SCG.

Value Creation through Opinion Panel Process

The SCG Sustainable Development Committee, apart from its task of integrating sustainability into business, pays attention to key concerns from each group of stakeholders, so that SCG can utilize input for value creation for the enterprise and the society.

Organizing Opinion Panel is one major platform the SCG Sustainable Development Committee created to collect information, advice, comments

and criticisms from stakeholders - in particular the governmental agency, civil society, academia, and media over the last five years. Not only do these Opinion Panels connect and strengthen strong ties between SCG and stakeholders, they provide assurance that SCG's perspective of sustainability is comprehensive and inclusive.

Year	Sustainability Issue	Stakeholder's Perspective	SCG Action
2011	General	SCG should apply the same standards and good practices for investment projects outside Thailand.	SCG Corporate Governance Handbook, SCG Code of Conduct, and Sustainability Framework have been applied to our operations overseas. They are available in English and are being translated into local languages e.g. Vietnamese.
2012	General	SCG should persuade other listed companies to adopt a sustainability framework for business transactions.	We seek to be a role model, through sharing our sustainability practice with other listed companies at seminars, public forums, and company visits.
2013	Social (Education and CSR)	SCG should grasp the situation of the domestic labor market, which will facilitate educational support strategically and responsively to the real demands.	We analyzed our educational support at the present and initiated such relevant project as "Specialists...Makers of the Nation" to encourage the youth into a vocational education path, specifically in industrial mechanics, and the service sector, as this will have Thailand getting prepared for the ASEAN Economic Community.
2014	Social (Health and Safety)	SCG should lead in product and service development for an aging society.	We have developed and designed an Eldercare range.
2015	Business Ethics	SCG should improve communication channels to be more accessible and up-to-date. All handbooks and guidelines should also be updated in time.	We have improved and updated our website, along with the SCG Code of Conduct.
	Economic (Customer Relationship Management)	SCG should understand the need of customers that seek for information platforms where they can search for information and idea about SCG products.	<ul style="list-style-type: none"> - We have set up Single Window as a center where customers can contact or make an inquiry about SCG's products and services. - We have developed co-creation strategy to work with customers for products development process e.g. Active Airflow™ System. - We have expanded communication modes for customers e.g. website and facebook.

Sustainable Actions and Challenges

The SCG Sustainable Development Committee has assigned every relevant and responsible party of materiality on the sustainable development to conduct an action plan and strategy in order to manage resources, minimize potential risks, create more opportunities and follow up the progress. The annual performance of 2015 can be summarized as follows:

Materiality	Performance	Challenges	Page
Risk and Opportunity	<ul style="list-style-type: none"> Categorized and identified the level of potential risks in order to direct risk management to an acceptable level, by placing emphasis on safety, health and environmental risk; compliance risk; and reputation risk 	<ul style="list-style-type: none"> Long-term risk assessment that can lead to business opportunities for SCG, which create a risk management culture for the entire organization and is part of the working process 	27-30
Stakeholder Engagement	<ul style="list-style-type: none"> Announced the stakeholder practice policy that covers all 12 groups; set up a public hearing that led to several collaborative projects such as: <ul style="list-style-type: none"> Customers: Product and Service Development e.g. Eldercare Solution, The House Cooling System, etc. Employees: eHR system development, Employee Development in accordance with the job descriptions and the employees' capabilities (Learning & Talent Transformation Strategy - LTTP) Suppliers: Supplier Development for Sustainability Project Communities: Created growth for communities around the plants Shareholders: Continued acknowledgment of performance through various channels 	<ul style="list-style-type: none"> Global economy change, marketing and trading conditions, especially stakeholders' different expectations towards the organization's responsibility for corporate sustainability 	31-35
Corporate Governance Practice	<ul style="list-style-type: none"> Worked in accordance with and promoted a good corporate governance policy. Developed the Board of Directors. Their performances assessed by independent consultants were found to be intact, have good standards, structural features and excellent performances 	<ul style="list-style-type: none"> The extension and the enhancement of capabilities and skills in line with corporate governance to employees at every level which has become the corporate culture that everybody accepts, understands and practices consistent with international standards 	40-43
Health and Safety	<ul style="list-style-type: none"> Encouraged all companies to concretely operate on a SCG Safety Framework, and create a safety culture for employees at every level, resulting in prevention of fatal accidents at work. Extended the culture to contractors in all production processes with SCG Contractor Safety Certification System scheme. Consequently, the accident rate of employees and contractors continuously decreased 	<ul style="list-style-type: none"> The extension of the Safety Certification Scheme to transportation contractors, which still have fatal accidents The enhancement of the safety standards of the companies in foreign countries to resemble that of the companies in Thailand Accelerate the implementation of the health care system (Occupational Health & Illness) with the standards of the Occupational Safety and Health Administration (OSHA) 	44-51
Employee Caring	<ul style="list-style-type: none"> Equally looked after employees and established a Medium Term Plan in the development of employee potential for business in foreign countries and local employees in countries where SCG has invested, so that they can equally carry on in senior management positions. The Plan also focused on employee healthcare, in addition to the general welfare 	<ul style="list-style-type: none"> Sustainable practice, care and extension on labor and human rights with suppliers and contractors, so their practices are also in accordance with international human rights, which exceed the legal requirements 	52-54
Employee Development	<ul style="list-style-type: none"> Developed employees with the same standard across the region, using the development principles based on roles and duties with the 70:20:10 concept, and also promoting the learning process with the Learning Management System in order for employees to contribute to SCG sustainable growth 	<ul style="list-style-type: none"> The creation of learning culture, and capacity building for subordinates to work effectively by coaching of supervisors, who also have to improve themselves simultaneously. This is part of the Open & Challenge concept, that a clear development result has to be determined to match up with the business strategies and guidelines 	55-58

Materiality	Performance	Challenges	Page
Energy and Climate Change	<ul style="list-style-type: none"> Maintained stability by managing energy proportion, increasing the use of alternative energy, and building cooperation for the coal management in the storage for sustainable development project. Carried out projects to increase effectiveness in the production process in order to reduce energy consumption and greenhouse gas emissions 	<ul style="list-style-type: none"> Raising awareness on energy and reducing greenhouse gas emissions across the entire organization, as well as clean technology research and development, sustainable production processes innovations, encouraging consumers to use products and services that help reduce greenhouse gas emissions 	59-65
Water Management	<ul style="list-style-type: none"> Integrated water management, created engagement with communities around the plant on sustainable drought risk management. Carried out projects to increase efficiency in water use, reduce water consumption, and increase water reuse/recycle in the production process 	<ul style="list-style-type: none"> Production process improvement, increase of water consumption efficiency in accordance with SCG standards as soon as possible and in line with the production capacity expansion and the merger & acquisition, as well as developing the potential of employees who work in water management, transferring and disseminating good practices throughout the organization 	66-73
Material Use and Recycling Strategy	<ul style="list-style-type: none"> Created innovations and raised the standard of using natural resources in a sustainable and eco-friendly way, such as the management of mining and rehabilitation, sustainable economic tree plantation and forest management, along with research and development on the increase of recycled material use as well as communicated with consumers in order to increase environmental awareness through SCG eco value products and services 	<ul style="list-style-type: none"> Building understanding and cooperation with customers or consumers in the Reduce/Reuse/Recycle concept where waste products are reused or recycled at full capacity, with research and development on using materials for maximum efficiency, resulting in the increase of recycled material use without affecting the quality of the products and services 	74-78
Industrial Waste Management	<ul style="list-style-type: none"> Established a project of converting Waste to Value, and created a network of cooperation in waste management (Waste Cluster Program) such as using tailings from limestone mines to replace natural sand in the tile and mortar production 	<ul style="list-style-type: none"> Continuous innovation research and development to make the most of waste, in line with rapid business expansion of SCG and the goal of waste management by eliminating waste to landfill 	79-82
Sustainable Products and Services	<ul style="list-style-type: none"> Developed products and services with high value added that earned 37 percent of the revenue from sales; and developed eco-friendly products and services, SCG eco value, that earned 26 percent of revenue from sales 	<ul style="list-style-type: none"> Acknowledgment of the real needs of consumers that leads to the development of innovative products and services with high value added, which will truly meet the needs of consumers, along with the surveys and the considerations on key environmental aspects of the products to developing eco-friendly products and services 	83-88
Customer Relationship Management	<ul style="list-style-type: none"> Established the Single Window for business customers to have a convenient way to purchase products and services from multiple groups through a single channel; and cooperated in new innovations in line with each customer's ideas. Also, had good customer care by delivering a great experience for both before and after sales, making the customer satisfaction result increase to 99 percent 	<ul style="list-style-type: none"> Customer relationship management (CRM) that will respond to the needs of customers, and help the customers see the wider value of the business that takes the public interest into account and sustainably contributes to social growth and environment 	89-94
Create Sustainable Value towards Supplier	<ul style="list-style-type: none"> Determined that all suppliers pledged to SCG Supplier Code of Conduct, which is a mechanism to promote green procurement. Increased the amount of green procurement value upto 9.8 billion baht. And had all contractors in the production process pass the SCG Contractor Safety Certification System 	<ul style="list-style-type: none"> Creating the concept of sustainable procurement, promoting and raising suppliers' sustainability as one of the KPIs as well as encouraging them to apply sustainable development into concrete practices 	95-101
Biodiversity and Ecosystem	<ul style="list-style-type: none"> Rehabilitation of biodiversity and ecosystem according to the action plan in all areas, along with creating collaboration networks and engagement of stakeholders to create a model of conservation which corresponds to each area and in compliance with international standards on sustainable biological resource management i.e. WBCSD-CSI, and FSC 	<ul style="list-style-type: none"> Ecological studies and value assessments to ensure that the creation and restoration of biodiversity and ecosystem would give a positive value to all stakeholders throughout the supply chain 	102-107
Community Involvement	<ul style="list-style-type: none"> Established pilot leadership projects based on the engagement of stakeholders such as communities and relevant parties by using the Partnership Model; Supported the development of social capacity such as the Power of Wisdom Project 	<ul style="list-style-type: none"> Creating a pilot leadership project for society and community care that is the most effective and efficient on building a strong and sustainable society with the true engagement of SCG employees, and will be applied in the national and ASEAN levels which will widely affect the society and represent the leadership of SCG 	108-115





Sustainability Performance

Corporate Governance Practice

- SCG conducts business with transparency, fairness and in a responsible manner. We adhere strictly to our business philosophy, the principles of corporate governance, and the SCG Code of Conduct, with the Board of Directors serving as a role model in compliance with corporate governance principles and the SCG Code of Conduct.

- SCG employees across the organization and at all levels must conduct themselves in compliance with SCG policies and guidelines, as written in the *Corporate Governance Handbook, Code of Conduct, Anti-Corruption Policy, Antitrust Guidelines, and Tax Policy*, together with honouring agreements or public commitments.

Targets

- To be a role model on corporate governance and internationally recognized for good corporate governance standards.
- For every SCG employee to be aware of their duty and to comply with the law, regulations, the principles of corporate governance, and the SCG Code of Conduct.
- To cultivate the organizational culture of transparent business conduct, compliance with the law and regulations, the principle of corporate governance, the SCG Code of Conduct, and zero corruption.

Development Strategies



-  **1** Managing the organization with strict adherence to good corporate governance.
-  **2** Cultivating the value of compliance with the law and regulations among the employees.
-  **3** Supervising and ensuring strict compliance with SCG's policies and guidelines.

1. Managing the Organization with Strict Adherence to Good Corporate Governance

• SCG manages its organization with strict adherence to the principles of good corporate governance in the following five key aspects:



• The Governance and Nomination Committee serves to enforce policies to ensure compliance with good corporate governance principles, both domestic and international, with consideration to stakeholders' interests. Another key priority is to enhance the capacity of the Board of Directors and Top Executives regarding good corporate governance and other aspects beneficial to SCG's business conduct and

the execution of its strategies. In addition, every director's performance is constantly evaluated to ensure high performance standards and to reassure stakeholders. To this end, every director thus serves as a role model for executives and employees on both good corporate governance and the adherence to the SCG Code of Conduct.

2015 Performance

► In the area of training and development, the company hosted a seminar on "The Development of Thailand's Infrastructure and Strategies in the ASEAN Context" with the Deputy Minister of Transport as keynote speaker, and another seminar on "The Roles of Directors in Anti-corruption Efforts," led by representatives from the Anti-corruption Organization of Thailand. These two seminars provided opportunities for the company's directors and the management to exchange their views regarding the implementation of the master plan on Thailand's infrastructure connectivity with ASEAN, and the Special Economic Zone in Thailand, as well as a dialogue on collective anti-corruption efforts.

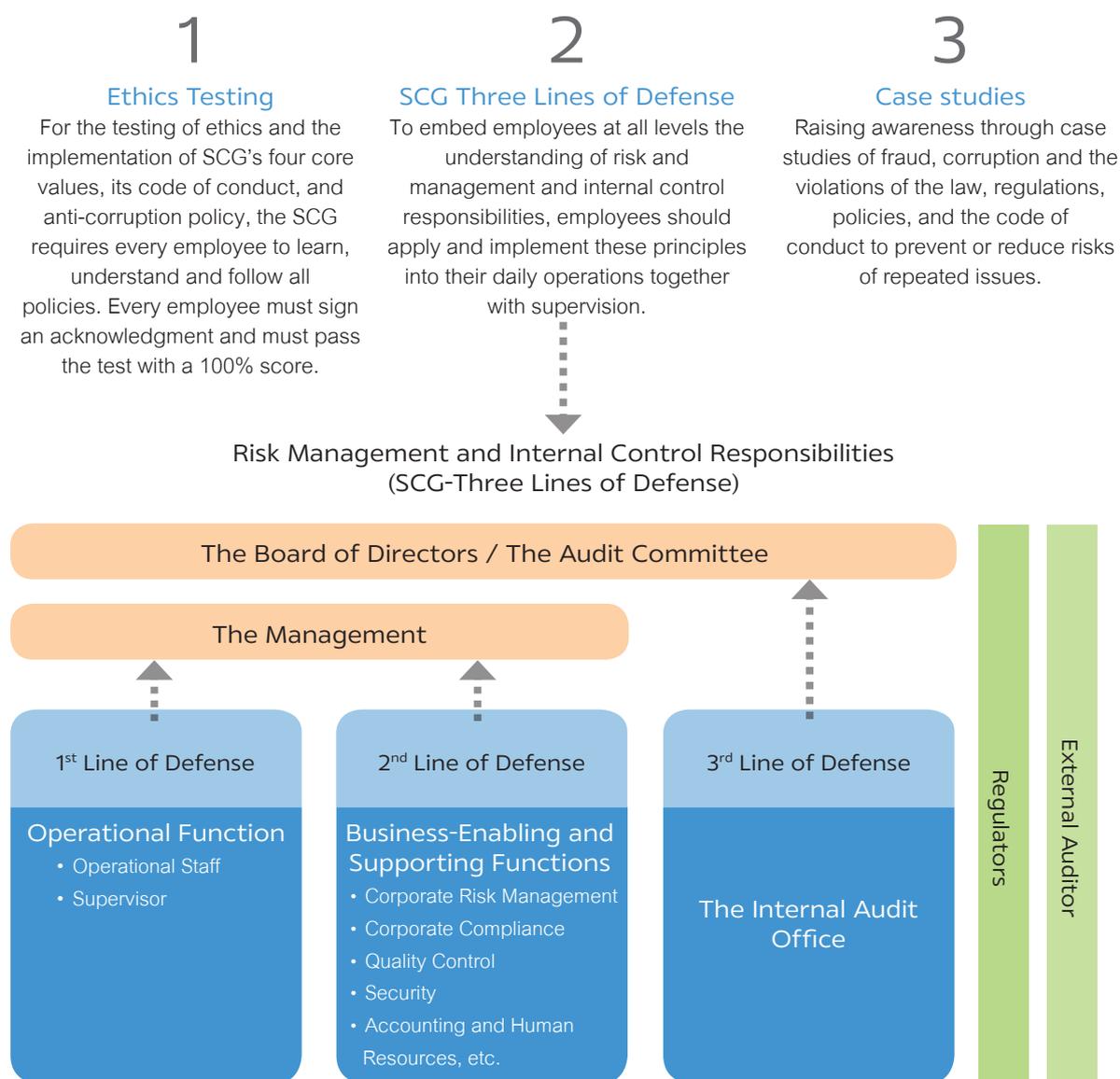
► The annual evaluation of the Board of Directors' performance for 2015 was conducted by independent

consultants. The external experts helped formulate guidelines, identify key issues, and enhance the Board of Directors' performance evaluation system, based on data gathered through questionnaires, document reviews, interviews with directors' representatives and relevant agencies. The Board's performance was evaluated against good corporate governance guidelines and the corporate governance levels of other companies in the same industry. The evaluation results revealed that the structure of the Board of Directors and the role, responsibility, and performance of the directors are at excellent levels and in line with international good corporate governance principles, especially the directors' qualifications; the delegation of roles and responsibilities between the board and the management; the formulation of business directions, strategies, and key operation plans; the monitoring and review of the adequacy of the operation system; disclosure and transparency; and the system and standards in evaluating the performance of top executives. In addition, the Governance and Nomination Committee exchanged ideas with the consultants extensively and received useful suggestions on how to enhance the role and performance of the board, such as increasing the variety of seminar themes to enrich the knowledge of the directors.



2. Cultivating the Value of Compliance with the Law and Regulations Among the Employees

- Communicating the code of conduct, anti-corruption policies, and other practices to employees at all levels consistently through appropriate channels in order to build and embed as part of the working culture and to reduce risks from violation of the code of conduct,
- law and regulations, with the Board of Directors and the management serving as role models.
- Raising awareness and preventing corruption by developing a tool called “Preventive Pack Three”.



2015 Performance

- ▶ All 34,000 Thai employees completed and passed the Ethics e-testing, which assessed their understanding on ethics, SCG's four core values, the code of conduct and the anti-corruption policy.
- ▶ The Board of Directors and the Audit Committee assigned the management to communicate the SCG

Three Lines of Defense model and case studies to all employees to ensure that the employees understand and apply them to their daily operations. Additionally, the Internal Audit Office had set up a communications guide, conducted workshops and provided practical recommendations to the employees.

3. Supervising and Ensuring Strict Compliance with SCG's Policies and Guidelines

- Setting the SCG Compliance Management System to ensure that employees work effectively and comply with agreements, laws and regulations, and work together with assistance to reduce potential risks in business.
- Provide the Anti-corruption Compliance Evaluation Checklist for high corruption risk operational functions; review and sign the self-assessment and checklist by supervisors. By having the Internal Audit Office perform the auditing and verifying the effectiveness and efficiency, as well as provide recommendations regarding policies and other practices and compliance guidelines.
- Implementing the SCG whistleblower system for non-compliance with policies, guidelines, the code of conduct, law and regulations, both employees and external stakeholders can appeal through the website, mail, telephone, and email, etc.
- The consultancy system on the code of conduct, was established to enable employees to directly raise questions with their executives. In addition to promoting the understanding and awareness of the code of conduct among employees, the company created contemporary media, such as video clips, to simulate cases distributed on the intranet.

2015 Performance

- ▶ There was no report of non-compliance with the anti-corruption policy or the SCG antitrust guidelines.
- ▶ A total of 39 complaints have been filed, 28 of which have already been investigated and 11 of which are still being investigated. Five cases fell into the category of non-compliance with the code of conduct, 12 fell into non-compliance with regulations and 11 proved that they are not as compliant (which are not bullying and make up loss to others). The maximum punishment has been in accordance with the Human Resources regulations in which there was no significant financial impact.



Kan Trakulhoon
Director
The Siam Cement Public Company Limited

“

The key factor for the success of SCG's anti-corruption is putting forward the greatest and utmost serious commitment with determination of every party, including that of the directors, employees, suppliers, business partners, and our clients. This forms a shield protecting us and preventing corruption from arising. We must not succumb to temptation and remain steadfast in our honesty and integrity. Directors and the executive in particular, must serve as role models. They must communicate clearly, establish suppression measures, and enforce them with stringency. In addition, every party must come together to cultivate anti-corruption practices as part of the organization's culture observed by everyone in the entire business chain.

”

Health and Safety

- SCG has established clear Occupational Health and Safety policies and management structures at all levels. This is done in accordance with laws and regulations applying to the SCG Safety framework as a fundamental practice as well as Occupational Health and Safety Standard (OHSAS 18001) which help to increase safety standards for the employees, business partners, and contractors of SCG.

- Currently, SCG still has work-related accidents. This is a risk that requires immediate control and it is a crucial mission for all executives to work together in reducing and preventing losses.

Targets

- Become a work-related injury- and illness-free operation.
- Reduce days away from accidents to be lower than 50 percent of the 2015 performance, and achieve zero fatality from work at heights.
- Reduce logistics accidents and manage logistics in compliance with international safety standards.

Development Strategies



SCG Safety Principles

Safety principles promote and strengthen safety operations. Executives must place priority in the principles and apply them to reduce work-related accidents by employees and contractors.



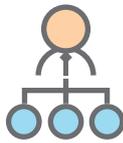
Safety is our core value. Executives at all levels must take safety as a priority.



Uncompromise safety standards.



All occupational injuries and illnesses can be prevented.



Safety is a line responsibility and Management is responsible for preventing occupational injuries and illnesses.



Employee involvement is essential.

“

We will strive for sustainable safety by creating a safety culture that engages everyone. We care for each other and with no compromise in safety.

”



Pichit Maipoom
President
SCG Cement-Building Materials

“

We will collaborate in creating and strengthening a safety culture. SCG will be an organization for injury-free operations.

”



Cholanat Yanaranop
President
SCG Chemicals

“

We are strict on safety by engaging in its promotion and in taking care of our employees so that they operate with safety.

”



Tanawong Areeratchakul
President
SCG Packaging

1. Comply with SCG Safety Framework and implementing SCG's Safety Performance Assessment Program (SPAP)

• SCG Safety Framework covers safety management, safety awareness raising, and creating a safety culture in the organization. Each function is appointed its own safety management practices, and to develop

them continuously, and be able to use it as a tool to evaluate safety performance, according to SCG's Safety Performance Assessment Program (SPAP).

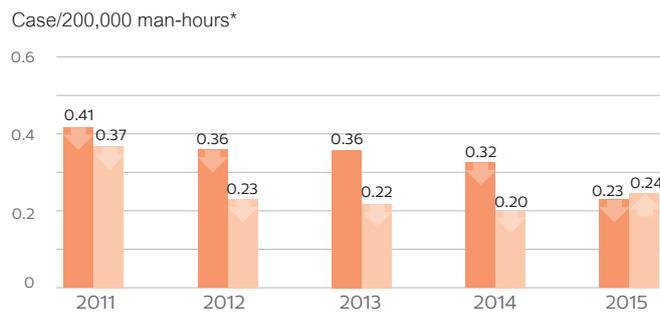
2015 Performance

► In 2015, there were 12 fatality cases of contractors, with eight cases from logistics and transportation and four cases from production processes. In addition, there were 52 lost time injury cases of employees and contractors. As such, the SCG Sustainable Development Committee announced that 2016 will be the year of zero accident for fatality cases.

Moreover, the committee also set a target to decrease the numbers of lost time injury cases to 50%. The campaign will mainly focus on the cause of accidents - which are transportation-related or working at heights - by establishing a working standard and its strict implementation.

Incident Frequency Rate

■ Employees
■ Contractors



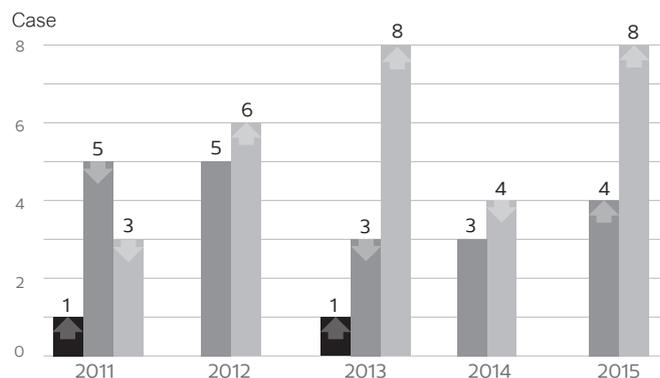
Lost Time Injury Frequency Rate

■ Employees
■ Contractors



Fatality

■ Employees
■ Production Process Contractors
■ Transportation Contractors



* Incident Frequency Rate is a criteria or indicator for incidents/accidents occurring in the organization, determined by the calculation of the number of people having an accident compared with the standard ratio of 100 employees working for 8 hours per day, 250 days per year, equivalent to 200,000 hours per person per year.

2. Establishing Safety Standards and a Safety Culture for Employees at All Levels, to be Led by Executives

- Safety Observation by executives is a process of observing operations carried out by employees and contractors, to determine whether they comply with safety guidelines. If employees are found to be working appropriately and safely, executives voice encouragement to boost morale and to continue the good work. If employees are found to be working at risk or danger, executives will stop the work and

create a better understanding of safety culture to change the operations to a safer manner. Therefore, this approach is based on building understanding and positive communication.

- Apply national and international safety standards or a safety system that will support work safety and strengthen safety culture in operations.

2015 Performance

► To reduce risks from work-related travel on the company's vehicles and to support the SCG Driving Safety Policy, the SCG Carpool Safety Working Committee, comprising of employee representatives of each business group, worked in collaboration with SCG Safety Committee of SCG corporate office to initiate the "Carpool Safety Assessment Project" at SCG corporate office at Bangsue in 2013. The Committee established criteria on Carpool safety checklist as well as arranged company's vehicles inspection. In addition, a safe driving training was also provided to 90 drivers of SCG vehicles so that all employees were assured of their own safety, protection of their belongings, and

guaranteed welfare when traveling with SCG vehicles.

► Cementhai Home Services Co., Ltd. has developed "Trust Sky Walker" equipment for roof installations to enhance operation efficiency and safety. "Trust Sky Walker" is a set of walkway sheet for instant-roof installation, combining the concepts of Japanese scaffolding equipment and hooks that have been developed into the shape appropriate for use. Trust Sky Walker can be removed, transported, and used as a fixed point for employee full-body safety belts. As a result, Cementhai Home Services Co., Ltd. reported zero accidents from falling from heights in 2015.



▶ SCG Logistics Management Co., Ltd., an SCG's logistics service provider, has applied the Road Traffic Safety System (ISO 39001) and obtained certification from the Thai Industrial Standards Institute (TISI) for bulk cement transportation in the central region of Thailand, covering the management of drivers, trucks, transportation routes, and emergency responses. Operations under these standards will be extended to cover transportation vehicles in other regions.

▶ The Concrete Products and Aggregate Co.,Ltd. (CPAC Ready Mixed) has initiated a safety project on ready-mixed concrete logistics called the "Four Goodness Program" (Good Logistics Employees, Good-Conditioned Trucks, Safe Driving and Good Service) in order to encourage the logistics staff to put importance on service and safety of concrete logistics. The company has also developed safety practice guidelines for concrete logistics and continuously controlled operations.

Process Safety Management

To reduce potential risks that may have a severe impact and to comply with the "Injury Free Operation" target, SCG Chemicals has implemented the Process Safety Management (PSM), that focuses on safety risk management in the production process to ensure that no severe accidents will occur. PSM Corporate Governance Committee was formed and internationally recognized experts have guided and provided advice on two pilot projects in two companies: Thai MMA Co., Ltd. and Thai Plastic and Chemicals Public Company Limited.

Continuously implementing PSM for safety system has resulted in zero severe accidents at Thai MMA in 2015. Also, at Thai Plastic and Chemicals PLC, the occupational injury rate during major maintenance also decreased from 2.5 to 0.13 cases per 200,000 hours per person per year.

In the next phase, the PSM system will be extended to other companies, leading to a sustainable safety culture of SCG Chemicals.



3. Enhancing Competency and Awareness on Work Safety

- Each business group has established a learning center to allow employees and contractors to participate in workshops in order to develop working capacity and skills, especially by learning from On-the-Job training using simulators. This training

is based on the assumption that if employees have experience or are exposed to hazards or potential risks at work, they will be highly aware of work safety, leading to effective operations and reducing accidents and losses.

2015 Performance

► SCG Cement-Building Materials

- Established a Technical Training Center in all cement plants to offer employees and contractors opportunities to learn about production control, machinery control in terms of technique and maintenance, quality control, safety control, and Total Productive Maintenance (TPM). Diversified learning programs were set up and covered operation processes to ensure that trained employees would apply experiences in their work appropriately and safely. Currently, more than 100 training programs have been delivered and more than 5,000 people (employees and contractors) from cement plants have attended the programs.

- SCG Logistics Management Co., Ltd. established the SCG Skills Development School in 2013 for

employees and contractors to develop safety skills and build awareness on road safety, and also to enhance service capacity. This project could effectively reduce accidents from transportation and travel. There were three training courses for different groups of people including a general driver course, a professional driver course, and specific driver courses (forklift operation, chemical or hazardous substance transporting trucks, and product logistics)

In 2015, 3,517 SCG employees and 12,564 logistics contractors were trained on driving safety courses, along with 4,806 contractors, who were trained in product & document handling and forklift safety driving.



► SCG Chemicals

- Established an Operation Excellence Training Center (OETC) in late 2014 to offer technical production relating to the petrochemical industry to operators in SCG Chemicals and external organizations or agencies. The training focused on performance and skills development, as well as safety awareness building, On-the-Job training

at simulator stations, and also from first hand experience of experts in the petrochemical industry.

In 2015, 9,000 SCG Chemicals employees and internal and external contractors were trained at OETC. More than 1,700 people were trained on specific safety courses.



► SCG Packaging

- Siam Kraft Industry Co., Ltd. (Wangsala Plant) has established a Safety Training Center (STC) & Safety Dojo in 2014. They are semi-simulation training stations to train employees and contractors on direct results from accidents, for a better understanding on their impact. Employees and contractors can learn about hazards exposed to them through simulators

as if they were in an actual accident. Consequently, employees and contractors will gain skills that support safety and injury-free operations.

Currently, more than 500 employees and contractors have been trained at STC. The training centers are open for SCG affiliated companies for study visits to develop their own safety training center.

4. Promoting Employee and Contractor Engagement to Improve Work Safety

- Promoting employee and contractor engagement through projects and activities can enhance the level of understanding, knowledge, and cooperation; resulting in unity, work success, and mistake/accident reduction.
- SCG is open for public hearings from employees and contractors for opinion exchanges regarding SCG policies, safety targets, and guidelines in order to improve safety and welfare issues. The discussion has been conducted both at contractor operations and management levels.
- SCG has developed SCG Safety Contractor Certification System (SCS) since 2006 to leverage effectiveness of safety operations, and to prevent and reduce accidents for contractors. SCG provides academic support, advice, and a certification assessment. This contributes to the engagement in operational safety of contractors.

Safety Engagement Activities

SCG has continuously organized activities for operational engagement as follows:

Safety Contact

To communicate and raise safety awareness, both on and off working hours.

Safety Observation

To observe and monitor safety during operation.

Job Safety Analysis

To collectively help analyze potential hazards and prepare prevention measures and solutions.

Operational Area Control

To keep the operation areas clean and organized and to build safety discipline at work.

Unsafe Killer

To search for hazards in operational areas and manage or convert it to be more safe.

Kiken Yoshi

To collectively analyze and search for potential hazards that may occur, and dedicated reminders among staff members for caution before the start of operations.

Determine and Review Operational Safety

To collaboratively determine the operation approach, safety preparation, and hazard prevention for each step.

Safety Inspection

To identify and reduce unsafe conditions in the work area.

Among these activities, each plant can apply the ones that are suitable for them. According to the contractors' satisfaction survey on the implementation of these activities, plant safety management was rated as "high" by more than 75 percent.

Employee Caring

- SCG is committed to caring for our employees. Its operations strictly adhere to organizational and international practice labor and human rights law and regulations. We respect diversity in the workforce and treat all employees fairly and equally, without discrimination against gender, age, or physical condition. SCG also respects employee rights to form a union.

- SCG is quickly expanding its business to other countries as we aim to be a sustainable business leader in ASEAN. Currently, SCG has more than 53,000 employees with 16,000 who are foreigners employed in different countries SCG operates in.

Targets

- Become a role model in the labor force and human rights practice.
 - Become a role model in employee caring and the organization of choice.
-

Development Strategies



1

Operating the business under the organizational and international labor practice and human rights law and regulations.



2

Taking care of employees to provide a quality working life, and support employees' involvement and engagement.

1. Operating the Business Under the Organizational and International Labor Practice and Human Rights Law and Regulations

- SCG gives priority to business operations under the labor laws and the organization's regulations such as business ethics and strictly adheres to the employment contracts. In addition, SCG also commits to support the international human rights principles by participating as the United Nations Global Compact (UNGC) member since 2012. Furthermore, SCG supports and cooperates with business partners to apply good labor and human rights practices with their employees as well.
- To evaluate the performance in labor practice and human rights, SCG determines its success from awards and prizes given by national and international organizations. SCG has been awarded the Thailand Corporate Excellence Awards in human resource management for 14 consecutive years, up to the present. This successful performance has been used as an indicator in risk management and creating opportunities in labor practice and human rights operation.
- SCG has prepared development and succession plans for local employees in other operating countries by strengthening the SCG unity through its

organizational culture that is in line with "Belief in the Value of Individuals" philosophy and equal treatments according to human rights principles. SCG highly respects diversity and has the process starting from the comprehensive workforce planning, determining human resources needs in terms of quality and quantity throughout the business supply chain in the short and long terms, identifying key positions and recruiting methods that fulfil the business's needs. The output from the process will be used for the development and succession planning of local employees which falls under Career Committee's responsibility. Moreover, to build workforce readiness, SCG concentrates on three aspects; leadership, competencies and SCG culture. The SCG Staff Development Plan for foreign employees, such as the Individual Development Plan, Development Methods, and the improved Compensation Package, is suitable for each business. They also help support our continuous development.



▶ Activities to exchange opinions and practices with the Ministry of Labor were arranged in order to ensure that SCG's labor practice and human rights have been accepted and could be another organization's example. These activities also fostered the company's collaboration with the government sector in labor development in government projects.

▶ Medium Term Plan, a 5-year plan, in human resource management for business in other countries and succession plans were developed particularly for local employees working in Cement-Building Materials and Packaging businesses. The plan took into account the capability alignment of local

employees and Thai employees. Twenty five local employees were able to fulfil positions of Thai employees who worked overseas, which accounted for 10 percent, according to the plans developed for each business appropriately.



2. Taking Care of Employees to Provide a Quality Working Life, and Support Employees' Involvement and Engagement

- Employees have been provided with healthcare benefits such as medical welfare, health check-ups, the presence of a company health center, fitness clubs, parking locations, facilities for pregnant employees, and the ministering of a safety working environment and occupational health.
- SCG focuses on building engagement and relationship with stakeholders. Formal and informal employee feedback surveys are conducted on a regular basis.

- Awareness in healthcare and health promotion is advocated. Healthcare and nutrition education have also been offered for employees to be able to take care of themselves sustainably.
- Health care programs and activities have been organized regularly in line with recent trends, modern medical technology, and employees' interest in order to promote employee engagement and well-being.

▶ SCG Headquarters organized additional health care activities for employees which were Fit for Fun & Firm or Club 4 that offered monthly activities such as aero boxing, aerobic dancing, Zumba dance, and

other activities that promote fat reduction and weight control for employees.



Employee Development

• Following its business expansion in ASEAN, the number of SCG employees has increased rapidly, and along with it a diversity in nationalities. Currently, SCG has a total of 53,000 employees, both in-country and overseas. To maintain a competitive edge and prepare for future business challenges, SCG strives to develop in all employee skills and talents to respond to business competition and sustainable business operations in the region.

• SCG is transforming employee education in various aspects from a learning structure to a management system that will enable SCG to learn and respond to higher business demands more effectively and to equalize

the same standard for the entire region. SCG Learning Transformation is considered an essential aspect of the organization as it requires engagement of executives, line managers or department managers, and employees at all levels. It is necessary that employees mutually understand and realize that the key factors of success are all about employee engagement and driving. In addition, employee education is an organization-wide activity and is applied in the home and overseas offices. Therefore, time is spent on implementation and monitoring, planning, hands-on practicing, reviewing, and correcting (known as PDCA – Plan Do Check Act) continuously.

Targets

- Enhance learning skills and competencies of employees in collectively building SCG's competitiveness and sustainable growth.
- Develop ability of employees from different nationalities, cultures, and experiences to respond to customers' needs unitedly and effectively.
- Achieve clear learning and development outcomes and better control investment in human resource development.

Development Strategies



1. Establishing One Single Regional Model for Learning

- The number of SCG employees is increasing both in-country and overseas. Therefore, it is crucial for SCG to develop standardized learning for all countries so that its employees are equipped with skills and competencies necessary to take on business challenges and growth in unison.
- Regional standardized learning system and development are laid out by applying the role-based competency principles for employees to acknowledge their roles and the company standard expectations. Employees are also able to see their learning roadmap clearer in three paths: technical practice of each business, profession, and leadership.

2. Building a Learning and Coaching Culture

- For the employees to have comprehensive and sustainable learning, they have to be involved in a responsible learning culture and self-development, especially from on the job training (OJT) and having their supervisors as their coaches. The coaches hold an important role of inspiring and motivating employees to self-develop and act as a good learning role model; while in-the-classroom learning and learning from readings are for establishing a foundation for further knowledge.
- New learning arrangement emphasizes on learning effectiveness with the model learning ratios of 70:20:10.



70

Learnings from direct experiences or learning by doing



20

Learnings from others, such as supervisors, experts, or experienced persons



10

Learnings from training or self-study

- Reinforce supervisors' capability and competency to be able to "coach" subordinates to work efficiently. Each SCG business group has developed its own curriculum to train their supervisors to be an effective coach. Moreover, SCG is developing the standard Leader as Coach Courses to be applied domestically and internationally. The courses are to build skills for supervisors to be able to successfully develop and drive employees toward tangible success.



3. Integrating Learning with a Talent Management System and the Organization Strategy

- To continuously and sustainably develop employees' competency in alignment with the organization's strategies and current and future business directions, it is crucial to connect learning with the process and talent management system. Starting from determining

required employee qualifications and skills, recruiting, developing employees, to retaining talented employee groups, the process must be in place to build commitment and organization engagement.

4. Developing People and Leader Capability

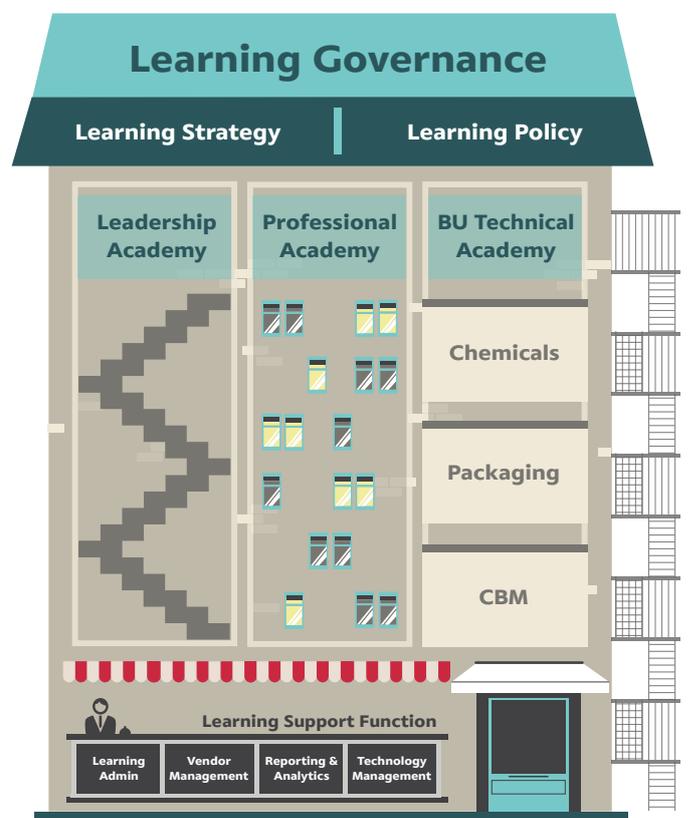
- SCG has clearly established a committee and a function responsible for employees learning in order to ensure that all employees will be developed in terms of knowledge and competencies. Moreover, leaders are also developed with attitudes, knowledge and competencies in response to business competitions and will be able to develop and empower employees to be SCG's essential strength.

- SCG has established SCG Learning Council to oversee learning directions, determine learning strategies and policies to comply with business-driven directions, and apply the same standard throughout the region by connecting with representatives from all businesses and professions to provide extensive perspectives.

5. Developing Learning Enablers

- Adopting the IT System called Learning Management System (LMS), this promotes a quality and regional standardized learning in SCG. For the most efficient outcome, all employees are able to manage their own learning through the LMS system conveniently, starting from their own role-based competency reviewing, competency assessment, individual development planning in collaboration with supervisors, registering for learning programs, document filing, to managing their own achievement evidences. Employees are able to seamlessly continue although they are transferred to a different function or reassigned under a different supervisor.

- E-learning classroom or gamification has been used to support a large group of learners. They also provide remote and flexible access enabling the increasing number of SCG employees located in different regions to be able to learn faster without having to physically be in the traditional classroom.



▶ SCG Committees have been appointed to supervise learning at the SCG level. The SCG Learning Council overlooks the BU Academy on SCG business unit level and each profession group, namely the Professional Academies. Learning Function is responsible for central and business learnings and is the leader in converting policies into tangible practices.

▶ The SCG Learning Policy was established to determine SCG’s learning directions and guidelines in alignment with business strategies.

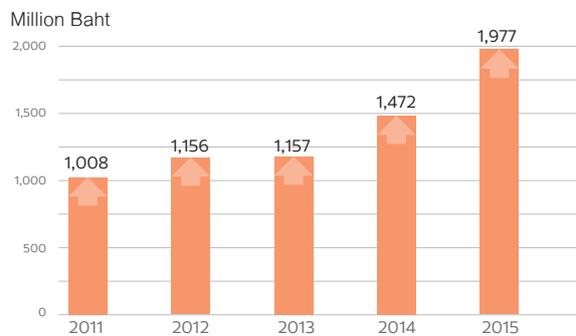
▶ Competency listing and the new learning Solution in 70:20:10 ratios for leadership, profession, and technical operation of each business unit were piloted at the olefins plant.

▶ Learning support factors have been explored and developed such as the LMS and learning handbooks. Employees in the human resources and organizational development (HR&OD) function have also been developed in skills to be able to support and provide learning advices to other employees.

▶ Learning Transformation has been communicated to employees starting from the leaders group through activities and other channels throughout the year. The transformation was officially launched at the SCG Learning Forum 2015 event.

▶ In 2015, the average training time for SCG employees were 11 days per person. SCG invested 1,977 million baht on employee training including the training on business management system of Integrated Business Excellence (IBE) platform.

Expenses for Employee Training



Towards ASEAN

From SCG’s vision to becoming a sustainable business leader in ASEAN, the company prioritizes the development of employees in the operating countries and Thai employees working in other countries.

SCG has developed courses to assist employees in preparation for operating abroad, such as the SCG Go Regional Program. The program consists of five supporting and aligned aspects which are business understanding, organizational impact, interpersonal understanding, global outlook and the foreign language course of the designated country of destination. Local employees are offered courses that will also keep them up to SCG standards such as abridged business concept (ABC), business concept development (BCD), leadership development program (LPD), technical competency development and other general knowledge courses. All employees in foreign countries are equally provided with knowledge and competencies. SCG has established high qualification criteria for local employees, leading to continuous development plans with challenging and appropriate approaches.



Energy and Climate Change

- SCG’s businesses significantly rely on energy consumption. As a result, SCG encounters high risks from energy in terms of fuel prices and available fuel quantities. Furthermore, SCG stakeholders also focus on climate change and global warming resulting from greenhouse gas (GHG) emissions.

- SCG places importance on energy and climate change management in order to reduce risks arising from dependence on main energy sources that may suspend SCG’s businesses or cause impacts on communities and the environment. At the same time, SCG creates opportunities in energy cost savings by enhancing efficiency in energy consumption during the production process and generating income by selling environmentally friendly products.

- To achieve tangible outcomes from business operations, SCG established two dedicated committees: “SCG Energy Committee” and “Energy Profession Knowledge System Promotion and Development Working Committee” to oversee energy-related business policy and employee involvement through sub-committees and working groups, comprising Coal Collaborative Purchasing Committee, Collaborative Biomass Source & Supply Committee, Climate Change Committee, Energy New Technology Working Group, Energy Management and Conservation Technology Working Group, and the Energy Awareness and Networking Working Group.

Targets

- Ensure business continuity in case of energy crisis, and maintain business competitiveness in terms of production costs.
- Reduce GHG emissions per production unit by 10 percent by 2020, compared to the based year 2007.

Development Strategies

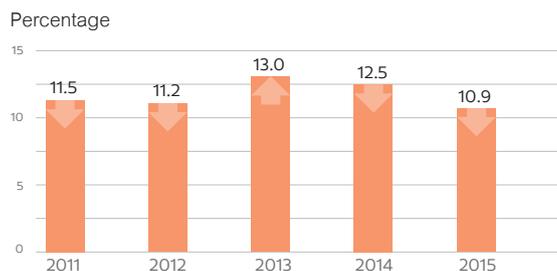


1. Creating Stability and Improved Efficiency in Energy Consumption

- Maintain stability and manage portfolio of various energy sources, such as oil, coal, natural gas, electricity, biomass, and waste to create an appropriate energy mix in term of quantity, quality, and price.
- Increase proportion of renewable energy to enhance fuel type flexibility and reduce GHG emissions.

2015 Performance

Renewable Energy Consumption



► Strengthen cooperation between Cement Business and Packaging Business, which are the main coal users of SCG, to collaboratively source coal and study the use of new types of fuels replacing coal.

► Established a solid coal management system in the “Wat Bandai Project” or the “Coal Storage for Sustainable Development Project” in Nakhon Luang District, Phra Nakhon Si Ayutthaya Province, by investing over 400 million baht to improve the standard of coal transfer management from the beginning to the end of the process, with a completely closed system to prevent dust diffusion into the environment and neighboring communities.

► Installed a Vertical Cement Mills at The Siam Cement (Ta Luang) Co., Ltd. and The Siam Cement (Kaeng Khoi) Co., Ltd. to enhance cement production efficiency and reduce power consumption in cement grinding by 13 gigawatt-hours per year, equivalent to the GHG emissions reduction of 7,800 tons carbon dioxide per year.

► Maximize capacity of Waste Heat Power Generation (WHG) at The Siam Cement (Thung Song) Co., Ltd., with biomass as supplemental fuel, for additional power generation capacity of 10 megawatts. This resulted in the reduction of GHG emissions by approximately 34,000 tons carbon dioxide per year, displacing the use of grid electricity.

34,000

Tons Carbon Dioxide Reduction per Year

7,800

Tons Carbon Dioxide Reduction per Year

11,000

Tons Carbon Dioxide Reduction per Year

Highlights of SCG Sustainable Energy Projects in ASEAN

Thailand

- Waste Heat Power Generation (WHG) Projects from all Cement Kilns in five locations throughout the country can displace the use of grid electricity by 560 gigawatt-hours per year, equivalent to the reduction of GHG emissions by **326,000 tons carbon dioxide per year**.
- The Vertical Cement Mill Projects at The Siam Cement (Ta Luang) Co., Ltd. and The Siam Cement (Kaeng Khoi) Co., Ltd. can reduce power consumption in cement grinding by 13 gigawatt-hours per year, equivalent to the reduction of GHG emissions by **7,600 tons carbon dioxide per year**.
- Refused Derived Fuel (RDF) produced from Municipal Solid Waste by SCI Eco Services Co., Ltd., is used to substitute Coal by 986,000 gigajoules per year, equivalent to the reduction of GHG emissions by **95,000 tons carbon dioxide per year**.
- The Anaerobic Digestion Project at Siam Mitsui PTA Co., Ltd., generates which is used to substitute Natural Gas by 202,000 MMBtu per year, equivalent to the reduction of GHG emissions by **12,000 tons carbon dioxide per year**.

- EmissPro Technology, an innovative ceramic coating substance technology, was applied to Map Ta Phut Olefins Co., Ltd. and Rayong Olefins Co., Ltd. to enhance energy efficiency in furnaces, lowering Natural Gas consumption by 1,415,000 MMBtu per year, equivalent to the reduction of GHG emissions by **83,000 tons carbon dioxide per year**.
- The Biogas Flaring System Project at PB#16, Siam Kraft Industry Co., Ltd. uses biogas as an alternative fuel to reduce coal usage by 65,000 gigajoules per year, equivalent to the reduction of GHG emissions by **6,200 tons carbon dioxide per year**.
- The Replacement of Boiler, Turbine and Generator at PB#2 of Thai Cane Paper PLC. in Kanchanaburi Plant enable usage of Biomass and Waste Reject from recycled paper to substitute Coal by 324,000 gigajoules per year, equivalent to the reduction of GHG emissions by **37,000 tons carbon dioxide per year**.

Vietnam

- Prime Group has improved the Coal Gas production systems in its ceramic tile plants resulting in the decrease of coal consumption by 1,291,400 gigajoules per year, equivalent to the reduction of GHG emissions by **127,000 tons carbon dioxide per year**.
- Vina Kraft Paper Co., Ltd. uses biomass and biogas from an aerobic wastewater treatment system, to substitute Coal usage by 512,000 gigajoules per year in the boiler, equivalent to the reduction of GHG emissions by **49,000 tons carbon dioxide per year**.

The Philippines

- Mariwasa Siam Ceramics Co., Ltd. has installed Gasifiers to produce fuel gas from biomass, substituting the use of LPG by 791,000 gigajoules per year in ceramic kilns, equivalent to the reduction of GHG emissions by **50,000 tons carbon dioxide per year**.
- United Pulp and Paper Co., Ltd., has improved fuel transportation system which allows for Coal substitution by 55,000 gigajoules per year, equivalent to the reduction of GHG emissions by **5,300 tons carbon dioxide per year**.

Cambodia

- Kampot Cement Co., Ltd. has installed Waste Heat Power Generation (WHG) Units to generate waste heat power, substituting power consumption of 61 gigawatt-hours per year, equivalent to the reduction of GHG emissions by **40,000 tons carbon dioxide per year**.
- Kampot Cement has installed a Gasifier at Line 1 which enables usage of Biomass to substitute coal by 246,000 gigajoules per year, equivalent to the reduction of GHG emissions by **24,200 tons carbon dioxide per year**.

Indonesia

- Emisspro Technology was extended to Chandra Arsi Petrochemicals to enhance energy efficiency in furnaces, lowering Natural Gas consumption by 160,200 MMBtu per year, equivalent to the reduction of GHG emissions by **94,000 tons carbon dioxide per year**.
- Emisspro Technology was extended to PT Keramika Indonesia Assosiasi (KIA) to enhance energy efficiency in furnaces, lowering Natural Gas consumption by 267,000 MMBtu per year, equivalent to the reduction of GHG emissions by **16,000 tons carbon dioxide per year**.

* Ton reduction of GHG emissions per year equal to ton carbon dioxide per year.

Refuse Derived Fuel (RDF)



At present, garbage or municipal solid waste in Thailand is generated approximately 25 million tons a year and already accumulated in open dumps around the country approximately 26 million tons. Waste transformation is an alternative means to manage the country's municipal solid waste. SCI Eco Services Co., Ltd. has been producing Refuse Derived Fuel (RDF) from municipal solid waste for use as an alternative fuel in cement kilns at SCG cement plants. This contributed to the reduction of coal consumption and hence reduction of carbon dioxide emissions.

The operations start from the establishment of a municipal solid waste sorting plant at the municipality landfill area to sort out the incombustible portion and get mainly combustible portion of the waste and process it into what so called RDF-2, (as international practice categorize RDF into levels according to its property). The RDF-2 is then compressed into bales, ready to be transported from the waste sorting plant to the cement plants, where RDF-2 would be ground into a size no larger than 5 cm and re-categorized as RDF-3, which is acceptable to be used as fuel for cement kilns.

SCI Eco Services Co., Ltd. has been producing RDF at three locations, one each at Ban Mo District in Saraburi Province, at Bang Rakam District in Phitsanulok Province, and at Muang District in Phatthalung Province. RDF is used in cement plants at Kaeng Khoi District in Saraburi Province and Thung Song District in Nakhon Si Thammarat Province. In 2015, SCG used 61,000 tons of RDF in its operations, replacing the use of coal by 57,000 tons and lowering GHG emissions by 110,000 tons carbon dioxide per year. Furthermore, RDF production also allows for substantial clean-up of the municipality landfill area.

In 2016, more RDF projects will be implemented at Ban Mo District (Second Line) in Saraburi Province, and also in Krabi Province. In 2020, which is 5 years from now, SCG plan to use RDF at an approximate amount of 290,000 tons, replacing coal consumption by 275,000 tons and lowering GHG emissions by 524,000 tons carbon dioxide per year. This would also take care of more than 1 million tons of municipal solid waste a year.



Chompoonuch Panyagawin

President of Muang Kheet Khin Sub-district
Administration Organization (SAO)

“

Previously, waste management of Muang Kheet Khin has been limited because the size of the waste disposal site was insufficient to support the increasing amount of waste. This led to the cooperation between SCI Eco Services Co., Ltd. and Muang Kheet Khin SAO to systematically handle municipal solid waste, without causing impacts on communities and the environment. SCI Eco Services Co., Ltd. has promoted essential knowledge and provided proper equipment to systematically manage municipal solid waste, creating tangible outcomes from operations and resulting in Kheet Khin SAO being acknowledged as a role model in municipal solid waste management and becoming a municipal solid waste management learning center.

”

2. Offering Products and Services, as Well as Develop Innovation and Technologies that Reduce GHG Emissions

- Invest in clean technology research to develop or improve technology for industrial machines to use alternative fuels, which can lower GHG emissions.
- Develop products and services which lead to lower GHG emissions in production processes and/or during product/service use.

2015 Performance



► SCG Logistics Management Co., Ltd. has developed an integrated logistics and management system to enhance efficiency by switching to Multimodal transportation system, which contributed to the reduction of GHG emissions by at least 25 percent compared to normal transportation. In addition, a Backhaul system was set up to reduce deadhead and lower GHG emissions by at least 5 percent compared to normal transportation. Additionally, a Global Positioning System (GPS) was installed to minimize the distance and the number of trips. All of this contributed to the lowering of total GHG emissions by at least 13,000 tons carbon dioxide per year.

13,000

Tons Carbon Dioxide Reduction per Year

► Elephant Hybrid Cement, a newly developed formula Portland cement which reduces energy consumption in the cement production process has become very popular among consumers, resulting in the increased production of 1.9 million tons in 2015. This contributed to the reduction of GHG emissions by 139,000 tons carbon dioxide per year.

139,000

Tons Carbon Dioxide Reduction per Year

► Emisspro Technology, an innovation that increases energy efficiency in furnaces for industrial plants, such as petrochemical and refinery plants, steel plants, and ceramic tile plants, has increased in sales by 260 percent in 2015 compared to 2014. This contributed to the reduction of GHG emissions of 24,000 tons carbon dioxide per year and the dissemination of the technology overseas, such as to the Philippines and South Korea.

24,000

Tons Carbon Dioxide Reduction per Year

► SolarECO System, an innovative rooftop solar power generation system, has been developed for compatible installation of solar panel with roof tiles in various shapes, with ease of installation and durability. There are two choices of power generation systems available, a household reserved power system that required additional battery installation or a direct grid connection for sales of electricity back to electricity authorities.



Rooftop Energy

Solar Energy Generation Project on Plant Rooftops



In 2013, the government issued a policy to promote the use of alternative energy by purchasing electricity generated from projects with Rooftop PV systems through a Feed-in Tariff contract. Siam GNE Solar Energy Co., Ltd. recognized that the Rooftop PV Project created benefits for the country by increasing the national proportion of alternative energy, reducing GHG emissions, and maximizing benefits from an otherwise unused area of plant rooftops. The company surveyed available rooftop areas of plants within SCG Group, covering over 1,000,000 square meters, and identified many appropriate sites. The 11,000-square-meter warehouse rooftop of Grand Siam Composites Co., Ltd., located in Map Ta Phut Industrial Estate in Rayong Province, was selected as the location for the first project due to high intensity of the sun's radiation at 19.2 megajoules per square meters per day.

The project installed 3,033 solar panels with a total power capacity of 743 kilowatts. The area and resources in the plant were designed to maximize benefits from available areas and plant resources. For example, power transformers were installed at outer walls of buildings, and an unused 22-kilovolt power transmission system was modified and used for connection to the new system. The power generation system was further designed for the utmost efficiency; for example, with the study of appropriate angle of the roof and the selection of high quality equipment from reliable manufacturers. Additionally, the project was designed for easy maintenance; for example, the use of an evaluation system through electronics devices reduced the number of personnel needed on-site and the solar panel self-cleaning system for after rainfall. In terms of safety, the project has incorporated prevention for leaks on the rooftop and installed appropriate grounding conductor and lightning conductor.

After a year of continuous operation, approximately 1,017,000 kilowatt-hours of power was generated from the project, which reduced GHG emissions by 591 tons carbon dioxide per year. In addition, the project reduced accumulated heat in buildings, thus reducing power consumption of air-conditioning. The installation of solar panels further reduced noise from rain falling on metal sheet rooftops.

Budget for the project was allocated at 41 million baht, with an estimated payback period of eight years. Income from the sale of electricity to the Provincial Electricity Authority (PEA) was estimated at 6.25 million baht per year. Moreover, the project is anticipated to continue generating power for 25 years, and is considered the first project that can connect and sell electricity to the PEA. There were quite a number of interests for site visits to the plant from domestic and international representatives of government or private sectors. The success of this pilot project serves as a model for other similar ones .

3. Promoting Energy Awareness among Employees

• Human resources are critical to the success of energy management. The Energy Awareness and Networking Working Group therefore have core

missions to promote, support, and build energy-related knowledge as well as awareness among employees.

2015 Performance



▶ Organized the first SCG Energy Day to promote, remind, and build awareness on the effective use of energy under the “3C Project” (Close, Control, and Change Project); Close or turn off lights when not in use, Control energy use, and Change for the better. SCG employees from all business units marched to form the symbol of “Close, Control, and Change” in order to demonstrate their commitment to energy saving. In addition, a seminar under the topic, The Future Direction of Energy, was conducted by experts from the government and external private sector. In total, 1,178 SCG employees from all businesses were in attendance.

▶ Organized Energy Awareness Promotion activities under the concept of “Close, Control, and Change” throughout the year to promote energy awareness and its practical application, beginning from employees and extending to their colleagues and families. Social media was used as a channel to enhance engagement and foster awareness about energy to a larger group. Through these activities, SCG employees proposed 2,440 ways to save energy.

▶ Developed a project-based training course, Energy Science and Technology, in collaboration with Chulalongkorn University, to train employees in the energy segment of through the development of 12 energy projects. Contents in the first training

course comprised of three topics, namely, Clean Coal Technology, Power Plant, and Waste Heat Recovery. A total of 15 employees were trained during the 5-month duration of the project.

▶ Organized activities to enhance relations for 26 employees who received Master Degrees and/or Ph.D. in the field of energy to learn about the SCG Energy Plan and to conduct a workshop for planning future collaboration. In addition, SCG hosted an experience sharing session consisting of experts who are former executives from the government sector and SCG in the field of energy, to enhance learning and practical application in the workplace.

▶ Arranged networking activities and site visits related to energy management at Siam Kraft Industry Co., Ltd (an affiliate in SCG Packaging) and Ratchaburi Electricity Generating Holding Public Co., Ltd. in order to connect personnel in the field of energy, and to enhance their learning from experiences in other energy projects. It is anticipated that the idea obtained from the activities is extended for annual operational planning and the development of future energy projects. In addition, SCG employees have engaged in cleaning and LED changing activities for Wat Mai See Muen Temple in Ratchaburi Province. A total of 65 employees attended the activities.



Water Management

- Water management is considered as one of the key indicators of SCG operations efficiency since water is an essential capital and resource for production. Operational performance is reviewed quarterly and monitored by executives.
- SCG has applied a risk management system with water management at a business level and at company level. Water management includes risk management and the water-related risk categories, such as, quantity of water consumption, production processes, laws and regulations, business and reputation, and natural disasters.
- SCG realizes its risks on water management, which require water resource adequacy and water quality for production. In addition, the quality of discharged water into the environment shall be monitored to prevent negative impact to water for communities around the plant.
- SCG has established an SCG Water Management Committee to determine water management guidelines, strategies, policies, and targets throughout the organization. The SCG Water Management Committee comprised of representatives from all SCG business units and corporate offices, initiating integrated water management with clear directions, and sharing of knowledge among SCG employees to create maximum benefits.

Targets

- Manage business continuity by determining mitigation measures and monitoring programs to control water risks. If water risks cannot be controlled, there will be supporting mitigation measures to prevent any business interruption and its ability to resume in the short term.
- Create business growth through the research and development of innovative technologies that can reduce water consumption and maximize the utilization of resources.

Development Strategies



1. Living Sustainably with Communities

- Conflicts with communities may potentially occur from the use of water sources and impact due to the water treatment process or discharge of treated wastewater into natural watercourses. As a result, SCG aims to establish a good relationship with communities and regularly implement public participation activities. This involves an engagement process to listen to community problems, resolve issues, and urgently manage conflict. SCG aims to achieve zero grievance of water consumption issues from surrounding communities.
- In cases where water usage for the production process is over 5 percent of communal water sources, those areas will be considered as high risk. This can lead to conflicts over potable water sources.
- Activities throughout the production process must be controlled to comply with the laws and regulations and reduce environmental impact. Data on water usage, discharge, and impact on watercourses are monitored continuously, such as the quantity of pumped water into a plant, the quality of treated wastewater released from the plant, the quantity and quality of water in natural watercourses, especially during droughts, and ground water level and river levels. In addition, SCG has set up a Government Relations Office to be responsible for contacting government agencies to strengthen relationships and monitor the progress of the laws and regulations, including engagement in providing input before the enactment of new laws.

2015 Performance

▶ SCG has monitored drought situations and managed to reserve water in sufficient quantity for business purposes. Actions included providing potable water to the community during a water shortage.

▶ **SCG Packaging** has provided support to surrounding communities to reduce problems of water shortage.

- Companies in Wangsala Complex and Thai Cane Paper Public Company Limited in Kanchanaburi Province provided treated water to agriculturists living around plants for growing field crops, such as sugar cane, corn, and rice, covering an area of 2,800 rai in 200 households of three villages.



- Companies in Wangsala Complex worked in collaboration with villagers in Moo 3 and Moo 6, Wangsala Sub-district to implement dredging, excavating, and eliminating weeds and sediment in a 300-meter canal for agricultural purposes; with the plants providing water throughout the agricultural areas in the communities.

- Phoenix Pulp and Paper Public Company Limited provided potable water to surrounding communities for consumption purposes and are prepared to support communities when water shortages occur. 75 shallow groundwater wells were dug in three sub-districts, comprising Kud Namsai Sub-district, Muang Wan Sub-district, and Khok Soong Sub-district. In addition, SCG cooperated with Utokapat Foundation under the Royal Patronage of His Majesty the King to improve canals, natural watercourses, water gates and irrigation canals for maximizing utilization in Khon Kaen and Chaiyaphum Provinces.

- The Thai Union Paper Public Company Limited understood the community's needs for fire safety; therefore, the company laid a water pipeline from the plant to the community and installed fire suppression equipment in neighboring communities. Crowded communities around the plant meant that fire trucks could not enter easily.

2. Reducing Natural Disaster Risks

• Severity of natural disasters related to water is increasing. Both floods and droughts cannot be predicted and response plans are hindered. SCG has regularly monitored news and information on

water and climate in each area to prepare and conduct plans to respond to potential risks by surveying reserve watercourses, constructing water storage facilities and constructing retention ponds.

2015 Performance



► SCG has implemented the “SCG Conserving Water for Tomorrow Project” in order to improve water sources sustainably by applying the Royal Initiative of His Majesty the King on Water Management. More than 68,445 check dams were built at upstream locations to return abundance to forests, provide water to communities, and prevent and reduce severity of floods and droughts.



► SCG Cement-Building Materials has regularly monitored water levels of raw-water sources and public watercourses such as rivers and reservoirs above dams in surrounding areas. In addition, water reserves were sought.

- The Siam Cement (Kaeng Khoi) Co., Ltd. has improved shale quarry to store rainwater. These reservoirs were considered as water reserves with the capacity of 5 million cubic meters. In case of a crisis, these water reserves could supply water for 4 months, reducing operational costs for more than 7 million baht.

- Every ceramic tile company has surveyed additional water reserves to supply water for 20 days at minimum, without causing negative impact on public watercourses.

68,445 Check Dams



Lieutenant General
Semsak Niyamosot

Deputy Chief of Staff, Royal Thai Army
(Speech on the 22nd July 2015)

“

The Royal Thai Army is pleased to cooperate with SCG to implement the ‘SCG: United against Drought’ project. We are ready to fully support activities such as water truck services and collecting data in drought areas and provide assistance throughout the drought-affected areas. I hope that this project will alleviate suffering in communities and our society. Please save and use our water effectively. Thank you.

”

► **SCG Chemicals** worked in collaboration with the Water Institute for Sustainability, the Federation of Thai Industries, entrepreneurs in the eastern region and government agencies responsible for water management to establish the “Water War Room in the Eastern Region” for monitoring water levels in main reservoirs, water resources, progress in water management, and driving the government sector’s water management projects forward for sustainable water allocation.

In order to prevent flooding, Rayong Province has planned long-term mitigation measures and excavated canals to connect with the sea, particularly at Tap Ma Canal and Rayong River. For the 2016 plan, the Rayong Provincial Irrigation Department will install a powered water pump station to pump water into canals in Klaeng District to drain rainwater in case of heavy rainfall. This will contribute to efforts to minimize the negative impacts of flooding.

- At present, affiliates in SCG Chemicals are using water from the connecting network of reservoir operation (Ang-Poung System), comprising of a group of reservoirs in the eastern provinces connected by main rivers and irrigation canals, through the management of the Industrial Estate Authority of Thailand (IEAT) and the Eastern Water Resources Development and Management Public Co., Ltd.

► **SCG Packaging**

- Thai Cane Paper Public Co., Ltd. (Kabinburi Plant) has dug a reserve water well with a capacity of 1 million cubic meters, which could supply water for more than 6 months in case of drought.

- Phoenix Pulp and Paper Public Co., Ltd. have implemented mitigation measures to respond to droughts by constructing a water reserve well with a capacity of 200,000 cubic meters.

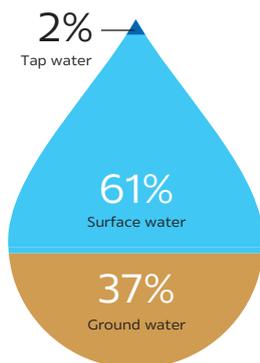
3. Enhancing Efficiency in the Production Process and Products

- Continually improve the production process to enhance efficiency through Total Quality Management (TQM) and Total Productive Maintenance (TPM) in order to reduce the use of water from natural water resources.
- Implement production process optimization, apply innovative technology, and improve efficiency of reused water in the water filtration system.

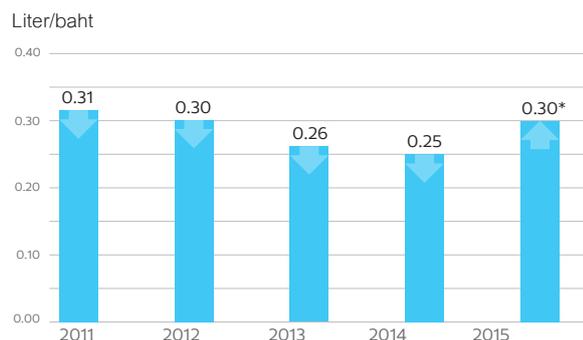
- Determine indicators of water input per production unit, rate of water reuse, and quality of discharged water by setting up targets to compare with leading international organizations.
- Extend concepts of sustainable development and enhancement of efficiency in water consumption throughout supply chains for business partners and customers.

2015 Performance

Proportion of Water Withdrawal



Water Withdraw Intensity (Revenue from Sales)



*Increased from reserved water for drought and consumption at Waste Heat Power Generation

▶ SCG has designed its head office building to be a water-saving prototype building and set the standard for other office buildings. This practice can reduce water consumption by up to 6 million liters per year and recycles wastewater for trees and plants, supporting green space, and also for sanitary ware cleaning.

Reduces water consumption by at least 6 million litres per year

▶ SCG has been working together with Chalermchaichan Co., Ltd., a printing ink manufacturer, to analyze production data, diminish quality-related problems, and increase accuracy so that water consumption has been reduced by 15 percent.

▶ SCG Cement - Building Materials

- Every cement manufacturer of SCG has designed a high efficiency in-house water management system., Improved cement kilns use advanced technology to recycle machine cooling water and coolants in Waste Heat Power Generation and reuse it as cooling water in a closed system resulting in zero discharge. There is also a tank collecting rain water installed in the factory compound to be used for factory activities.

- Siam Sanitary Ware Industry Co., Ltd. and Siam Sanitary Ware Industry (Nongkae) Co., Ltd. have jointly created a water saving innovation, such as water saving sanitary ware that can reduce water consumption by up to 12.5 percent, compared to other products.

▶ SCG Chemicals

- Thai MFC Co., Ltd. has launched a program to shorten the tool cleaning process from 30 minutes to 15 minutes, which resulted in 50 percent less water consumption.

- Grand Siam Composites Co., Ltd. has launched a program that can reduce water usage in the production process by installing the Silo Auto Cleaning System. This system allows sprinkle nozzles to automatically clean the silo rather than be operated manually by the staff. The company's system also recycles water in some parts of the production process, such as coolants, which can reduce water usage to 1 percent.



Krai Nakpanich
Managing Director,
Toyota Chaopraya Nakhon Sawan Co., Ltd.

“

Toyota Chaopraya Nakhon Sawan has run a campaign to save and carefully use water as well as monitoring excessive use of water. In case of problems, they will be urgently analysed and resolved. SCG products are the main factor of saving water since SCG offers variation of water saver products, especially sanitary wares that come with half flush or full flush options.

”

► SCG Packaging is running a program to adjust their production process to be more efficient and to recycle water for different projects.



- The Balancing Water Use project for water consumption between paper production machine number 8 and 9 and the recycled paper pulp factory of Siam Kraft Industry Co., Ltd., Wangsala Plant helped to reduce 390,000 cubic meters of water usage per year.

- By controlling water use on the wire part shower of the paper production machine, Thai Cane Paper Co., Ltd., Kanchanaburi Plant has reduced 60,000 cubic meters of water usage per year.

- The project on minimizing water consumption from the fan pump sealing of paper production machine number 4 and 5 of Thai Paper Co., Ltd. has reduced 46,000 cubic meters of water usage per year.

- The project for collecting and reusing water from refinery sealing process for powder mixing at Siam Kraft Industry Co., Ltd., Ban Pong Plant gained 126,000 cubic meters of reused water per year.

- The project on reusing clear water from the production process for agitator shaft sealing at the pulp storage of paper production machine number 6 at Siam Kraft Industry Co., Ltd., Wangsala Plant has

gained 95,000 cubic meters of reused water per year.

- The project on collecting water from the baling line process and vacuum pump of wood pulp machine number 2 to use with wood pulp machine number 1 of Phoenix Pulp and Paper Public Company Limited; is able to have 408,000 cubic meters of reused water per year.

- The project on collecting coolant from the lime kiln support roller, set 1, to be recycled for vacuum pump process and white liquor filter of Phoenix Pulp and Paper Public Company Limited, is able to have 316,200 cubic meters of reused water per year.

- The project on enhancing water pump capacity for back water in order to use with wood pulp machines of Phoenix Pulp and Paper Public Company Limited is able to have 408,000 cubic meters of reused water per year.



8.67 million cubic meters
of reused water per year

4. Utilizing Treated Wastewater

- Install a high quality wastewater treatment system and Advance Internal Water Treatment Process so that the treated wastewater can be recycled and add value in the production process, instead of discharging it into the environment.
- Increase the scope and area in the production process that can utilize treated wastewater as much as possible.
- Aim to treat and recycle wastewater as much as possible in each business unit.

2015 Performance

▶ **SCG Chemicals** has installed five units of the Reverse Osmosis (RO) System with a plan to install two more units in 2016 in order to continuously bring back and utilize treated wastewater. In 2015, there were 1.1 million cubic meters of wastewater treated by the RO system. Moreover, Thai MFC Co., Ltd. has also used RO treated wastewater to clean the sand filters in the wastewater treatment system.

**1.1 million cubic meters
of RO treated wastewater
was utilized**

▶ **SCG Packaging** has done several projects such as:

- A successful technology of Anaerobic Treatment, a wastewater treatment system, used by Vina Kraft Paper Co., Ltd. in Vietnam has been brought to jointly work with wastewater treatment systems throughout ASEAN and also improved efficiency by modifying it to an Internal Recirculation Reactor. In Thailand, this modification has been successfully done at the Siam Kraft Industry Co., Ltd., Ban Pong Plant with their wastewater treatment system and paper production machine number 16. The project is on going, at the Wangsala Plant of Siam Kraft Industry Co., Ltd. as well.

- The microscopic culture pond adapted from the wastewater treatment pond at Thai Union Paper Public Company Limited has increased stability of the treatment system and improved the quality of the treated wastewater, resulting in utilizing more recycled water.



- Treated Wastewater project examples also include:

* Siam Kraft Industry Co., Ltd., Wangsala Plant, where 450,000 cubic meters of filtered wastewater per year was recycled and used for cleaning paper, during a set of paper production at machine number 5.

* Siam Kraft Industry Co., Ltd., Ban Pong Plant, recycled 240,000 cubic meters of treated wastewater per year and used it for cleaning sludge filter press machines.

* Phoenix Pulp and Paper Public Company Limited, recycled 68,000 cubic meters of treated wastewater per year and used it for cleaning sludge filter press machines.

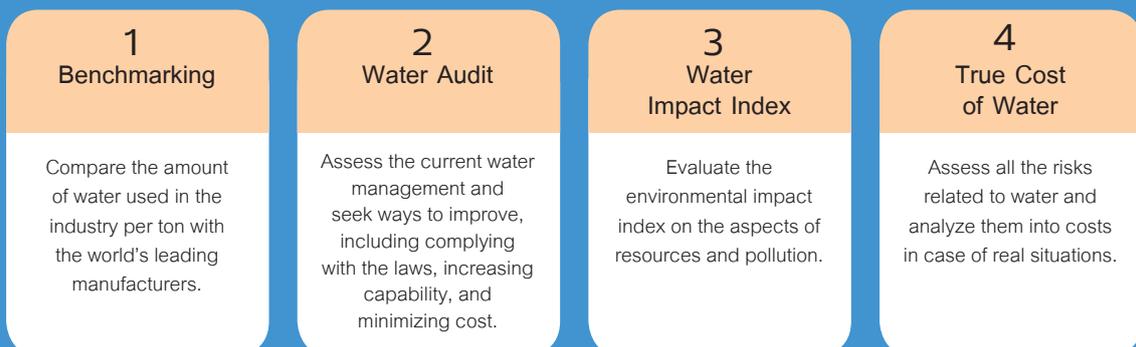


5. Developing the Capability of Water Management Personnel

- Promote human development on water operations with a learning-by-doing method and training courses to apply the knowledge to practice. An example is a water footprint analysis course to create understanding and awareness of the value of water resources and its effect on social and environmental contexts. The objective of water management leadership training is to create a thinking process and its management to further enhance business.
- Regularly organize lectures on water management technology to enhance knowledge and capability of employees and to prepare for operational readiness in the future.
- Practice in-house knowledge management to promote staff development and encourage knowledge sharing through Community of Practice (CoP), and apply the use of information technology to store knowledge and training materials online as well as an on-hand e-learning resource for the staff.

Water Management Pilot Project

Water management is key to running a business. The water management staff is trained by attending seminars and on-the-job-training which focuses on critical thinking, resolutions, improvement, and learning from experts. SCG has thus launched a water management pilot project and invited external experts to train our staff by practicing on real projects. Our goals are focused on four dimensions:



SCG by SCG Packaging, after much consideration, has chosen the most experienced and fully equipped company, Veolia Water Solutions & Technologies (Thailand) Ltd., to administer the project of Water Assessment. Their job is to inspect, evaluate, and consult on water management in the industry. We have also chosen Thai Cane Paper Public Company Limited, Prachin Buri Plant, as a pilot factory since this factory has a plan for production expansion and a policy of controlling water consumption from natural resources. SCG Water Management Committee and representatives from each business unit have monitored the project in order to learn and apply the knowledge into practice throughout SCG.

Results

- Thai Cane Paper Public Company Limited has studied water cycles, production processes, water consumption, water treatment, water resources, the quality of water, and relevant laws through concerns of direct and indirect effects, current risks, and speculated future risks. Situations have been defined for the company to find ways for improvement and development in the production process, including options and investment analysis.
- The company has acknowledged ways to improve water treatment systems, which were designed to have more capacity than needed, with the COD rate higher than planned. This has fully enhanced the efficiency of the air-diffused treatment process, and water treatment system development has decreased the effect to at least 80 percent and increased production at least by three times, compared to the year of 2014.
- Moreover, the steering group and business representatives also have gained the understanding of risk assessment and the true cost of water resource consumption that could be applied to other businesses.

Material Use and Recycling Strategy

- SCG focuses on reducing environmental impact from upstream businesses to downstream consumers. Limited resources of raw materials and available materials are utilized to its maximum potential. Also, SCG focuses on the development and value creation of materials used in the production process and the products delivered to consumers.

- SCG may be at risk of material shortage, and materials are crucial in business operations. Therefore, efficient resource management planning has been applied, using product life-cycle assessment to analyze resource management, and to increase business competency.

Targets

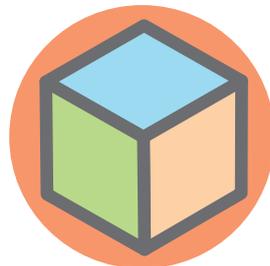
- Use raw materials and recycled materials effectively in every process.
 - Increase proportion of renewable materials and recycled materials use as much as possible.
-

Development Strategies



1

Searching for good quality and environmentally friendly raw materials and materials.



2

Researching and developing production processes to utilize raw materials and materials most effectively.



3

Utilizing renewable materials and recycled materials.

1. Searching for Good Quality and Environmentally Friendly Raw Materials and Materials

- Caring for the procurement of raw materials and alternative materials that meet standards of quality. The procurement process is overseen by the SCG Supplier Development for Sustainability Committee, who supports the sourcing of raw materials, supply materials, spare parts, and general items that are of good quality and environmentally

friendly (please see Sustainable Value towards Suppliers chapter on page 98.)

- Following international standards on natural resources conservation and development of new standards for procurement of sustainable and environmentally friendly raw materials and potential materials used in the production process.

2015 Performance



► **SCG Cement-Building Materials** has implemented a project management program to continuously develop quarrying models and methods. SCG is proud of its quarry design innovation called the “Semi Open Cut” which combines Open Cut and Open Pit techniques. The quarry was operated in the mountains at the central part of the concession area and maintained over 50 percent of the concession area as a naturally green area or buffer zone. The scenic mountain views are maintained and forests are conserved at their original condition. In addition, SCG cooperated with external experts to rehabilitate quarry areas and convert them back to their original ecosystem condition as much as possible (please see Biodiversity and Ecosystem chapter on page 105).

► **SCG Chemicals** has designed, selected, and used all equipment in the production process in compliance with international standards in order to prevent and reduce hydrocarbon leaking into the environment. Also, raw materials in the production



process have been managed by a raw materials loss reduction project, spill and leakage prevention management, and chemical pollutants management. In addition, the assessment of chemicals released to the environment has been conducted in accordance with the Pollutant Release and Transfer Register Guidance.

► **SCG Packaging** has been managing sustainable forests in compliance with Forest Stewardship Council (FSC) standards in order to obtain fibrous materials that are responsible to community, society, and good to the environment. Fibrous materials were controlled at the upstream process in order to prevent risks that may occur as negative environmental impacts. At present, there are 25,000 rais of forests, which comply with FSC standards in Kanchanaburi, Ratchaburi, and Kamphaeng Phet Provinces. In addition, SCG has supported communities to grow cash crops, such as eucalyptus, to increase income and reduce deforestation for more than 2,000 rais (please see Biodiversity and Ecosystem chapter on page 107).

2. Researching and Developing Production Processes to Utilize Raw Materials and Materials Most Effectively

- Management and development in every production process to prevent the loss and utilize raw materials and materials most effectively.

2015 Performance

► **SCG Chemicals** has implemented projects to increase efficiency in the use of raw materials such as the following:

- Applying a business management system according to Integrated Business Excellence (IBE) principles in the planning of polyethylene and polypropylene pellets production to reduce the grade change. As a result, SCG was able to reduce waste by 10,000 tons per year during the product grade changing.

- Development of Advance Process Modelling to improve efficiency of by-product treatment units in Olefins plants, resulting in the increase of Olefins products by 18 percent or 900 tons per year while the same amount of raw materials is used.

- Efficiency improvement of Cracking Furnace by using high performance coil to reduce the amount of raw material (Naphtha) usage and increase main product yield (Ethylene). In addition, there was a Process Optimization at C₂ Hydrogenation Reactor, resulting in the efficiency enhancement and Ethylene loss reduction by 5,000 tons per year.

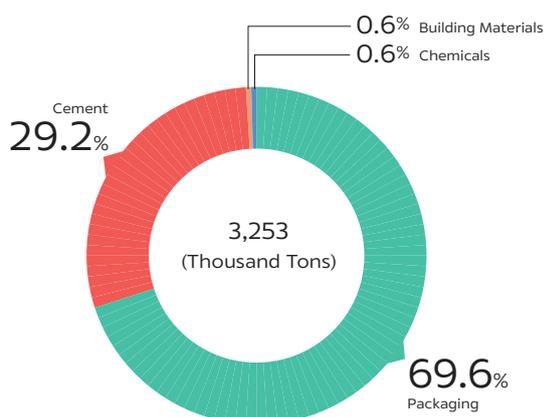
► **SCG Packaging** has been continuously developing G Technology or technology for the environment. The innovation of Green Carton Packaging was further advanced and was able to reduce paper consumption in the production process for 125 grams per square meter while maintaining the same strength and quality.

3. Utilizing Renewable Materials and Recycled Materials

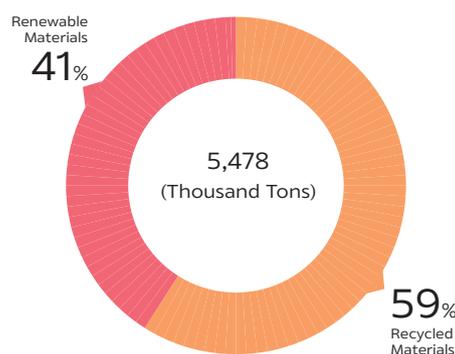
- Developing production process and innovation to reuse renewable materials and recycled materials, substituting the consumption of natural resources.
- Supplying consumers with information to create awareness of the production process and innovation that renewable materials and recycled materials, and substituting the consumption of natural resources.

2015 Performance

Proportion of Recycled Materials



Proportion of Environmentally Friendly Materials



► **SCG Cement-Building Materials** has applied the 3Rs (Reduce, Reuse, and Recycle) Principle and developed technology to create added value to waste and resources and reused them as renewable materials. For example, the cement plant utilized waste generated within and outside the plant as alternative materials, such as artificial gypsum and fly ash from power plant, along with sludge from the wastewater treatment system.

Use alternative materials from waste:

3%

- The Concrete Products and Aggregate Co., Ltd. has developed technology to promote the use of concrete waste from concrete pits in the area, starting from providing advice to customers about suitable concrete purchasing amounts that meet the needs, developing concrete separation equipment to recycled materials, improving the management for the ready mix residues in the cement trucks before dumping to concrete pits, and transforming concrete waste to alternative construction materials such as Recycled Aggregate (RA). In addition, SCG has separated rock waste residues from concrete cuttings and use as materials in new concrete production.

► **SCG Chemicals** has placed priority in the effective use of resources. For example, hydrocarbon by products from downstream production both within and outside SCG Chemicals were used as substitute raw materials in the production process (Eco Symbiosis). This reduces the consumption of raw materials and natural resources, as well as reduces greenhouse gas emissions. A new innovation was developed to combine natural materials with plastics to produce a Bio Plastic Chair, which can reduce the use of plastic pellets while maintaining its strength similar to an ordinary plastic chair. In addition, palm meal was used to mix with melamine to produce Palm Melamine Tableware. Innovation of the PET bottle has also been developed under the BIO-PET Bottle (Bio Polyethylene Terephthalate) concept by mixing 30



percent of the product component with raw materials from plants. The attributes of the bottle remain the same, and is 100 percent recyclable. In addition, it was certified in safety standards by the Food and Drug Administration (FDA).



5,200 Tons

Recycled hydrocarbon by-product from SCG Chemicals operations, equivalent to the reduction of naphtha consumption of 79,000 tons, reducing GHG emissions by 51,000 tons carbon dioxide per year



9,000 Tons

Recycled hydrocarbon by-product from companies outside SCG Chemicals, substituting main raw materials

► SCG Packaging has reused resources in the form of raw materials. We also developed innovations such as setting up bailing stations to collect and buy paper scraps and use in the Kraft paper production process, the EcoFiber Plant was established to sort and process scraps and used materials through effectively controlled production processes to produce

a high quality and environmentally friendly paper pulp under the “Green Series” brand. The paper can be made without cutting any single new tree. Also, containerboard was produced from recycled pulp and certified with environmentally friendly management in compliance with FSC standards.



Establishing 23 Bailing Stations to collect and buy paper scraps and use in Kraft paper production process

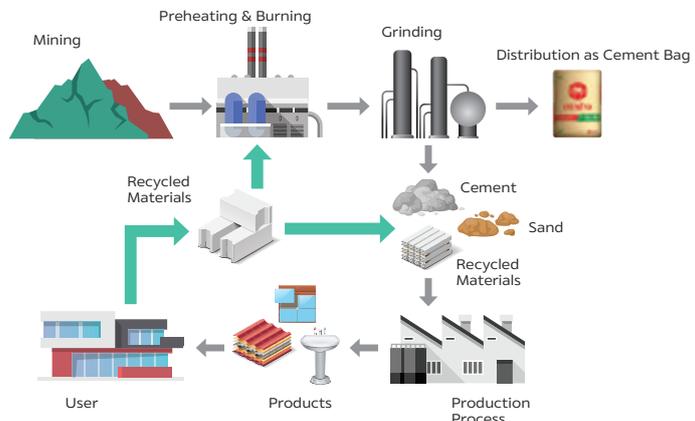


86% of total pulp came from recycled paper

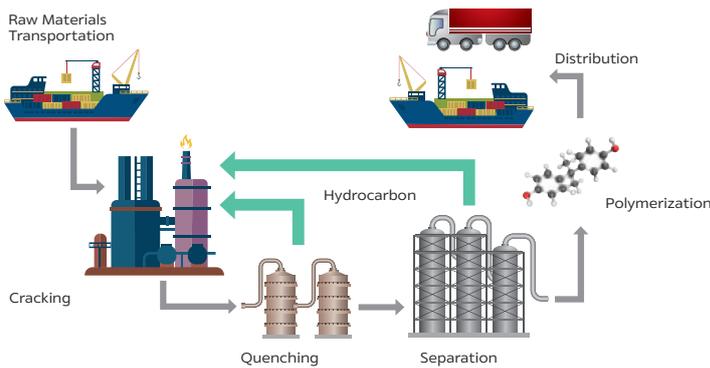


Reducing the use of virgin pulp of EcoFiber Plant by approximately 10 percent

Recycled materials in the production process of SCG Cement-Building Materials



Raw Materials Transportation



Recycled materials in the production process of SCG Chemicals

Recycled materials in the production process of SCG Packaging



Industrial Waste Management

- SCG puts importance on comprehensive waste management, having established the Waste Management Committee since 2007. The committee consists of representatives from business units and researchers to formulate strategy, measures, and controls.
- SCG promotes sustainable waste treatment by applying the principles of the 3Rs (Reduce, Reuse/Recycle, and Replenish) This approach adds value of waste throughout the

supply chain and to reduce risk of inappropriate waste treatment that might cause a negative impact on the ecosystem.

- Using industrial waste management as a significant indicator reflects on the effectiveness and production cost of SCG. The committee regularly reviews goals and procedures in an annual workshop.

Targets

- Reduce waste at sources as much as possible (Reduce at Source).
- Manage waste without sending waste to landfill (Zero Waste to Landfill).
- Reuse and recycle in order to create the highest value from waste (Waste to Value).

Development Strategies



1

Reducing waste generation at source.



2

Managing industrial waste without sending to landfill.



3

Innovative research and development to create value from waste.

1. Reducing Waste Generation at Source

• SCG has managed solid waste by following Total Quality Management (TQM), Total Productive Maintenance (TPM), and Operational Excellence to

minimize waste generation at the source throughout planning, raw material selection, and the productivity improvement processes.

2015 Performance

► SCG Chemicals

Siam Mitsui PTA Co., Ltd. has implemented a project to convert CTA (Crude Terephthalic Acid) Residue into energy. Most of the CTA Residue generated in Purified Terephthalic Acid production is of an organic compound, which is generally treated at the cement plant by burning. To achieve the goal of this project, the principle of 3Rs has been applied. The CTA residue will be treated in an Anaerobic Treatment System. All biogas produced will be used as renewable

energy in the production process. Through 2015, 900 tons of CTA residue or 58 percent of total hazardous waste has been treated, and 14,300 million BTU of energy was produced.

► SCG Packaging

Thai Cane Paper Public Company Limited has invested 130 million baht on the Sludge Dryer installation to reduce sludge, which is considered a massive waste in the paper making process.

2. Managing Industrial Waste without Sending to Landfill

• SCG is committed to enhancing waste replacement to minimize risk from waste transportation. The data from all SCG companies were gathered and classified to analyze the amount of waste that can be used as input materials or energy for other businesses. In addition, residue waste will be appropriately collected and treated at cement plants by SCI Eco Services Co., Ltd.

develop waste management technology, including the value-adding process of waste treatment technology for each condition, waste classification technology, and recycle technology, etc.

• SCG arranged the Knowledge and Technology sharing forum for waste generators and researchers from Cross BU Technology Development to study and

• In 2015, 98 percent of waste was recycled, and there was no hazardous waste sent to landfill. Since then, SCG has donated pieces of lightweight concrete, considered non-hazardous, to schools and temples for paving their grounds to strengthen community engagement. The donation accounted for 0.2 percent of non-hazardous waste to landfill.

Hazardous Waste



Non-Hazardous Waste



* Waste in the storage waiting for waste management is excluded.

3. Innovative Research and Development to Create Value from Waste

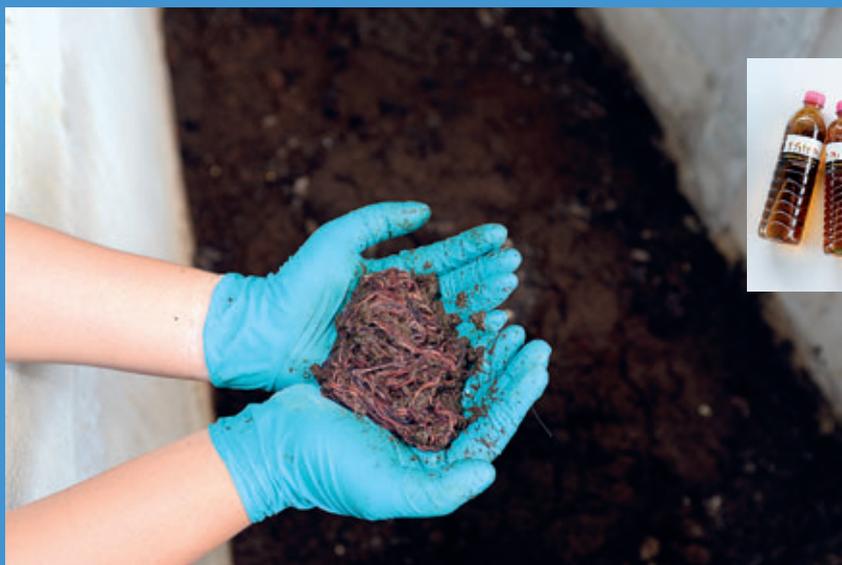
- SCG continues to invest in innovative research and development to maximize the use of industrial waste and to promote zero waste to landfill.
- SCG Cement-Building Materials has implemented the “Waste Cluster Program” to strengthen its resource management network. For example, the limestone tail from limestone mining is not suitable for cement production; it has been used to replace natural sand in concrete roof tile production at the CPAC Roof Tile Co., Ltd. and also in Siam Mortar Co., Ltd. in mortar production.
- To promote eco-friendly innovation, SCG did research on using fly ash to produce the Eco-brick. By developing the best solutions and suitable procedures, the quality of Eco-brick is better than a normal Mon brick with respect to strength and construction time. In addition, it also helps reduce the use of applied cement in plastering. Also, other residue materials such as bottom ash, slag, lime mud, or construction residue can be mixed in to produce the Eco-brick.

2015 Performance

▶ At present, 400,000 square meters are produced per year, which can utilize 18,000 tons of fly ash; this is expected to be 60,000 tons per year. This will expand employment and generate income to the community in the western part of Thailand. In addition, innovative products are estimated to generate about 100 million baht (in 2018).



Treatment of Sludge by Earthworms



Using earthworms for sludge treatment comes from SCG's attentive care to effectively treat excessive sludge from biological wastewater treatment in the petrochemical industry. The average cost of sludge treatment is 3,000 baht per ton. Based on technical, economical, and environmental dimensions, over 30 technologies have been studied and compared to find the best solution. The result shows that using earthworms give the best result under the appropriate budget. This is an eco-friendly method as the earthworms are able to digest and reduce unpleasant smells. In addition, it is a chemical-free process which consumes low energy and creates valued products in the form of earthworm casting and earthworm casting tea, in high demand from the agricultural sector.

As determined by experimentation and research with the expert from Maejo Earthworm Information Center, Chiang Mai province, the excessive sludge from SCG Chemicals wastewater treatment is a non-toxic material. All types of earthworms can safely digest this sludge. Therefore, SCG chooses local Thai earthworms because they have the best ability to digest and survive in this weather condition. Subsequently, research was carried out to find the most suitable food and condition for earthworm digestion. These have led to a comprehensive knowledge of earthworm raising procedures.

During 2012 to 2014, the pilot project of first and second worm farms were carried out in RIL industrial estate at Map Ta Phut Sub-district, Mueang District, Rayong Province, under the name of the "Learning Center of Organic Waste Management by Earthworms". These farms can treat around 80 tons of sludge per year, which accounted for 240,000 baht saved per year. In addition, over 570,000 baht had been earned per year from selling earthworm casting and earthworm casting tea to approximately 300 visitors at the center.

In 2015, this project was extended as a "Network" to the nearby community interested in raising earthworms. The community needs to accommodate a place for raising earthworms, including a self-sufficient food system. SCG Chemicals supported the project by providing earthworm breeders, building a pool for raising earthworms, and providing education for raising earthworms. This support included initiating the process, harvesting, and product processing to extending its benefit.

At present, there are six communities and 12 residences in Map Ta Phut municipality, Rayong Province, participating in this project. The knowledge of organic waste management in the residence has been widely promoted to the communities. In addition, this also enhances self-awareness of environmental protection through project implementation. The communities earn income from selling earthworm casting, earthworm casting tea for plant fertilizer, and selling vegetables grown by using earthworm casting.

SCG Chemicals has a plan to build a third worm farm in 2017, which is expected to treat sludge at 700 tons per year. The objective of this farm is to produce earthworm casting for commercial purposes. In addition, to enhance awareness of cooperative environmental protection, SCG plans to extend this network by inviting 3 communities per year and establishing networks of 30 SCG staff members who are interested in raising earthworms.

This project reflects the consistency of SCG's business philosophy of Dedication to Excellence and Concern for Social Responsibility.

Sustainable Products and Services

- Fierce market conditions resulting from competitors who achieved their potential in manufacturing products with a pricing competition has challenged SCG to focus on uniqueness in products and services that meet the real needs of customers and improve their quality of life.
- SCG is determined to develop innovative products and services that are environmentally friendly to reflect the current world and our customers' environmental awareness.
- SCG uses marketing tools that promote environmentally friendly products and services while creating sustainable business opportunities.

Targets

- Increase sales of High Value Added Products and Services (HVA) by 50 percent in revenues from sales in 2015.
- Increase sales of products and services with SCG eco value label by one third of revenue from sales in 2015.
- 100 percent of the companies implementing the Products Safety Management System pass audit in 2016.

Development Strategies



1. Develop High Value Added Products and Services

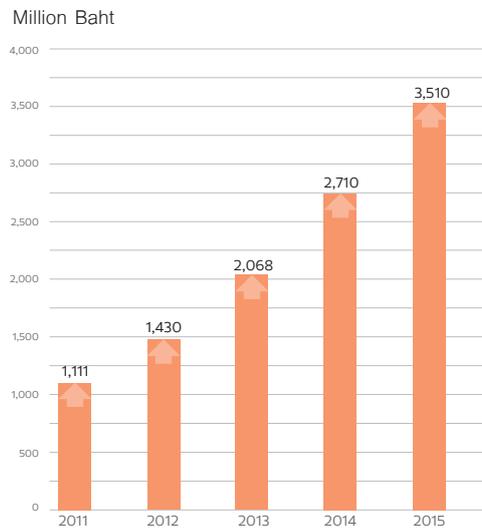
- In response to customers' increasing needs, SCG adopts research and development to commercialization processes to develop high value added products and services. This requires close collaboration among researchers and marketing experts to create products and services that meet customers' need.
- Research and development to address social changes and needs in other areas such as an aging society, hygienic medical devices, and harmless and convenient packaging.
- In order to achieve the set targets, SCG networks with researchers from universities and other research institutes.

2015 Performance

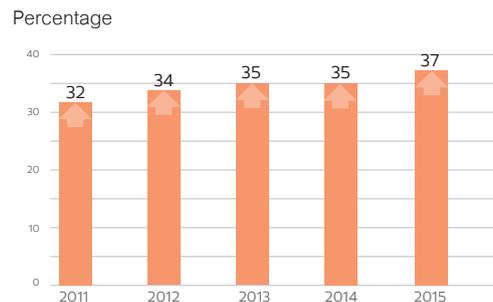
▶ With 3.51 billion baht invested in continual research and development operated by 1,629 researchers, SCG earned up to 161.85 billion baht or 37 percent of Revenue from sales from High Value Added Products and Services (HVA).

However, the set targets were not achieved. Therefore, approximately 6 billion baht is budgeted for research and development in 2016 in order to push forward more sales to achieve set targets.

Research and Development Investment



Revenue from Sales of High Value Added Products and Services (HVA)



Examples of SCG's High Value Added Products and Services (HVA)



SCG Eldercare Solution

SCG provides solutions for elderly residents with high-quality products, residential design consultation services, and on-site installation by our professional teams who truly understand what is best for elders who possess a sophisticated understanding of eldercare by working with gerontology professionals from various expertise areas.



Active AIRflow™ System

The AIRflow System is an automatic airflow and ventilation system that ventilates heat from inside and under the roof of the house. Its main power is from solar energy controlled by a Smart Mobile Application. Autoclaved aerated concrete and fiberglass are also installed, providing comfortable living and helping save energy from air conditioner usage.



Fest for Food...Safe for You

"Fest" is food grade packaging which meets hygiene and safety standards. It is made of non-bleached and non-fluorescent virgin pulp. It is produced in a closed manufacturing system in order to prevent contamination. It is high-heat resistant; with no melting nor leaking. The product includes food boxes, plates, bowls, and glasses and is certified by Good Manufacturing Practice (GMP).



Special Grade of Plastic Resin P348S: Innovation for Food Packaging

A Special Grade of plastic resin for food packaging has been developed to tolerate temperatures as low as 40 degrees Celsius. At this temperature, food freezes instantly, preserving the nutrition and taste of the food at its best level. The plastic also withstands temperatures of up to 130 degrees Celsius, making it ideal for heating food containing oil with a high boiling point.



Polyethylene Resin for High Pressure Pipe PE112

Polyethylene resins for high-pressure pipes used in natural gas distribution and mining. These special grade resins have been certified by The Plastics Industry Pipe Association of Australia and have gained wide acceptance from pipe manufacturers in various countries.

2. Develop Products and Services that are Environmentally Friendly

- SCG is self-certified for its environmentally friendly products and services under the “SCG eco value” label since 2009, in accordance with the Environmental Labels and Declarations Self-Declared Environmental Claims (ISO 14021) together with stakeholders’ requirement and Life Cycle Assessment (LCA). A Technical Team has been established to evaluate and endorse the label.
- SCG conducts surveys and reviews of the environmental care and concern of customers and uses this information for the research and development of its products and services. In addition, Life

Cycle Assessment is also conducted to improve and develop the products and services to be environmentally friendly throughout its life cycle.

- SCG establishes a consulting business under the Green Solution Business, on environmentally friendly construction and building materials based on international standards such as Leadership in Energy and Environmental Design (LEED) and green building standards from Thai Green Building Institute. This initiative is to support the development of sustainable architecture to respond to constantly changing economic and social conditions.

2015 Performance

▶ 74 products and services were certified under the SCG eco value label, contributing to 114.08 billion baht or 26 percent of revenue from sales. However, the set targets were not achieved and the number decreased from 2014 due to adjusted revenue accounting formulas and a better validation process of products and services.

▶ Labels for eco products and services that are certified by reliable national and international organizations. These labels include Green Label, Carbon Reduction Label, Carbon Footprint Label, Environment Choice Label, and EU Flower Label.



SCG eco value label
74 products



Carbon Footprint Label
88 products



Carbon Footprint Reduction Label
14 products



Carbon Reduction Label
30 products

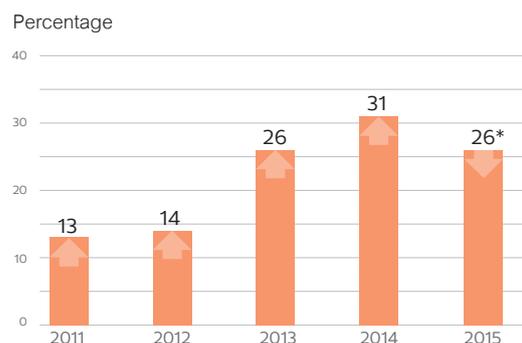


Green Label
197 products

▶ Examples of the environmentally friendly products and services include:

- COTTO sanitary wares and faucets which reduce water use by at least 20 percent;
- PVC pipe and PVC joints for water systems - the first in Thailand that is safe for health and is lead-free;
- Corrugated paperboard which reduced energy consumption in the production process by 6 percent.

Revenue from sales of SCG eco value



* adjusted revenue accounting formulas and a better validation process

Green Building



To become a prototype building and to promote its eco-products and services, SCG uses products and services that are environmentally friendly in its existing buildings as well as in its newly built building (SCG 100th Year Building.) It is certified by international standards; and the Leadership in Energy and Environmental Design (LEED) at a Platinum level. SCG places importance on the design, the selection of products and services that are environmentally friendly throughout its production processes, and the use of recycled materials with environmental and SCG eco value labels. SCG also closely monitored the construction process and disposal of waste materials to prevent any impact to the community.

The SCG 100th Year Building is a prototype building for its energy saving and environmentally friendly system, which is capable of conserving resources as follows:



Electricity saving

2,300,000 kilowatt-hour per year



Water saving

6,000,000 liters per year



Solar power

Produces 100,000 kilowatt-hour per year

Architecture

Structure

Masonry

- Q-CON Autoclaved Aerated Concrete

Steel

- SCG Reinforcing Steel Bars

Cement

- SCG Portland Cement Type 1
- CPAC Ready Mix Concrete

Thermal and Moisture Protection

Roof

- SCG Concrete Roof Tile
- SCG Ceramic Roof Tile
- SCG Fiber Cement Roof Tile
- SCG Translucent Roof Sheet

Ceiling and Wall

- SCG Smartboard Ceiling and Wall
- SCG Wood Substitutions

Heat & Sound Insulation

- SCG Thermal Insulation
- SCG Acoustic

Surface Covering

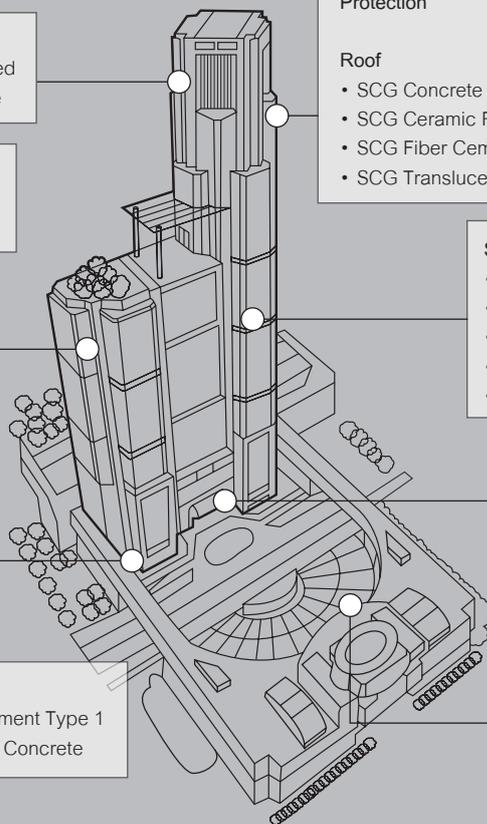
- TIGER CEMENT Multipurpose Cement
- Ceramic Tile by COTTO
- TIGER DECOR White Portland Cement Type I
- TIGER General Tile Grout
- Acid resistant Grout by COTTO

Specialties

- Sanitary Ware : Toilet by COTTO
- Faucet by COTTO
- Shower by COTTO
- Sanitary Ware : Urinal by COTTO

Turf and Grasses

- SCG Paving Block & SCG Paving Tile
- SCG Paving Block - Porous Block
- CPAC Porous Concrete
- SCG Modular Green Hive



3. Enhance Management System of Product and Service Liability

- SCG builds trust among customers that uses our products and services under the SCG brand by setting up quality assurance systems to ensure product safety, in alignment with our Product and Service Liability Standard. SCG has been implementing and developing the quality assurance system since 2009, which is applied to both existing and newly-developed products.
- Strengthen the management of product and service safety by improving the internal audit system of the area owner, which is conducted by the SCG Corporate Office to strengthen the area owner's product safety operation. This becomes a mechanism of the 1st Line of Defense that enhances internal control

effectiveness and efficiency. SCG provides training courses for internal auditors to equip them with relevant knowledge and skills necessary for being consultants and internal auditors at the corporate level. SCG also promotes the internal audit as one of the regular working processes in alignment with the company's ISO 9001.

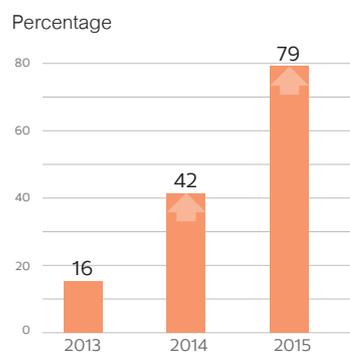
- SCG builds awareness on our product liability management standard among employees through case studies that occurred in Thailand and aboard via internal media channels namely PL Talk or seminars. This ensures that our product liability operation meets standards and that we can provide safe products to customers. It also helps build trust in SCG products.

2015 Performance

▶ SCG Corporate Office has continually monitored and assessed product and service liability in all business units through assessment programs since 2013. Up until today, the assessment accounted for 79 percent of business units that implemented the system.

▶ In order to expand the assessment program to corporate level so that self-assessment could be conducted, the corporate offices provided courses for internal auditors in 93 percent of the systemized companies (66 companies and 4 departments). Currently, SCG has 976 auditors in total. Many companies now can conduct a self-assessment, and it is anticipated that all of the remaining companies will also be able to conduct a self-assessment by 2016.

Percentage of assessed company



Customer Relationship Management

- SCG recognizes our existence in an interdependent society, relying on one another in the face of current changes such as rapid population growth, urban migration, environmental problems, and resource scarcity. A significant challenge is an economy that shrinks and grows at a very low rate, resulting in fierce competition. Accordingly, business sectors and the manufacturing industry should concentrate on producing valued products and services that are able to respond to diverse and growing customers' needs in the long-term, and in a sustainable manner.
- SCG uses Customer Relationship Management (CRM) as a strategy to build long-term relationships with its customers, learn about different customers' needs, and respond with products and services that are most suited to the individual.
- SCG categorizes its customers into two groups: Business-to-Business group, and Business-to-Consumer group in order to reach through to each group and respond to their individual needs.

Targets

- Offer direct experience for each product and service to maximize customer satisfaction by developing work processes and products to respond to customer needs, including by providing technical services to improve the efficiency of customers' production processes so that SCG can be accepted as a part of its customers' business management.
- Increase revenue from retention of SCG customers and help to decrease the cost of acquiring for new customers.

Development Strategies



1

Building engagement with customers in a Business-to-Business group.

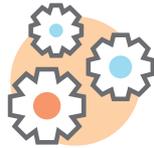


2

Building engagement with customers in a Business-to-Consumer group.

1. Building Engagement with Customers in a Business-to-Business Group

- Give precedence to customers by focusing on building long-term relationships. Levels of customer engagement are separated into four components:



1. Manufacturing Process Improvement

Give advice and help to improve the efficiency of customers' manufacturing processes by decreasing costs, lessening product and machine damage, and upgrading product quality.



2. Maintenance Consultation

In cases where there is damage to any part of the production process, SCG will send a maintenance team to investigate, repair, and provide consulting on maintenance guidelines for long-term efficiency.



3. Production Process Development to Achieve Thai Industrial Standards (TIS) Certification

Assist in developing production processes that meet TIS certification standards, which are considered necessary in building trust for customers and increasing sales opportunities.



4. Building Trust in the Brand

Extend trust in SCG's certification of Elephant Brand Cement, which is high quality, trustworthy, and well-accepted in the market, to its customers in their standardized production processes. This enables customers to make decisions in terms of product selection.

▶ Single Window offers customers the convenience of buying products and services from different groups through one single channel. SCG has developed its human resources to efficiently coordinate both internal and external Single Window servicing. In 2015, we serviced 19 key account groups.

▶ Business Review supports our customers by offering and exchanging useful information, cooperative strategies, exchanging business information, combining values of products, and

services for the benefits of business collaboration. Operating performance is monitored closely by SCG executives. In 2015, SCG supported and followed-up with 15 customers who shared multiple products such as a roofing system, wall system, and environmentally friendly products.

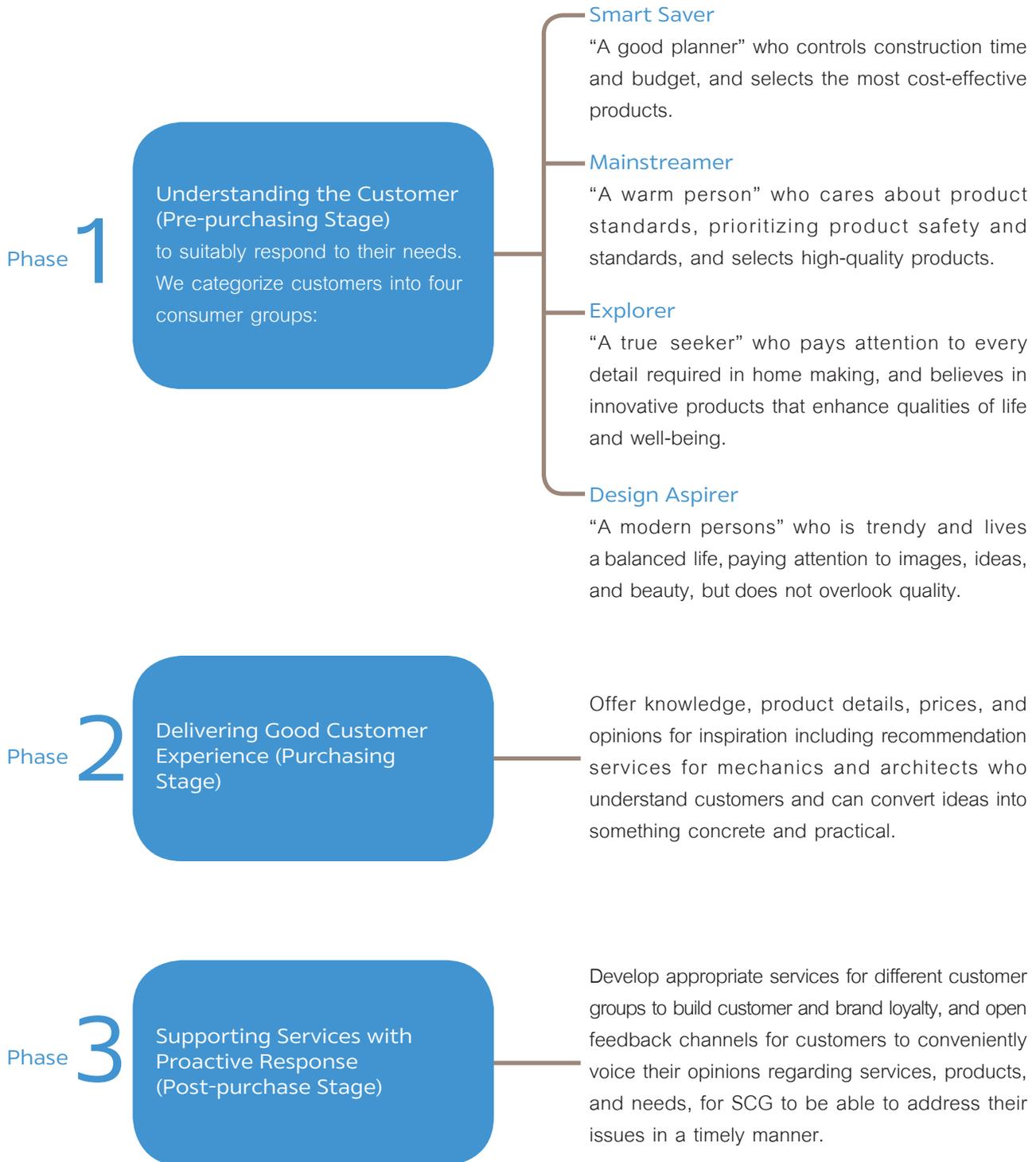
▶ Co-Creation focuses on developing innovations for the benefit of end users by developing SCG products with customers, such as developing Active Airflow™ used in projects by Property Perfect Public Company Limited.

2. Building Engagement with Customers in a Business-to-Consumer Group

• The majority customers of SCG's Business-to-Consumer group are in construction materials products and services. SCG concentrates on building Customer Experience Management, including providing professional consultations and knowledge to customers from initial product use to maintenance, throughout its entire life cycle.



- To build the experiences that directly relate to our customers, our Customer Relationship Management strategy consists of three phases.



▶ Customer Satisfaction Survey score increased from 96 percent in 2014 to 99 percent in 2015, determined from Post-call Surveys within 48 hours after customers used SCG Contact Centers.

▶ Digital Marketing through internet and online networks is a new marketing technology employed by SCG. In 2015, web traffic included 2,097,276 users. SCG's Digital Marketing Strategy is carried out through three channels:



Content Marketing

Focusing on useful content for customers such as home construction knowledge, home repair and renovation tips to deliver greater benefits to customers and build SCG brand loyalty.



E-mail Marketing

Using email to publicize information for target groups.



Content Management System

Storing different product information in a standardized manner, to ensure that there is accuracy in communication across various channels.

▶ Architect Consult Service offers consultancy services to customers by expert architects for all aspects of home-related issues, from ideas and inspiration, construction process, precaution points, and solutions. Architect Consult Service also includes matching architect that fit customers' needs. For convenience, the appointment can be made through various channels, including phone reservation, online booking prior to the consultation

session at SCG Experience store, or customers may choose to consult online Face-to-Face calls or by sending their inquiries via email.

In addition, SCG's website features "Architect blogs" written by SCG Experience specialized architects. Customers can exchange and ask for information on this website. In 2015, more than 2,500 customers used Architect Consult services.



▶ SCG HOME SOLUTION is a servicing and retailing center for the entire construction materials products and services of SCG. It offers innovations in systematic construction materials from structures, roofs, walls, bathroom, kitchen, ceiling, flooring, and external landscaping, including complete services of SCG experts. The experts provide consultancy in material selection and product functions that directly respond to customer's home building needs. We further offer room design with 3D perspective, price estimation to control construction budgeting, and installation by professional builders with guarantee. In addition, we have SCG Eldercare Solution, which is innovations and ideas to prepare living spaces for elders with a focus on safety, convenience, and well-being.

Currently, there are 40 SCG HOME SOLUTION stores nation-wide. To build a strong long-term relationship between customers and SCG HOME SOLUTION, we offer a Family Card for homeowners

to receive benefits when buying or using SCG HOME SOLUTION services, including benefits to participate in activities organized by SCG HOME SOLUTION. At present, there are approximately 13,000 members.

▶ SCG Contact Center is a channel for customers to contact and inquire about product information and shop services. The center can be reached by phone, fax, email, and live chat. In 2015, users used the channels for a total of 67,312 times.



Engagement Building through Opinion Panel

In 2015, SCG organized an opinion panel on Customer Care and Relationship Management to gather and understand customers' expectations, as well as thoughts and ideas from experts on CRM. In this way, SCG will use the feedback to develop its business in compliance to current situations and future business direction.

“

The word 'value' for customers is sometimes different from how the organization defines it. This might result in a management and working approach that may not really create value and respond to customers' needs.

”



Associate Professor Dr. Chadchart Sittipunt
President and Director
Quality Houses Public Company Limited

“

Sustainable CRM Operations is not only about building relationships between SCG and its customers, but should include encouraging customers to perceive something greater than the value that they are receiving – to think of others, and to apply common values for society and the environment. This is truly building sustainable growth.

”



Associate Professor Dr. Krittinee Nuttavuthisit
Lecturer, Marketing Faculty
Sasin Graduate Institute of Business
Administration of Chulalongkorn University

Create Sustainable Value towards Supplier

- SCG builds the capacity of its suppliers and enhances their professionalism, competitiveness, as well as their environmental responsibility to achieve mutual growth following the sustainable development framework.
- SCG reduces its risks by lessening dependency on suppliers who offer critical raw material on a limited number, as well as suppliers who do not comply with environmental and safety laws and regulations, as it would affect SCG's reputation and could result in business disruption.
- Over 8,000 suppliers and contractors are diversified small and medium-sized enterprises with limited financial and human resources, as well as lack the know-how to adapt them to comply with relevant laws and regulations. SCG has put in place a development strategy by outlining guidelines, conducting assessment, and enhancing capabilities appropriate for diverse suppliers following the SCG Code of Conduct. A co-development method is sought for balanced competitiveness based on a sustainable development framework.

Targets

- All suppliers shall demonstrate its commitment by complying with the SCG Supplier Code of Conduct.
- All suppliers that provide products and services according to the green procurement criteria shall be assessed and registered on the green procurement list.
- All contractors in the production process shall be assessed and certified under the SCG Contractor Safety Certification System.

Development Strategies



1 Supplier segmentation.



2 Uplifting suppliers' capability.



3 Supplier development for sustainability.

1. Supplier Segmentation

- Conduct spend analysis to assess the production and services procurement that have direct and indirect impact on the production process in order to strategize the management of diverse suppliers with the aim to increase efficiency and reduce risks in the supply chain.
- Prioritize suppliers in order to appropriately manage them by level of impact on business operations (e.g. purchasing volume or bargaining power and risks regarding business, labor, safety, society, and the environmental management).
- Categorize suppliers into two groups: namely, the General Supplier group covering manufacturers, traders, and service providers; and the Critical Supplier group covering suppliers that are critical to SCG business. SCG has long-term, co-creation plans for these critical suppliers.

2015 Performance

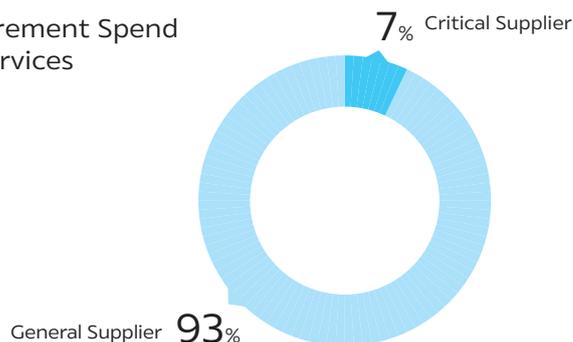
Supplier Risk Assessment

In order to develop the supply chain sustainably, SCG has utilized the spend analysis in assessing and prioritizing risks and impact on SCG business operations in various aspects covering economic aspects (e.g., value of procurement spend, fairness, risks to brand reputation), environmental aspects (e.g., water management, waste management, resource management), and social aspects (e.g., labor management, health and safety, compliance with the laws and regulations). The result of the assessment is used for grouping suppliers and contractors, which is necessary for strategizing and planning supplier development going forward.



Proportion of Supplier's Risk on Each Aspect

Proportion of Procurement Spend on Products and Services



2. Uplifting Suppliers' Capability

SCG Supplier Code of Conduct

- Develop a "SCG Supplier Code of Conduct" that guides suppliers on operating a business based on ethics, respect to rights and freedom, labor management and respect to human rights, management of occupational health, safety and environment, as well as compliance with internationally accepted laws and regulations. SCG will support suppliers so that mutual growth can be achieved.

- SCG selects new suppliers by considering their commitment to complying with SCG policies and readiness to endorse the SCG Supplier Code of Conduct.

2015 Performance

- ▶ A total of 5,292 suppliers voluntarily signed to comply with the SCG Supplier Code of Conduct.
- ▶ In 2015, SCG mandated that all 823 new suppliers sign the SCG Supplier Code of Conduct.

SCG Contractor Safety Certification System

- The SCG Contractor Safety Certification System (SCS) was developed in 2006 to enhance effectiveness in safety performance to prevent and reduce contractor accidents. SCG has been supporting contractors through education, advisory, assessment, and certification. The

certification system covers the criteria on compliance to safety regulations, safety management, proactive and responsive management of accident risks, as well as employee safety engagement. The safety team at each SCG business is responsible for the assessment and verification.

2015 Performance

- ▶ All **453** contractors in the production process are certified under the SCG Contractor Safety Certification System covering more than **29,000** contractor staff.

Contractor's Incident Rate and Number of Contractor Certified under SCS



Green Procurement

- SCG will source products from suppliers who comply with the green label or SCG green procurement criteria comprising regulatory compliance, a green manufactory process efficient use of energy and nature resources, waste management, and material recycling and reuse. SCG provides advice and assesses conformity under the “Greening the Supply Chain” with the aim to prepare suppliers on knowledge and personnel, especially small and medium-sized suppliers.
- Register suppliers and their products that comply with the SCG green procurement criteria and regularly conduct assessment of registered suppliers and products to ensure the standards in green procurement.
- Develop and add more green procurement criteria for products that are significant to the business.
- Develop a capacity building plan for the procurement staff so that they understand the green procurement framework and are able to provide primary advice to suppliers.
- Apart from the guideline developed by the related functions, SCG also set the assessment system conducted by the Audit Department, including the assessment on compliance with the green procurement policy and assessment on the endorsement of and compliance with the SCG Supplier Code of Conduct. This is to ensure continuous improvement as well as the implementation of a sustainable development mechanism throughout the organization.

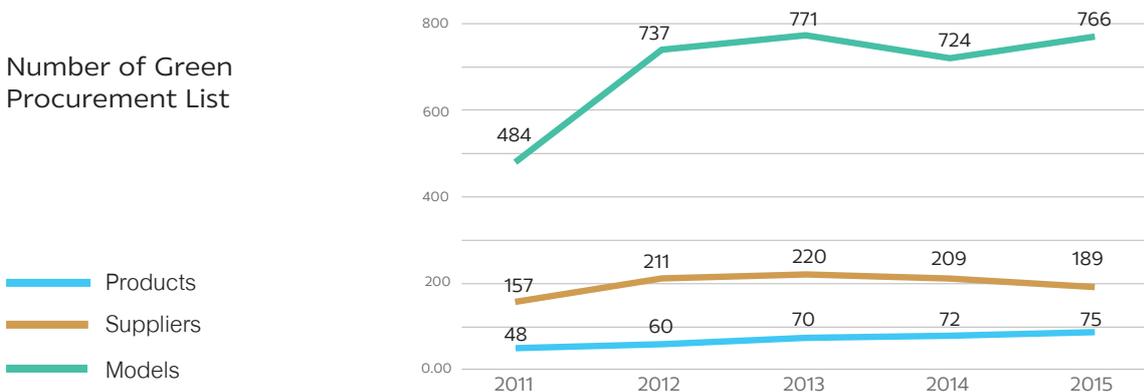
2015 Performance

▶ A total of **189** suppliers are registered in the green procurement list, covering **75** products and accounting for **9.84** billion baht of green purchasing volume.

Green Procurement Product Status

	 Office and General Items	 Raw Materials	 Supply Materials	 Spare Parts
Products	29	23	19	4
Suppliers	56	74	48	11
Models	532	127	94	13

Number of Green Procurement List



Assessment for Carriers

• SCG Logistics annually assesses carriers following the SCG safety standards in order to enhance effectiveness in delivery services, safety and environmental management, as well as in customer and social satisfaction. The assessment also allows SCG to award carriers from spot hire

carriers to regular carriers. The topics under the assessment include Driver Management, Safety Management, Vehicle Management, Journey Management, Organization Management, and Customer Service.

2015 Performance

► All 121 regular carriers were assessed.



Green Industry

SCG participated in the “Green Industry Award” by the Ministry of Industry, which encouraged the industrial sector to operate in a green business in a socially responsible manner, both within and outside the organization throughout the supply chain. The Ministry of Industry developed the 5-level green industry as follows:



Efforts in continuously conducting sustainable business in an environmentally responsible manner result in all SCG cement companies in Thailand and Map Ta Phut Olefins Co., Ltd. receiving Green Industry Level 5: Green Network Awards from Ministry of Industry. This means that SCG has an environmental management system and has created organizational culture, which was expanded to networks in the supply chain. SCG has supported suppliers in achieving at least Green Industry Level 2. Currently, 149 suppliers have been awarded above Green Industry Level 2.

3. Supplier Development for Sustainability

- In order to create prototypes and case studies for suppliers to adopt a sustainable development approach concretely, SCG has chosen a number of suppliers to participate in the supplier development for sustainability project. Under this project, SCG provides consultation in development and creates a learning process by applying the problem-solving concept (QC Story) as a tool to develop suppliers and selects projects that directly have significant impact to the business, such as waste reduction, energy consumption reduction and management, quality problem solving, productivity improvement, and inventory and logistics system development projects.
- The success of the supplier development for sustainability project requires trust and mutual agreement on the long-term benefits while risks are contingent upon confidential business information and potential future conflict of business interest.
- In 2016, SCG has a plan to continually develop suppliers towards sustainability in order to expand from prototype suppliers to other critical suppliers and to streamline the development process so that the suppliers can replicate by themselves.

2015 Performance

▶ A total of **21** suppliers participated in the supplier development for a sustainability project, of which **15** suppliers completed the project and **6** suppliers are capable to further develop by themselves.



▶ During the project on model development for controlling the efficient production process and energy management by Formosa Organic Chemicals Co., Ltd. it was found that the data collection on energy consumption was problematic and cause cannot be identified, so the company could not achieve the key performance indicators (KPIs). The company then designed the data collection and analysis system in order to analyze the machines and the processes that are significant to the production. This led to a 6.5 percent reduction of steam consumption and 17.5 percent reduction of production time. The system also allows the company to better calculate the cost of production in each grade.



“

We have highly experienced and knowledgeable persons providing us advice, accelerating the problem solving process and pointing out to us what we have not done correctly or have not done. Apart from understanding the standard requirements and cost reduction, we also gain knowledge that can be used with other products. We are able to set and strengthen KPIs by ourselves. If SCG has to create a concept to help all suppliers, they will be developed to the next level in a short time.

”



Nartravee Wongpawapak,
Management Executive,
Formosa Organic Chemicals Co., Ltd.

► During the project created to reduce the error in product management of M.J. Bangkok Valve & Fitting Co., Ltd., it was found that the inventory management and product delivery had some errors. The company then collected data and analyzed the

error and used the findings to improve the operation, which included the improvement in documentation, inventory management, and site renovation. The error was reduced by 60 percent.



Chakorn Athikomchakorn,
Vice President Sales and Marketing,
M.J. Bangkok Valve & Fitting Co., Ltd.

“

We have long been wanting to improve. SCG contacted us and invited us to join the program and sent their experts to assist us.

We thus launched the project to reduce the error in product management. At first we thought that there might only be a few errors, but after collecting the data as suggested, we found that there were many areas we could improve. This project is the model for us to replicate in areas we think should further develop. Thank you, SCG, for providing us the opportunity to join in this program.

”

SCG helps suppliers solve problems in producing lime

Golden Lime Public Company Limited, located at 61 Moo 1 Phaholyothin Road, Na Phralarn Sub-district, Chaloeam Phra Kiat District, Saraburi Province has produced lime for SCG's paper production since 2008. The supplier found that coal consumption had been increasing while the products remain at the same level. The project to reduce energy consumption and control the quality of lime was then launched with an expert team from SCG serving as consultant to the project. The project thus allowed the supplier to find the root cause by collecting and analyzing data and creating a statistic model to show the correlation of production factors. It was found that fuel moisture, quality of raw materials, and management of pressure and temperature in the production process are the main factors. The supplier then used the result from the model to improve and control those factors for production efficiency. This resulted in 20 percent reduction of fuel consumption and higher lime quality.

The project covered the period of 9 months, allowing the supplier to learn about the correct and complete data collection and analysis. It also allowed the supplier to continuously develop its personnel, enabling them to expand the project by themselves.



Biodiversity and Ecosystem

• In SCG’s business operations, some activities may potentially affect the ecosystem or biodiversity, such as quarrying, materials sourcing, and fibrous producing. SCG assigns all businesses to integrate sustainable biodiversity management principles in its operations in order to build trust to all stakeholders.

• SCG is determined to serve as a role model in operating businesses in alignment with biodiversity conservation. External parties are welcome to visit our operations and gain knowledge that could enhance the contribution of society in biodiversity conservation.

Targets

- Implement eco-friendly quarry activities throughout the project’s lifetime.
- Conserve biodiversity in the area by building cooperation networks with all stakeholders.
- Operate business activities in conformance with the sustainable forest management system and certification for eucalyptus forest areas according to the Forest Stewardship Council (FSC).
- Operate business activities in compliance with the World Business Council for Sustainable Development-Cement Sustainability Initiative (WBCSD-CSI).

Development Strategies



1

Establishing biodiversity conservation framework and rehabilitation plans to cover all limestone quarry sites.



2

Developing collaboration networks with stakeholders and experts to create biodiversity conservation models that appropriately fit with each individual area.



3

Operating business in compliance with international standards of sustainable biodiversity management.

1. Establishing Biodiversity Conservation Framework and Rehabilitation Plans to Cover All Limestone Quarry Sites

- In implementing eco-friendly activities throughout the quarry project consideration is made for biodiversity conservation at every stage - from design, planning, quarrying, and rehabilitation - to eventually reconditioning the area after closing the project. This principle applies to all of the company's quarry projects areas domestically and internationally.
- Biodiversity conservation in limestone quarry areas can be divided into three phases.
- Aim to establish a quarry rehabilitation framework with principles of forest restoration, a selection of local plant species, framework species method, biodiversity management and with the integration of mining engineering technology.

Phase 1

Survey and develop Biodiversity Baseline Data for each area individually. These data are important for quarry rehabilitation plan.



Phase 2

Study specific data of local plant species to develop a plan for the preparation of local seedlings used in planting and determine key indicators to measure the success of the quarry rehabilitation.



Phase 3

Study the relationship between local plant species and animals in each quarry area to establish a quarry rehabilitation plan for an ecosystem food chain restoration.



- The implementation after phase 3 is an Ecosystem Services Review (ESR). The main objective of ESR is to ensure that eco-friendly quarry activities will provide a positive impact in the value chain including society, community, and environment.



2015 Performance

► Quarry rehabilitation plans were implemented in nearly 100 percent of all identified areas as planned. All areas were at phase 3 where local plants such as fast-growing local plants and trees were planted with an 85 percent of survival rate; thereby achieving the target.

► The Biodiversity Index according to the Shannon Index and Similarity Index were used to monitor and analyze the success of biodiversity conservation, compared to the original condition of the forest prior to the quarry project development. For the Siam Cement (Thung Song) Co., Ltd. quarry, it has a Similarity Index of around 55 to 60 percent, as close to its original condition and based on the number of plant species found, whether planted or naturally grown.



2. Developing Collaboration Networks with Stakeholders and Experts to Create a Biodiversity Conservation Models that Appropriately Fit with Each Individual Area

- As the biodiversity conditions in each area are specific and unique, SCG develops collaboration networks with stakeholders in each area and experts in different fields to create conservation models that fit with each local context.
- Support communities to engage in biodiversity conservation in order to raise awareness of local resources protection.

2015 Performance

► **SCG Cement-Building Materials** implemented the following projects:

- The development of cooperation networks with academic institutions in every region where a quarry project is located, such as Kasetsart University for the limestone quarry areas of Saraburi Province (central region), Chiang Mai University in the limestone quarry area of Lampang Province (northern region), and Prince of Songkla University in the limestone quarry area of Nakorn Si Thammarat Province (southern region).

- Implementation of “The Tonkla Noi Koi Sang Pah Project” (the planting of seedlings for quarry rehabilitation) in collaboration with schools within quarry areas in order to build awareness and cooperation in forest conservation among the youth.

- Establishment of Biodiversity and Rehabilitation Learning Centers in all limestone areas where a quarry

is located, to educate the community and those who are interested. Currently, there are four Biodiversity and Rehabilitation Learning Centers in all regions. Furthermore, 2015 practices of quarry rehabilitation and biodiversity conservation were applied to quarry areas in Cambodia as the first implementation in ASEAN.



► **SCG Chemicals** implemented various projects in Rayong Province by:

- Initiating a community environmental development fund for sustainability in order to help communities efficiently manage local resources, thereby creating income for the community, and creating transparency in management.

- Working in collaboration with communities and government agencies in the Khao Yai Da area to develop an eco-learning center. The center focuses on studying nature at the Eastern Coast Watershed Research Station, thereby creating local knowledge at Wat Yai Da School, an environment and herbal garden at Moo. 14, Ta Pong Sub-district, and a self-sufficient economy at Moo. 3, Ta Pong Sub-district.

- Collaborating with Wat Ta Pong Nok School and Wat Yai Da School, located near Khao Yai Da, to formulate scientific information to develop a local curriculum in elementary and middle schools.

- Initiating the “The Khao Yai Da Young Guide Project” in collaboration with Wat Yai Da School in order to promote local youth skills in guiding and utilizing free time usefully.

- Working in collaboration with the Thailand Research Fund (TRF) to support surrounding communities in Khao Yai Da area in the research projects for local issues solutions.

- Working in collaboration with the Faculty of Forestry, Kasetsart University, to survey biodiversity in aspects of wild animals, birds, insects, and plants in the Khao Yai Da area.

- Implementing the “The Hat Ngam Ta Pla Klab Baan Project”(A Fish Home Return Project) in collaboration with fishery groups in Rayong and Chonburi Provinces and the Office of Marine and Coastal Resources Centers 1 and 2 to use PVC pipes as a fish nursery and increase coastal fishery sources.

▶ **SCG Packaging** implemented the following projects in the community forest of Huay Saphan Samakee village in Phanom Tuan District, Kanchanaburi Province by:

- Collaborating with the Bird Conservation Society of Thailand to conduct birdwatching training for the youth.
- Working in collaboration with biodiversity experts from Kasetsart University to survey community forests and give advice on planting local species to enhance

the abundance of forests.

- Working in collaboration with the Royal Forest Department to grow local trees in order to conserve plant genetic features.
- Working in collaboration with communities and Nong Rong Sub-district Administrative Organization (SAO), Kanchanaburi Province to control invasive alien plant species.
- Constructing check dams in collaboration with Mahidol University, Kanchanaburi Province.



3. Operating Business in Compliance With International Standards of Sustainable Biodiversity Management

- SCG Cement-Building Materials has operated in compliance with the guidelines of WBCSD-CSI, meeting the level of leading cement producers at international level.



Guidance for Quarry Rehabilitation



Biodiversity Management Plan Guidance



Communication and Stakeholder Involvement, Guidebook for Cement Facilities

- SCG Packaging has conducted research and developed fast-growing and less water consuming eucalyptus species which supported forest planting as a viable job, which created a stable income for local farmers and reduced deforestation. Moreover, SCG Packaging has supported the planting of eucalyptus as community forests in areas such as vacant lots, along fencing lines, canal banks, ridges, and areas surrounding agricultural projects. The project has been implemented as Contract Farming in many regions: western, central, lower-northern, and north-eastern. Farmer memberships receive advice and monitoring from the beginning of plantation to the harvest period.

- SCG Packaging operates according to the standards of the Forest Stewardship Council (FSC) by cooperating with the Royal Forest Department, academic scholars from universities, Sub-district Administrative Organizations (SAO), Community Forest Committee, and relevant stakeholders.

SCG Packaging has requested the certification of eucalyptus forests according to FSC standards. In order to be confident in the quality of the eucalyptus trees used, the company also supports farmers to be certified for their own eucalyptus forest, according to the plantation and management standards of FSC.

2015 Performance

- ▶ **SCG Cement-Building Materials** conducted master plans for quarry area rehabilitation and initiated a quarry rehabilitation funding program in all four limestone quarries in line with WBCSD-CSI. SCG's quarry area rehabilitation had been extended to comply with sustainable biodiversity management policy in cooperation with experts to study and prepare for the development of a Biodiversity Management Plan. The plan was to determine the direction of biodiversity conservation in each area and the ability to sustain itself naturally. The pilot projects were implemented in all four quarry areas.

- ▶ **SCG Packaging** supported and developed resources to replace woods in natural forests. The forest areas were not located in the conservation areas. In addition, Geographic Information System (GIS) is applied in the survey of members' plantation areas, their own forest, and SCG's planting forest.

- ▶ **SCG Packaging's** 25,000 rais in Kanchanaburi, Ratchaburi, and Kamphaeng Phet Provinces were certified in planting and management in alignment with FSC standards. This certification proved that SCG Packaging operated according to standards in natural resource sustainable management.



Community Involvement

- SCG is committed to foster the growth of both economic and social development in all areas where it operates, as well as to prevent environmental impact and recognizing the value of resources under the philosophy of “adherence to social responsibility.” Given that communities are the most important components of society, caring for communities and societies are fundamental features of SCG’s approach to sustainable development.
- The “SCG Sustainable Development Committee” has the responsibility of overseeing projects related to communities surrounding manufacturing areas, while the “CSR Committee for Sustainable Development” supervises CSR policy and direction, and has

a responsibility in addressing wider corporate social responsibility and impact. Additionally, the “SCG Foundation” has a key mission in human resources development, equipping people with the competencies and good ethics that will enable them to become forces for national development.

- To genuinely respond to community needs and expectations, SCG has set a clear direction for community projects – ensuring the highest levels of efficiency in project implementation and achievement of objectives. Projects are characterized according to four different groups: Leadership, Advance, Engagement, and Commitment.

Targets

- To enhance and develop community and society capacities for a secure and sustainable growth by leveraging SCG’s competencies in various fields to engage with different facets of society and enhance their overall quality of life.
-

Development Strategies



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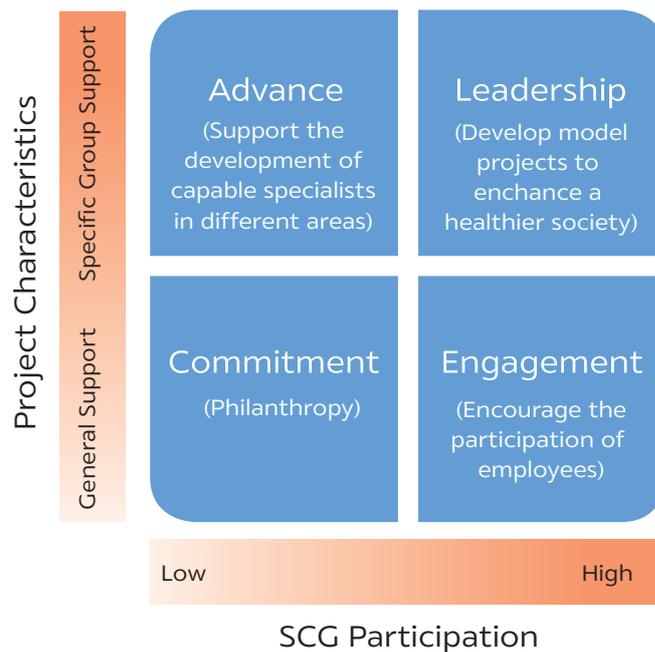
1 Developing model projects for sustainable development through community and relevant stakeholder engagement.
- 

2 Promoting capacity building for society through specialized agents.
- 

3 Encouraging SCG’s employees to engage in social projects and expand to other stakeholder segments.
- 

4 Assisting the alleviation of community issues and enhancement of livelihoods.

SCG CSR Strategy



1. Developing Model Projects for Sustainable Development through Community and Relevant Stakeholder Engagement

- Initiate and develop model projects to address national issues by building up engagement and cooperation with community and stakeholders, including investors and private sectors. This partnership model is aimed at promoting better living in the community.

SCG Conserving Water for Tomorrow Project

- The project aims to conserve and restore water resources by supporting the construction of check dams by communities. Installing check dams not only leads to the restoration of healthy forest ecosystems, but also allows communities to have a secure year-round water supply, improve their livelihoods, and become models for other communities.
- The project has expanded into new activities, such as forest fire prevention, development of a mountain water supply, and founding of community enterprises such as production of rice seeds, organic soil, and herbs for detoxification. Some communities were able to develop a “Satanee Plook Khid Pun Sukh,” a Community Learning Center that serves as a resource for learning about sustainable and resilient communities.
- Research and development for the project emerged as a result of a collaborative network between various research institutions, including Kasetsart University; Mahidol University, Kanchanaburi Campus; Chiang Mai University; Agricultural Technology Institute of the Rajamangala University of Technology Lanna, Lampang Campus; National Science and Technology Development Agency; and the Thailand Research Fund.

2015 Performance

► 2007-2015 Performance



A total of 68,445 check dams were constructed, and 3,005 dams constructed in 2015.



80 communities in 12 provinces participated in the project, i.e. Lampang, Chiang Mai, Lamphun, Phrae, Nan, Chiang Rai, Kanchanaburi, Ratchaburi, Saraburi, Khon Kaen, Rayong, and Nakhon Si Thammarat.



More than 210,000 rai of community forest was preserved.

► In areas surrounding The Siam Cement (Lampang) Co., Ltd., seven communities were equipped with the capacity to solve drought and flooding problems. Furthermore, 17 community enterprises were created and two Community Learning Centers were established, leading to income generation of more than 1 million baht from visitors to the centers and sales of community products.

► In 2015, the National Identity Committee of the Office of the Permanent Secretary, Prime Minister's Office, recognized the "SCG Conserving Water for Tomorrow Project" as an outstanding project in natural resources and environmental conservation.



The Innovative Technology for Remediation of Saline Land Project

• SCG, in collaboration with the National Center for Genetic Engineering and Biotechnology and the Land Development Department, developed a method to rehabilitate saline soil, an issue that impacts agriculture in the northeastern part of the country. Research and development focused on developing rice, vegetable, and fruit strains that are resistant to salinity, as well as saline-resistant crops to be planted on farm dikes to reduce the spread of saline soil.

• Between 2008 and 2014, the project underwent Phases 1 and 2 for communities with moderate levels of soil salinity. The success led to the establishment of 70 Farmer Skill Centers in 17 provinces of the northeastern region, and the development of high-value agriculture, such as mushroom cultivation, fruit and vegetable plantations, and product processing.

2015 Performance

► The project is currently in Phase 3 (2014- 2017), focusing on restoring land with extreme salinity in communities in Ban Dung District, Udon Thani Province, and Ban Muang District, Sakon Nakhon Province. The project has effectively reduced the salinity level from 4 percent to 2 percent, and further conducted studies on factors to growing quality jasmine rice in moderately saline soil.



Pristine Beach: Bringing the Fish Back Home Project

- Since 2000, SCG Chemicals Co., Ltd. collaborated with coastal communities, government institutions, and operators in coastal communities of Rayong to develop an awareness-raising project on trash collection and beach conservation, to retain its beauty, safety, reduce trash in the ocean, and preserve beach tourism as a source of income for communities.
- SCG Chemicals collaborated with Office of Marine and Coastal Resources Conservation, Rayong, and local fishing communities to assemble an “Artificial Fish Home” made from PE100 Pipes, to help restore and preserve marine ecosystems, to serve as a resource for eco-fishing, and to instill a sense of responsibility in conserving marine resources amongst citizens.

2015 Performance

- ▶ 4,500 participants engaged in beach restoration activities, resulting in more than 24 tons of trash collected.
- ▶ Conservation networks drew participation of more than 1,000 local people in 23 areas of Rayong and Chonburi Provinces.
- ▶ The Artificial Fish Home helps expand territory of around 1,600 square meters undersea to serve as nurseries for small ocean creatures, which led to the habitation of fish used for commercial purposes, such

as yellow-stripe scad, grouper, perch, and mullet. The project generated 10 percent more income for local fishing communities compared to income before its implementation.



Community Partnership Association, Cement Partnership Initiative Project and Community Partnership Project

- “The Community Partnership Association” is a collaboration between operators with facilities in Map Ta Phut Industrial Estate, which include SCG, PTT Group, BLCP Power Co., Ltd., Dow Chemical Thailand Co., Ltd., and Glow Energy Public Company Limited, with the joint mission to enforce rigorous health, safety, and environment standards and enhance the quality of life for the people of Rayong. At present, more than 16 members are part of the association, and activities have been implemented in 68 communities, in six sub-districts of Rayong Province.
- SCG built upon the partnership model and replicated its success in the cement production sector in Saraburi Province by establishing the “Cement Partnership Initiative Project.” The partnership, at present consisting of three members, established the mission to develop environmentally friendly cement production factories whilst making sure to preserve the quality of life for Saraburi residents. Outside these two provinces, nine operators in Nakhon Luang District, Phra Nakhon Si Ayutthaya Province, adopted the same concept in improving the harbor system and transportation in the coal industry to ensure compliance with environmental standards and the building of a good quality of life for communities surrounding operations under the name of “Community Partnership Project”.

2015 Performance

- ▶ The Community Partnership Association has delivered results in various areas, as follows:
 - 33 factories received Eco-Factory certifications from the Federation of Thai Industries due to elevation of member performance.
 - Health: Organized mobile medical units for 96 communities and awarded 440 nursing college scholarships between 2011 and 2015. In 2015, 200 nursing students from the first class graduated and were employed in 7 hospitals throughout Rayong Province.

- Education: Awarded 97 scholarships up to Bachelor degrees between 2011 and 2015; hosted a “Tutor Session” for 2,500 students to get preparedness for university entrance exams; organized an “Education Expo” to broaden vision on education to students and guardians.

- Career Development: Promoted the formation of a community enterprise for banana processing with the support of the Thammasat Business School, generating more than 100,000 baht in additional monthly income for the community.

2. Promoting Capacity Building for Society through Specialized Agents

- SCG supports specialists to lead and proceed capacity-building projects for community members, and assists them in establishing their connections to

other stakeholder segments to deliver concrete and replicable results.

The Power of Wisdom Project

- SCG, in collaboration with the Thailand Sustainable Development Foundation, the Royal Thai Army, National Science and Technology Development Agency, and the Thai Chamber of Commerce, developed the “Model Wisdom Leaders” training course. The objective is to build highly competent farmers into a new generation of leaders by equipping them with a new paradigm of development, logical thinking, and problem solving skills that will lead to self-reliance and a good quality of life based on the Sufficiency Economy Philosophy. Eventually, this will lead to a network of self-reliant communities that can

address issues of poverty in Thai society.

- The knowledge gained from the course was implemented and adapted to various lifestyles and occupations, which enhanced local economies. 129 products in 69 communities were developed for commercial purpose, such as processing sweet vegetables as tea sweet vegetables, salted eggs into “golden” salted eggs, and product label designs. Finally, this led to a growth of a local community management model, and a new method of environmental management and cultural preservation.

2015 Performance

▶ 230 trained participants were able to distribute their knowledge and experiences through 257 additional training sessions. This led to the creation of a leadership network of more than 1,800 people who then further expanded their knowledge to other community groups reaching up to 420,000 people.



SCG Badminton Academy

- SCG has supported badminton sports for more than 35 years, since 1981, and works with the Badminton Association of Thailand Under Royal Patronage. In 2007, SCG and the Crown Property Bureau established the “SCG Badminton Academy” to groom young talents

in badminton from all over the country, providing them with international standards of training and sporting skills to foster a new generation of players excelling in the sport.

2015 Performance

▶ On 18 August 2015, the “Badminton and Sports Sciences Training Facility, Crown Property Bureau,” opened on Nang Linchee Road Soi 3, Thungmahamek, Yan Nawa District, Bangkok, as the first-of-its-kind comprehensive training facility for badminton athletes in Thailand. The facility focuses on training using the basis of sports sciences, and is complete with international-standard training grounds, nutritionists, and sports psychologists, etc.



▶ SCG, in collaboration with the Badminton Association of Thailand Under Royal Patronage, hosted the SCG Badminton Asia Junior Championships for U19 in 2015 for competitors from more than 22 countries, totalling more than 450 participants made up of athletes and officials.



▶ Youth badminton athletes from the “SCG Badminton Academy” received international successes. This included victories in male singles, women singles, male duos, female duos, and mixed duos from the Mexican International U19 Championship and the Guatemala Junior International Championship, and national champions for male duos. Furthermore, the Badminton Association of Thailand requested 20 players from the Academy to play in the Thai national team and the national youth team, to compete at the international level.



Sharing a Brighter Vision Project

The city of Mawlamyine, in the Mon State of the Republic of the Union of Myanmar, is an important city where SCG is currently constructing the first cement factory in the country. SCG is therefore committed to being involved in the social development of communities in Mawlamyine to ensure that they have an improved quality of life through various projects, such as the awarding of more than 700 SCG Sharing the Dream scholarships since 2012, restoration of the Win Sein Taw Ya, and providing assistance to communities impacted by floods.

In 2015, SCG, in collaboration with the Crown Property Bureau and Ban Phaeo Hospital (Public Organization), which has a nationally leading ophthalmology department, developed the “Sharing a Brighter Vision” project to perform cataract surgery for patients in Myanmar – enhancing their livelihood by helping people with poor vision return to a regular way of life and self-reliance.

With a team of 4 medical specialists, 25 personnel from Ban Phaeo Hospital, and modern ophthalmological equipment, the team performed cataract surgeries on 206 patients at Mawlamyine General Hospital and monitored results to ensure that patients were restored with normal vision.

Nevertheless, a number of patients needing surgical assistance still remain in the area. SCG thus donated equipment for cataract surgery to the ophthalmology department of Mawlamyine General Hospital for continued use and benefit, and prepared to accept Myanmar ophthalmologists and specialists to get training at Ban Phaeo Hospital, so as to allow them to bring knowledge and experiences back to Myanmar.

Finally, this project supports the fostering of strong Thai-Myanmar relations.



3. Encouraging SCG's Employees to Engage in Social Projects and Expand to Other Stakeholder Segments

- Promote employee engagement in voluntary work for communities and expansion to other stakeholder segments to encourage mutual collaboration and

enhance livelihoods in various aspects, such as education, career, and the environment.

Sharing Opportunities, Drawing the Future Program

- The project encourages employee involvement in activities of the SCG Foundation. Throughout its nine years of implementation (2006-2015), the project has achieved considerable success, with more than 200,000 employees participating in community-based projects, or 50 percent of all SCG employees all over

the country. More than 1,400 projects were developed to enhance community livelihoods, covering all provinces in Thailand, with a total budget of more than 140 million baht and employee donations of more than 6 million baht.

2015 Performance

- ▶ 2,335 employees engaged in 130 community-based projects, involving a budget of 15.9 million baht, of which employees themselves donated 0.5 million baht.



Specialists...the Maker of the Nation Project

- In recognizing the importance of building a skilled workforce for national development, the SCG Foundation initiated a project to encourage secondary-school students to study for vocational degrees. The application process considers hard-working candidates with a GPA of at least 2.7 and having interest in vocational education in the fields of industrial technicians and services. SCG Foundation offers no-strings-attached scholarships all through to the highest-level of vocational training. At present, the project granted scholarship to 928 students in the industrial technician field, and 50 students in the service field, to study in 155 universities in 65 provinces.

- SCG Foundation additionally offers capacity development for students throughout their entire scholarship duration, from vocational skills training, to building a civic mind, or professional career preparation.

- The project communicates a positive image of vocational education through various media channels such as television, radio, and online media, to allow Thai society to recognize the advantages and opportunities available to vocational practitioners and encourage vocational education as a choice for future employment – to meet increasing demand in the national job market.

2015 Performance

- ▶ Awarded 1,050 scholarships from 2013-2015, with 300 scholarships awarded in 2015.

- ▶ Collaborated with SCG Cement Building Materials and SCG Packaging to accept vocational scholarship recipients as interns for 21 days, with daily compensation.



4. Assisting the Alleviation of Community Issues and Enhancement of Livelihoods

- SCG provides support to organizations that are well-recognized in community management, working

to address social problems and elevating livelihoods.

Safety We Care Project

- SCG Logistics Management Co., Ltd., as the logistics arm of SCG, organized the Safety We Care project to encourage multi-stakeholder collaboration on knowledge dissemination regarding road safety. The objective of the project is to reduce the occurrence of accidents that may inflict damages to drivers and to others. Activities included special lectures and exhibitions, as well as knowledge-sharing sessions with five other operators in logistics (ISUZU, 3M, Shell, BSI, and HINO) and the Don't Drive Drunk Foundation, on topics such as route management, good driving behavior, Road Traffic Safety Management, and the Road Safety CSR Project.



SCG Sharing the Dream Scholarships

- SCG began the project in 1981 to provide educational opportunity for children and youth that demonstrate good behavior and a commitment to education. In particular, the project addresses less fortunate children and youth that lack educational resources and live in hard-to-access areas in the country. The scholarships have no conditions and

are awarded up to the Bachelor's degree level to ensure that students will be able to work toward each of their dreams in education. Since the beginning of the project, more than 70,000 scholarships worth more than 600 million baht have been awarded. At present, there are 3,379 scholarship recipients from elementary to higher education.

2015 Performance

- ▶ Considered scholarship applicants from all over the country, specifically focusing on provinces with smaller numbers of scholarship recipients, namely Bueng Kan, Mukdahan, Yasothon, Ranong, Phang-nga, Krabi, and Satun Provinces, and expanded the scholarships to new beneficiaries - Huai Kha Khaeng Forest Rangers.

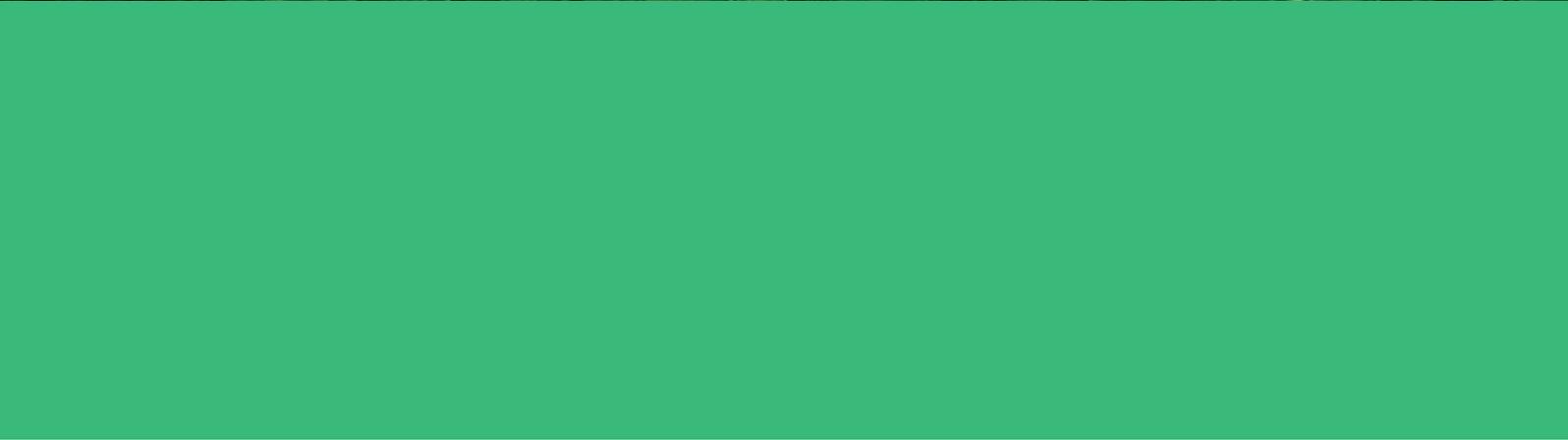
the SCG Foundation Ambassadors program which selects scholarship recipients to serve as role models to others, and to communicate the work of the foundation to the rest of society.

- ▶ Expanded scholarships to children and youth in Vietnam, Philippines, Indonesia, Myanmar, Laos, and Cambodia, totalling 1,568 scholarships worth 18.5 million baht.

- ▶ In 2015, the total budget for educational scholarships was 78.5 million baht.

- ▶ Added activities to promote connections between the SCG Foundation and activities for scholarship recipients, such as career preparation activities, and



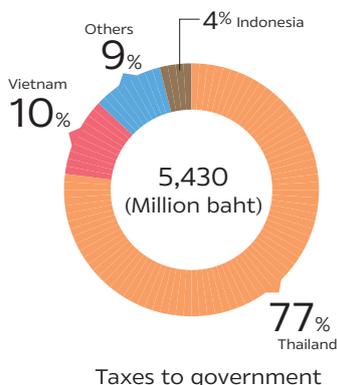
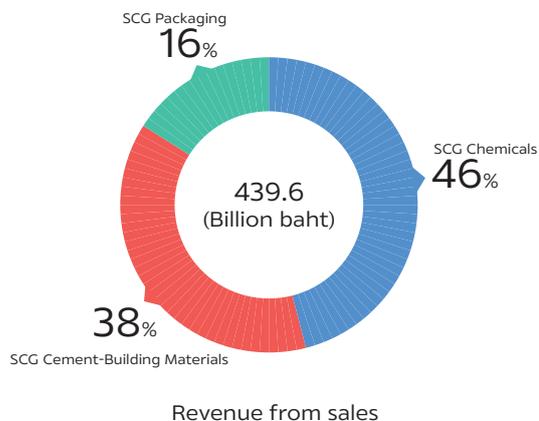




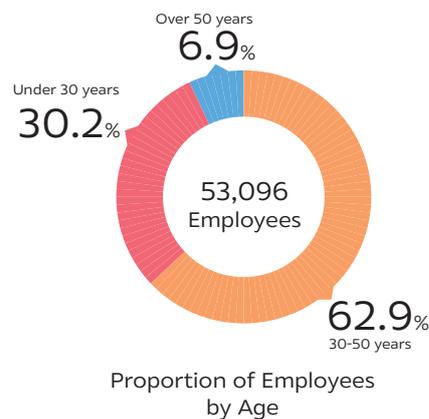
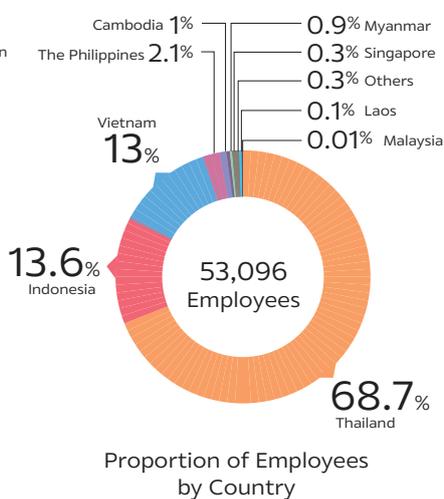
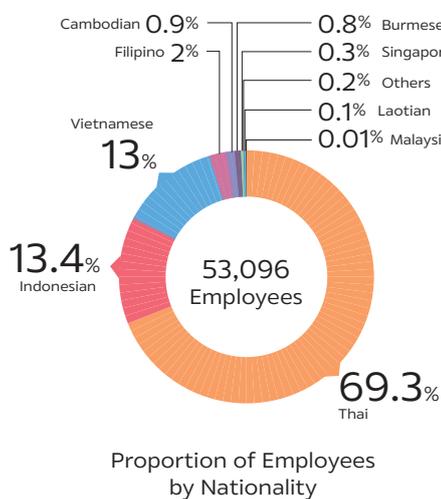
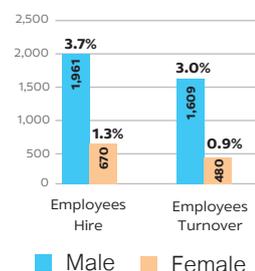
Appendices

Sustainability

Performance Data 2011-1015



Number of New Employees Hire and Turnover



Performance Data	2011	2012	2013	2014	2015	G4
Economic Performance						
Revenue from sales (Billion baht)	368.6	407.6	434.3	487.5	439.6	EC1
Profit for the year (Billion baht)	27.3	23.6	36.5	33.6	45.4	EC1
EBITDA (Billion baht)	46.3	45.7	61.3	66.5	82.7	EC1
Benefits to employees comprising salary, wage, welfare and regular contributions (Million baht)	23,997	27,361	32,417	35,356	40,172	EC1
Dividend to shareholders (Million baht)	15,000	13,200	18,600	15,000	19,200	EC1
Interest and financial expenses to lender (Million baht)	6,048	6,321	8,193	7,266	9,076	EC1
Taxes to government and local government authorities such as income tax, local maintenance tax, property tax and other specific taxes (Million baht)	8,190	5,567	5,792	5,362	5,430	EC1
Privilege tax and others from investment promotion, and research and development (Million baht)	1,734	1,277	1,156	1,294	3,599	EC4
Investments and expenditures regarding community development, social infrastructure and environment (Million baht)	712	563	525	555	591	EC1
Environmental expenditures (Million baht)	1,741	1,964	2,687	2,542	3,016	EN31

Performance Data	2011	2012	2013	2014	2015	G4
Social Performance						
Employee Information						
Number of Employees	34,725	38,883	49,287	51,100	53,096	G4-10
Proportion of Employees by Level						
• Management	3.8	3.8	3.4	3.4	3.5	G4-10
• Supervisor and technical staff	31.0	30.3	27.4	28.3	28.1	
• Operator	65.3	65.9	69.2	68.3	68.4	
Proportion of Employees by Gender						
• Male	78.0	78.5	77.8	77.5	76.9	LA12
• Female	22.0	21.5	22.2	22.5	23.1	
Proportion of Basic Salary of Female to Male						
• Management	0.86:1.00	0.83:1.00	0.83:1.00	0.83:1.00	0.83:1.00	LA13
• Supervisor and technical staff	0.92:1.00	0.93:1.00	0.94:1.00	0.94:1.00	0.93:1.00	
• Operator	0.93:1.00	0.95:1.00	0.95:1.00	0.94:1.00	0.89:1.00	
Proportion of Local Senior Management*	22.8	20.5	18.3	20.8	20.5	EC6
Proportion of Absence by Type						
• Sickness	14.9	15.1	14.0	15.0	15.6	LA6
• Work-related injuries	0.3	0.3	0.2	0.3	0.2	
• Others	84.8	84.8	85.9	84.7	84.2	
Return to Work after Parental Leave of Female Employees**						
• Number of employees that took parental leave	NA	217	202	235	330	LA3
• Number of employees who returned to work after parental leave ended	NA	210	202	231	325	

* Calculate from percentage of overseas senior management and supervisor over total overseas staff

** Only female employees are entitled to parental leave by Thai law

Performance Data	2011	2012	2013	2014	2015	G4
Health and Safety Information						
Total Incident Rate (Case/200,000 Man-Hours)						
• Employee	0.41	0.36	0.36	0.32	0.23	LA6
• Contractor	0.37	0.23	0.22	0.20	0.24	
Incident Rate (Lost Time Case) (Case/200,000 Man-Hours)						
• Employee	0.12	0.07	0.07	0.05	0.07	LA6
• Contractor	0.12	0.05	0.06	0.06	0.06	
Severity Rate (Day/200,000 Man-Hours)						
• Employee	2.34	0.84	1.69	1.63	1.27	LA6
• Contractor	1.91	1.15	1.58	1.96	1.43	
Number of Fatalities (Case)						
• Employee (male : female)	0:1	0:0	1:0	0:0	0:0	LA6
• Contractor (male : female)	5:3	11:0	11:0	7:0	12:0	
Number of Fatalities from Motor Vehicle Accidents (Case)						
• Employee (male : female)	0:1	0:0	1:0	0:0	0:0	LA6
• Contractor (male : female)	1:2	6:0	8:0	4:0	8:0	
Number of Chemical Spillage (Case)*						
• Level 1 : High Severity	0	1	0	1	1	EN24
• Level 2 : Moderate Severity	1	2	2	1	1	
• Level 3 : Low Severity	2	1	6	2	0	

Level 1 : High severity means that the volume of chemical spills is more than 2,500 kg (plastic powder or granule is more than 5,000 kg) that leak from primary containment or any spills to environment or causes injury.

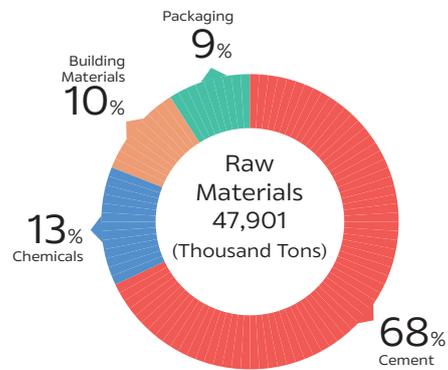
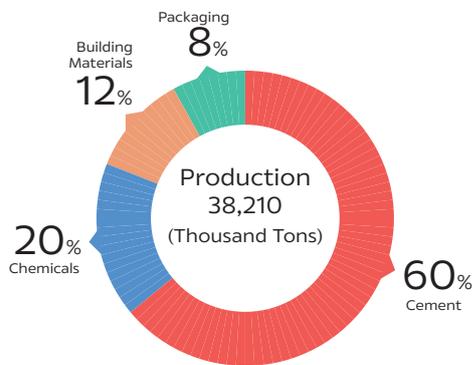
Level 2 : Moderate severity means that the volume of chemical spills is between 500-2,500 kg (plastic powder or granule is between 2,500-5,000 kg) that can be contained (not reaching the environment), and no injury occurred.

Level 3 : Low severity means that the volume of chemical spills is between 50-500 kg (plastic powder or granule is between 500-2,500 kg) that can be contained (not reaching the environment), and no injury occurred.

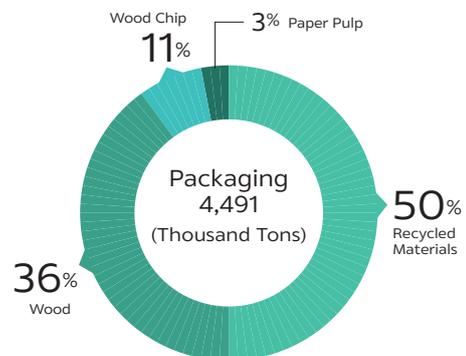
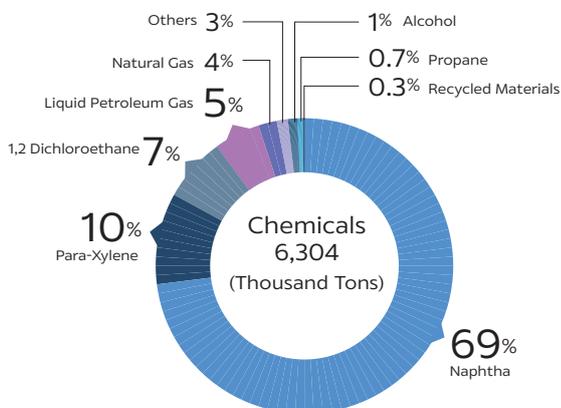
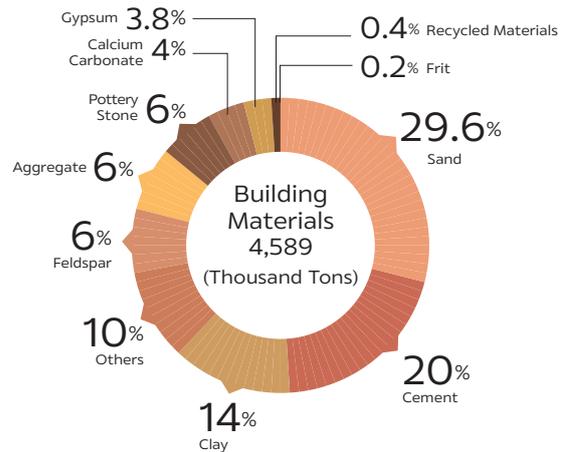
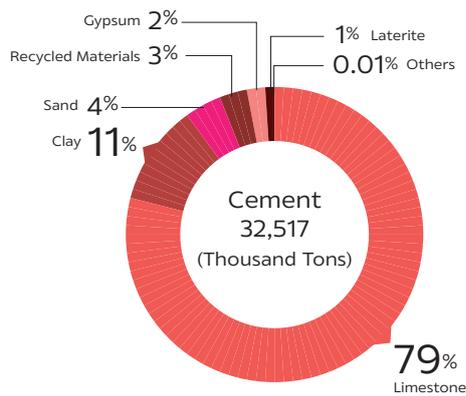
* Excludes flammable gases and utility chemicals, e.g. raw water, filtrated water, distilled water, nitrogen gas, instrument air, service air, or carbon dioxide.

Performance Data	2011	2012	2013	2014	2015	G4
Production (Thousand Tons)	34,784	37,702	37,132	37,838	38,210	
Raw Materials (Thousand Tons)	41,078	45,822	44,007	46,268	47,901	EN1
Recycled Materials (Thousand Tons)	1,612	1,567	1,814	2,932	3,253	EN2

Production and Raw Materials

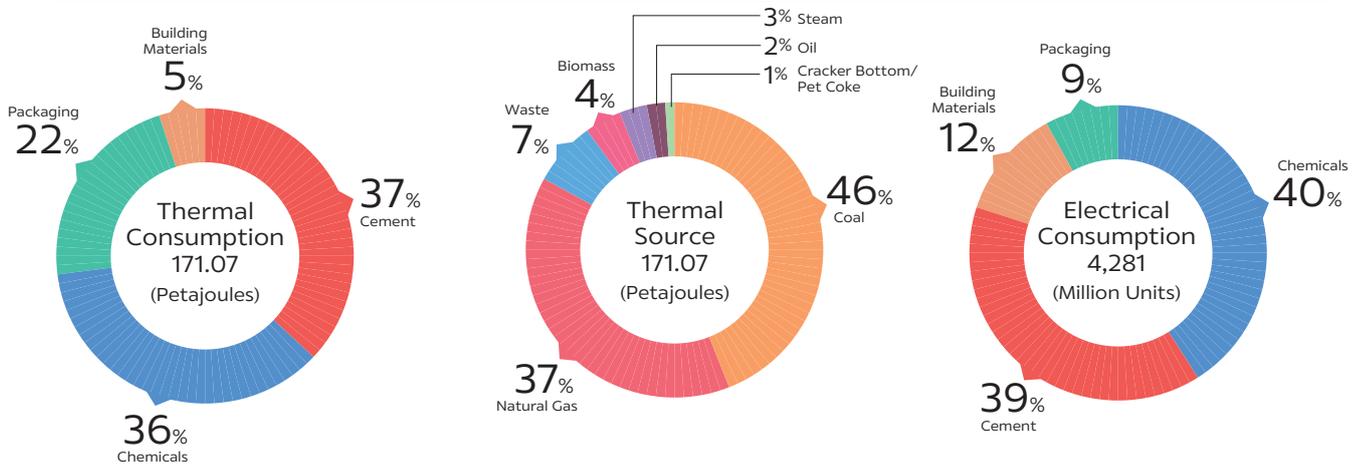


Proportion of Raw Materials

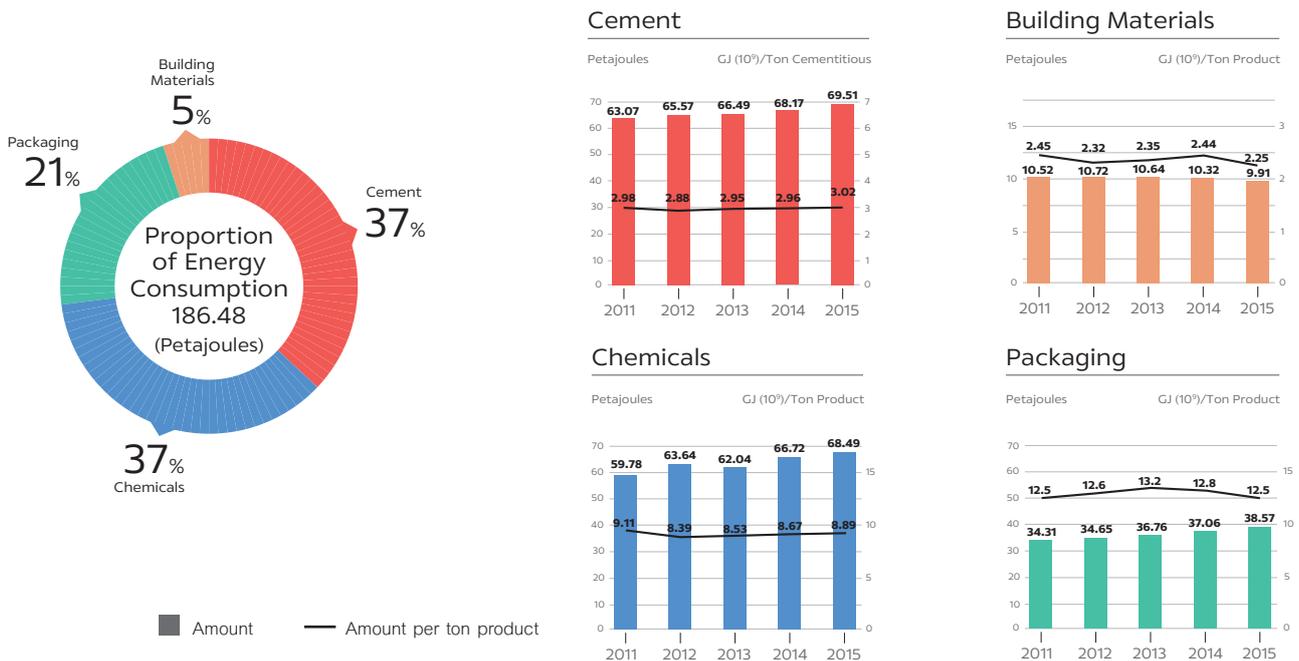


Performance Data	2011	2012	2013	2014	2015	G4
Total Energy Consumption (Petajoules)	167.68	174.58	175.93	182.27	186.48	EN3
Thermal Consumption (Petajoules)	153.65	159.70	161.50	167.22	171.07	EN3
Alternative Energy (Petajoules)						EN3
• Biomass	9.10	9.86	10.26	9.50	6.65	
• Industrial Waste	8.78	8.35	10.70	11.44	11.99	
Electrical Consumption (Million kilowatt hours)	3,895	4,133	4,008	4,180	4,281	EN3

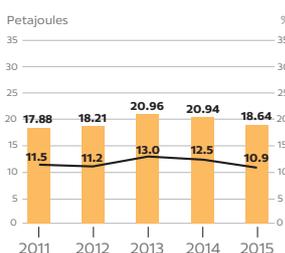
Total Energy Consumption



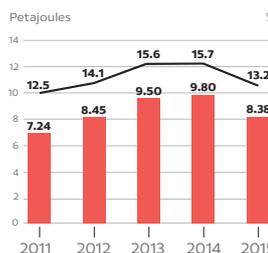
Proportion of Energy Consumption



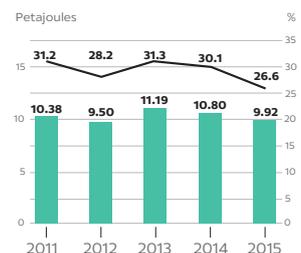
SCG Alternative Energy*



Cement



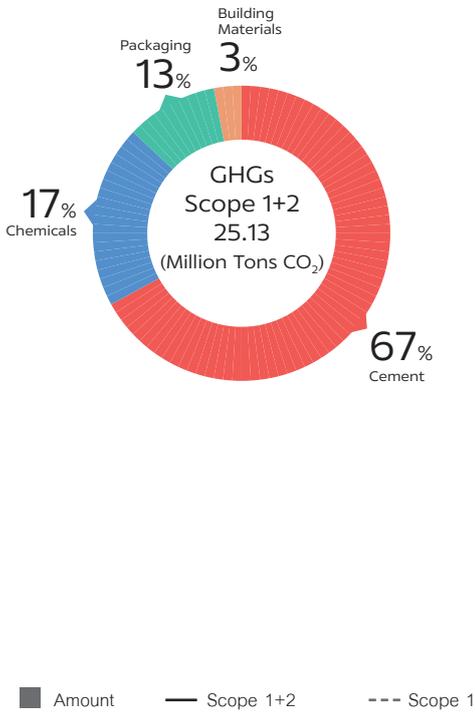
Packaging



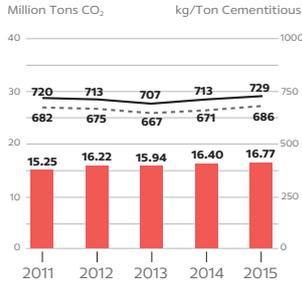
* Cement and Packaging are main utilizers of alternative energy

Performance Data	2011	2012	2013	2014	2015	G4
GHG Scope 1 (Million Tons CO ₂)	20.73	21.96	21.51	22.15	22.64	EN15
GHG Scope 2 (Million Tons CO ₂)	2.27	2.23	2.28	2.61	2.49	EN16

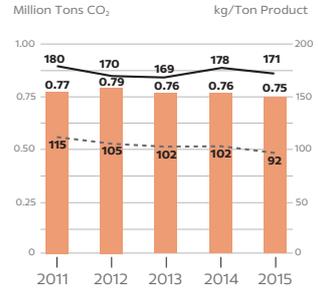
GHGs Scope 1+2



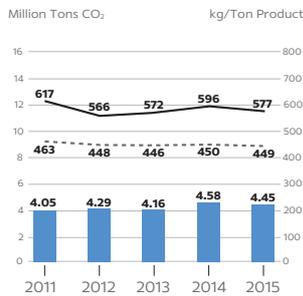
Cement



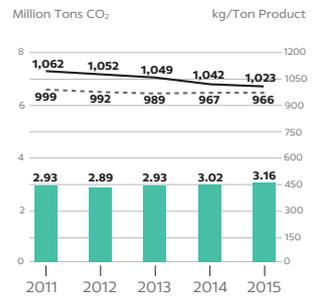
Building Materials



Chemicals

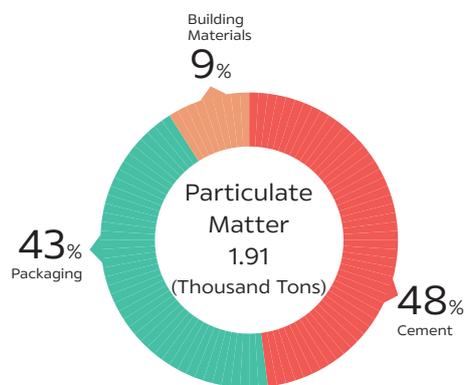
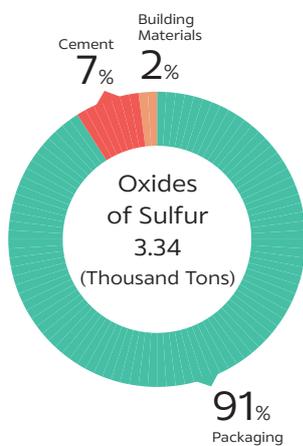
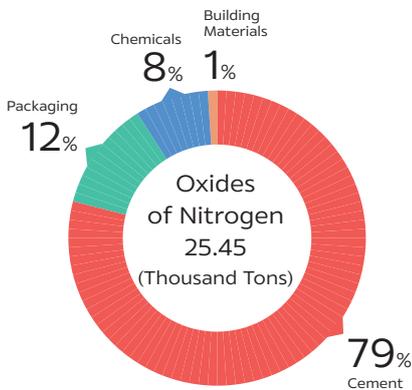


Packaging



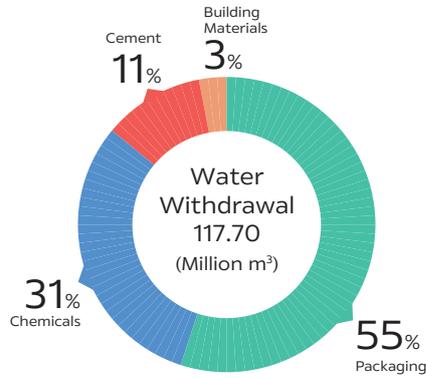
Performance Data	2011	2012	2013	2014	2015	G4
Oxides of Nitrogen (Thousand Tons)	20.02	19.45	23.95	23.94	25.45	EN21
Oxides of Sulfur (Thousand Tons)	7.52	7.68	5.26	3.25	3.34	EN21
Particulate Matter (Thousand Tons)	2.36	2.13	2.03	1.84	1.91	EN21

Emissions

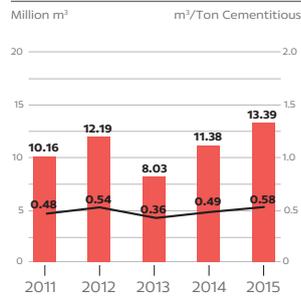


Performance Data	2011	2012	2013	2014	2015	G4
Water Withdrawal (Million Cubic Meters)	104.55	110.80	104.52	111.71	117.70	EN8
Proportion of Recycled Water (%)	9.90	9.52	6.98	7.20	7.93	EN10
BOD (Thousand Tons)	0.46	0.59	0.49	0.49	0.42	EN22
COD (Thousand Tons)	7.34	8.20	6.75	6.73	6.53	EN22
TSS (Thousand Tons)	0.87	1.35	0.96	1.02	0.90	EN22

Water Withdrawal



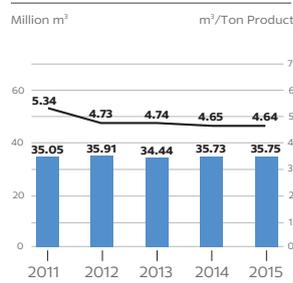
Cement*



Building Materials



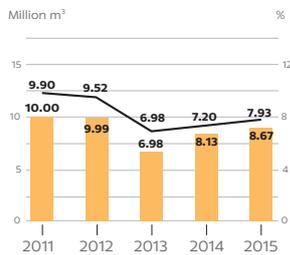
Chemicals



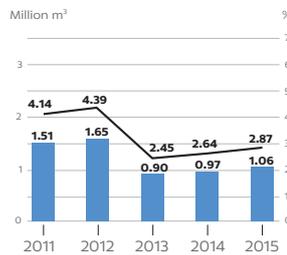
Packaging



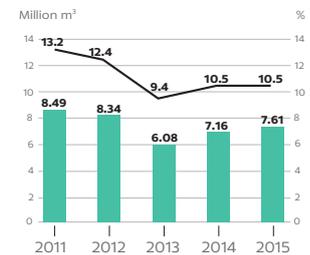
SCG Recycled Water**



Chemicals



Packaging



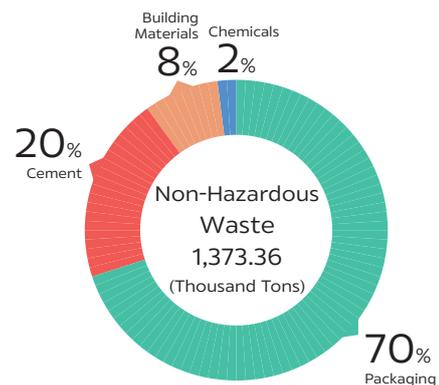
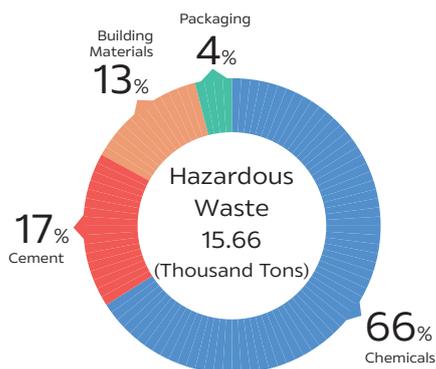
■ Amount — Amount per ton product

* Cement has revised scope of water withdrawal

** Chemicals and Packaging are main contributors of recycled water

Performance Data	2011	2012	2013	2014	2015	G4
Hazardous Waste (Thousand Tons)	12.21	14.65	19.60	15.29	15.66	EN23
Non-Hazardous Waste (Thousand Tons)	1,305.30	1,215.07	1,130.67	1,209.46	1,373.36	EN23

Hazardous Waste and Non-Hazardous Waste***



*** Cement has revised scope of waste generation

Amount and proportion of waste management are shown on page 80

World Business Council for Sustainable Development, Cement Sustainability Initiative (WBCSD-CSI)

1. Climate Protection

Cement Business in SCG Cement-Building Materials collects data and reports the amount of greenhouse gas emissions (GHGs) in accordance with the World Business Council for Sustainable Development (WBCSD), The Cement CO₂ Protocol. Cement Business also participates in the Cement Sustainability Initiative (CSI) project called Getting the Numbers Right (GNR), which requires a third party to verify the completeness and reliability of the data prior to external disclosure.

2. Emission Monitoring

Major air emissions of cement industry are controlled or minimized, Cement Business has set a target for the amount of those pollutants released following the agreed targets for emissions from kiln stacks with WBCSD-CSI as follow, dust less than 150 g/ton clinker, oxides of nitrogen (NO_x) less than 1,700 g/ton clinker, and sulfur dioxide (SO₂) less than 120 g/ton clinker. In 2015, dust emission control from main stack was improved by replacing electrostatic precipitator with new type of bag filter with higher efficiency in dust collecting where the pilot project established in The Siam Cement (Thung Song) Co., Ltd.

Cement Business also measures other pollutants including Dioxin, Mercury (Hg), Cadmium (Cd), Lead (Pb), Antimony (Sb), Arsenic (As), Beryllium (Be), Chromium (Cr), Cobalt (Co), Copper (Cu), Manganese (Mn), Nickel (Ni), Vanadium (V) and Total Organic Carbon (TOC) that the results from spot check are complied with government regulations.

3. Local Impacts

Cement Business gives priority to local impact protection especially from limestone mining, hence Quarry Rehabilitation and Biodiversity Policy was established to assure quarry rehabilitation and biodiversity protection in every step of the quarrying. Key Performance Indicators (KPIs) were also defined with continual participation of stakeholders and nearby communities.

For the cooperation with experts from educational institutions in every mining area to establish significant biodiversity resources data, biodiversity survey projects were initiated at all four limestone quarries. The biodiversity baseline data adopted for quarry rehabilitation master plan and mine closure plan. To ensure that after the concession following the Forestry and Biodiversity Preservation principles in harmony with specific characteristics in each region.

4. Health and Safety

In 2015, there were eight fatalities in Cement Business; five from logistics, two from falling in construction sites, and one from electrocution. There was also one fatality case from non-work relating to commute.

Cement Business applied additional safety standards to reduce fatality risks:

- Obtain certified Road Traffic Safety (RTS) Management System or ISO 39001 for the bulk cement fleet in the central region and will extend this system to other regions.

- The campaign of 100 percent wearing safety helmet was promoted and all employees and contractors who drive to work were randomly checked. Also, the campaign of fastening safety belt under the slogan “one person, one seat and one safety belt” and “Not fasten the seat belt - Not Move the car” were promoted in order to encourage that all passengers must fasten the seat belt at all time during their commutes. Especially, the warning sign to alert passengers to wear safety belts must be placed at all passenger vehicles and the drivers should warn the passengers to do so. This is to create awareness among employees and contractors to emphasize the importance of wearing PPE and make it as a behavior.

- To continuously improve safety performance, SCG's Safety Performance Assessment Program (SPAP) has been applied to all plants with the minimum performance of at least level 4 from 5 levels.

5. Reporting and Communications

Cement Business communicates and reports its performance to stakeholders through various channels such as printed media, *Annual Report*, *Sustainability Report*, website, newsletter, local newspaper, public consultation, and Open House activities to address, understand, and listen to stakeholders' opinions. The input from these reports and communications were used to develop future work plans. In order for the performance report to be reliable and transparent, Cement Business has continuously engaged third party to assure emission data as detailed on page 144-145.

WBCSD-CSI Operating Results of Cement Business

Performance Data	number	2011	2012	2013	2014	2015
Climate Protection*, ***						
Number of facilities adopting WBCSD CO ₂ Protocol	number of facility	6	6	6	6	6
	%	100	100	100	100	100
Absolute gross CO ₂	million tons of CO ₂	14.50	15.46	15.21	15.26	16.04
Absolute net CO ₂	million tons of CO ₂	14.45	15.36	15.08	15.45	15.79
Specific gross CO ₂	kg CO ₂ /ton cementitious	685	680	675	679	697
Specific net CO ₂	kg CO ₂ /ton cementitious	682	675	669	671	686
Use of Fuels and Raw Materials***						
Heat consumption	MJ/ton clinker	3,283	3,219	3,326	3,292	3,317
Alternative fossil fuel	% by heat	1.2	2.3	2.8	3.6	5.0
Biomass	% by heat	11.3	11.8	12.8	12.2	8.3
Alternative raw materials	% by weight	0.50	0.70	1.15	2.93	2.93
Clinker/Cementitious Ratio	%	79.5	79.4	79.8	80.8	82.0
Emission reduction**, ***						
% of clinker produced by kilns covered by a monitoring system (dust, NO _x , SO ₂ , heavy metal) (KPI 1)	%	-	-	-	99.23	99.23
Dust emissions (KPI 3)	tons	1,022	947	982	971	925
Dust emissions rate (KPI 3)	g/ton clinker	58	51	54	52	49
NO _x (KPI 3)	tons	14,887	15,274	18,845	18,872	20,222
NO _x emissions rate (KPI 3)	g/ton clinker	844	820	1,033	1,005	1,064
SO ₂ (KPI 3)	tons	1,367	1,122	534	355	239
SO ₂ emissions rate (KPI 3)	g/ton clinker	77	60	29	19	13
% of clinker produced by kilns covered by a monitoring system (dust, NO _x , SO ₂) (KPI 4)	%	100	100	100	100	100
Local Impacts***						
Quarry sites with rehabilitation plans	number of site	4	4	4	4	4
	%	100	100	100	100	100
Sites with community engagement plans	%	100	100	100	100	100
Sites where biodiversity issues are addressed	number of site (accumulated number)	4	4	4	4	4
Water***						
Total water withdrawal	million cubic meter	-	-	-	-	13
Health and Safety****						
No. of fatalities						
- Directly employed	case	0	0	0	0	0
- Indirectly employed	case	0	0	2	1*****	6*****
- Third party	case	0	0	0	4*****	2*****
Fatality rate (Directly employed)	case per 10,000 directly employed	0	0	0	0	0
No. of lost time injuries						
- Directly employed	case	0	0	2	1	0
- Indirectly employed	case	5	5	4	2	5***
Lost time injuries frequency rate (Directly employed)	case per million man-hour	0	0	0.38	0.18	0

Remarks

* The collection and reporting of GHGs data is accordance with WBCSD, The Cement CO₂ Protocol based on company's own control.

** The collection and reporting of each emission data (KPI 1, KPI 3 or KPI 4) is in accordance with WBCSD, The Guidelines for Emissions Monitoring and Reporting in the Cement Industry version 2.0 based on company's own control.

*** Only domestic cement plants.

**** Both domestic and overseas cement plants.

***** Included accident data from cement transportation.

About This Report

SCG has published the sustainability report every year since 2001 by presenting the performance in three core business units namely, SCG Cement-Building Materials, SCG Chemicals and SCG Packaging. For economic and human resources data, reporting sites cover the performance of subsidiaries, associates, joint ventures and other companies in line with the SCG Annual Report 2015. For environmental and safety data, only operating sites in Thailand were included using the combined criteria of equity share of 50 percent and over and controlled associates. Data from associates and joint ventures will be included on a voluntary basis (please see page 129-132 for the list of companies). Exceptional is for safety data of cement business, overseas cement plants were included according to WBCSD-CSI.

Reporting Scope

The reporting period for the information in this report is from January 1, 2015 to December 31, 2015. This sustainability report and its data were prepared in accordance with GRI-G4: Comprehensive. The information in this report disclosed a Communication on Progress (CoP) for the Advanced Level of United Nations Global Compact (UNCG) as shown on page 139-141 and operating results of cement business according to WBCSD-CSI as shown on page 124-125.

Reporting Assurance

Financial data was derived from financial management system similar to those presented in SCG Annual Report 2015 and is verified by certified accounting firm. To assure the integrity and the transparency of environmental and safety data in this report, SCG has requested external party to verify and assess the selected data against GRI-G4 criteria (see details on page 144-145).

Reporting Principles on Environmental and Safety Data

Environmental and safety data from all business units were included in the report except for overseas operations, newly acquired companies (less than 3 years for new establishment and less than 4 years for M&A) and companies outside of SCG management control. Exclusivity of the data is noted in "Subsidiaries Included in This Report" on page 129-132.

The selection of 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.

Environment

The environmental data cover those activities that, based on an overall environmental assessment and determined by SCG management, could have a significant impact on the environment. Sites with production process are included 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 is based on data sources from accounting evidence, meter reading, data from production system and estimation with ground rules.

Energy

Total energy consumption includes thermal energy and electricity used in the companies/plants areas.

Alternative energy is a part of thermal energy and defined as biomass, industrial or rejected wastes, e.g. used tyres, used oil, RDF and black liquor.

Calculation method of energy consumption is based on:
Fuel weight or steam volume* x Heating value of each fuel type**

* Estimated from volume purchased or stockpile

** Provided by laboratory test or suppliers

Greenhouse Gas Emissions (GHGs)

GHGs data in this report represent an account of SCG's GHG emissions from the operation of based on WRI/WBCSD GHG Emissions Protocol. When choosing the inventory boundary, we considered a number of factors as followings;

1. Operational Boundary

1.1 Direct GHG emissions (Scope 1): GHG emissions occur from sources owned by SCG, for example emissions from combustion of coal or natural gas in incinerators, boilers, furnaces, vehicles, etc. In addition, we include GHG emissions occur from chemical production process such as calcinations in cement plant. On the other hand, emissions from the combustion of biomass, alternative fuels, water treatment process and landfill are excluded.

1.2 Indirect GHG emissions (Scope 2): GHG emissions occur from the generation energy purchased by SCG, such as electricity, steam and hot air.

2. Inventory

2.1 Direct GHG emission calculation (Scope1)

- From combustion.
 - It will be calculated based on quantities of

fuel consumption (weight or volume) such as fuel oil and natural gas x emission factors which was referred to Thailand Greenhouse Gas Management Organization (Public Organization) emission factors. If there is no Thai emission factor, Intergovernmental Panel on Climate Change 2006 (IPCC) emission factors will be used.

- It will be calculated based on fuel consumption (based on heating factor) such as coal x heating value x emission factor which was referred to Thailand Greenhouse Gas Management Organization (Public Organization). If there is no Thai emission factor, Intergovernmental Panel on Climate Change 2006 (IPCC) emission factors will be used.

- It will be calculated from carbon mass balance from fuel consumption.

- From raw materials reaction in stoichiometry e.g. limestone, is estimated and calculated using mass balance.

- For cement business, refers to WBCSD-CSI.

2.2 Indirect GHG emissions (Scope 2) will be calculated from purchased electricity, steam or hot air consumption using emission factors from supplier.

3. Reporting on GHG emissions: The type of GHG emissions to be reported includes CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ converted to the universal unit of measurement by Global Warming Potential (GWP) as CO₂ equivalent. Referred GWP factors are defined by IPCC. For NF₃, it will be reported in the future.

Air Emission

Air emissions are the quantity of air pollution (for example, NO_x, SO₂, particulate matter) deriving from combustions and other components during the production process. This depends on the production process of each operation in which chemical substance is produced. It is based on a result and measurement as stipulated by laws. The measurement of air emissions is at the stacks during the operation, according to US EPA Method or equivalent standard.

Reporting of air emission will be calculated based on concentration and hot gas ratio from spot check, multiplied by working hours. Spot check is made by laboratories which is certified and registered to the Department of Industrial Works. For cement business, refers to WBCSD-CSI (see details on page 124).

Water

Water management (water withdrawal, water discharge, water treatment and water recycle) is considered in order to assess efficiency and any risks that may have when SCG withdraws water from nature.

Water withdrawal is the quantity of fresh water taken from external sources for use in any activities of SCG. The quantity of water includes water used in production process, offices, maintenance and utilities and is obtained from accounting evidences or meter reading. Sources of water are divided into surface water, ground water and tap water.

Recycled water is the quantity of treated water return to the process but excludes non-treated reused water such as cooling water.

Effluent Water Quality is the quality of water discharged to external sources such as BOD, COD and TSS. The quality of water will be tested using standardized measurement.

Waste

Waste Management is considered in order to assess the efficiency of production process, improvement of product quality and a decrease of production cost. SCG has established "SCG Waste Reporting Guideline" in March 2010 by SCG Waste Management Committee.

The quantity of waste from production process is reported and any waste which can be recycled in the production process (Work in Process, WIP) is excluded. Type of industrial wastes is classified by the Notification of Ministry of Industry on Industrial Waste Disposal 2005. It can be divided into two categories, Hazardous Waste and Non-Hazardous Waste. Each category of waste is treated as recycle, disposal or landfill.

All waste data is measured as generated and managed volumes, by reading weighting scale. Estimation according to academic measurement is also used if weighting scale is not available.

Efficiency Indices/Specific Data

Efficiency indices or specific data is calculated from environmental data divided by tons production.

Tons production data used in the efficiency indices is measured based on data from production system. Estimation will be used if it is applicable.

For cement business, tons production of clinker will be used for air emission and heat consumption (referring to WBCSD-CSI) efficiency indices while other efficiency indices, tons production of cementitious will be used.

Safety

Data on Number of Employees and Contractors

Safety data includes information from three work streams: SCG employees, contracted employees and contractors with the following definitions;

1. Employee - a full time worker according to SCG lifetime employment contract.

Employees are categorized into three levels: operational, supervisor, and management.

- Operational level is a front line worker who spends most of their time operating machines using their technical skills.

- Supervisor level is a front line manager who is responsible for daily management or having a control over subordinates.

- Management level is a top manager who responsible for addressing business strategies or policies. They delegate and control supervisor level employees who implement policy and daily jobs.

2. Contracted employee - a full time worker employs on a yearly contracted basis.

All employees and contracted employees are covered in this report

3. Contractor is an individual who gets consent from SCG to perform any job on SCG behalf but not a SCG's employee. Contractor is divided into three groups as follows:-

- Routine contractor is a contractor who performs an assigned job regularly or on a day-to-day basis under SCG's working procedures.

- Non-routine contractor is a contractor who performs any specific job using their own working procedures.

- Transport Contractor is a contractor who performs transportation of raw materials or products under SCG's management (both with and without SCG brand logo) and those without SCG's management but having SCG brand logo on their transportation vehicles.

All contractors are included in the data except for non-routine contractor where cases will be recorded but man-hours are excluded. Transport contractor in SCG Logistics Management under Cement-Building Materials Business Unit records unit as kilometer.

Third party who does not categorize as directly employed or contractors and third party is not covered in this report.

Calculation of Working Hour

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

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 average man-hours.

Number of man hours (man-hours)
= Number of Employees/Contractors x Number of working days x
Number of normal working hours (per day) + Number of Over Time
(only operational employees and contractors)

Recording of Safety Data

SCG records data on safety at work, divided into three categories

1. Number of fatality; death resulting from work-related accident where the victim is passed away suddenly or thereafter due to such accident.

2. Total incident rate; number of cases per 200,000 man-hours.

3. Incident rate (lost time cases); number of cases per 200,000 man-hours.

Lost Time Injury (LTI) is a work-related injury causing the absence of one or more working days (or shifts). This includes any work-related injury or illness which prevents that person from doing any work the day after the accident.

The electronic file of this report and the previous can be downloaded from SCG website

For more information, please contact:

SCG Sustainable Development Committee

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and website: www.scg.co.th

Subsidiaries Included in Sustainability Report 2015*

Business/Company	Production	Environment													Safety
		Energy		Air				Water					Waste		
		Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
SCG															
1	The Siam Cement Public Company Limited														
SCG Cement-Building Materials															
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	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	Siam Mortar Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
9	The Siam White Cement Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓
10	The Siam Refractory Industry Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
11	Cement Thai Energy Conservation Co., Ltd.	Data included in The Siam Cement (Ta Luang) Co., Ltd., The Siam Cement (Kaeng Khoi) Co., Ltd., The Siam Cement (Thung Song) Co., Ltd. and The Siam Cement (Lampang) Co., Ltd.													✓
12	ECO Plant Services Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓
13	Siam Research and Innovation Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓
14	SCI Eco Services Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓
15	Q Mix Supply Co., Ltd.														
16	Silathai Sanguan (2540) Co., Ltd.														
17	Green Conservation Solution Co., Ltd.														
18	SCG Building Materials Co., Ltd.														✓
19	The Siam Fibre-Cement Co., Ltd. (Saraburi/Ta Luang/Thung Song/Nongkhae)	✓	✓	✓	✓	NR	✓	✓	✓	NR	NR	NR	NR	✓	✓
20	The Fibre-Cement Products (Lampang) Co., Ltd.	✓	✓	✓	✓	NR	✓	✓	✓	NR	NR	NR	NR	✓	✓
21	Tip Fibre-Cement Co., Ltd.														
22	SCG Landscape Co., Ltd. (Khonkaen/Thung Song/ Ladkrabang/Lamphun/Sriracha/Nongkhae)	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓
23	Siam Fiberglass Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓
24	Cement Thai Gypsum Co., Ltd.														
25	Cement Thai Ceramics Co., Ltd.														
26	Thai Ceramic Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓
27	Gemago Co., Ltd.														
28	SCG Distribution Co., Ltd.														

	Business/Company	Production	Environment											Safety		
			Energy		Air				Water				Waste			
			Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD			TSS	
29	The Siam Ceramic Group Industries Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓
30	Cementhai Home Services Co., Ltd.															✓
31	SCG Trading Co., Ltd.															✓
32	SCG Logistics Management Co., Ltd.															✓
33	SCG Trading Services Co., Ltd.															
34	SCG Sourcing Co., Ltd.															
35	SCG Experience Co., Ltd.															✓
36	SCG Skills Development Co., Ltd.															
37	The CPAC Roof Tile Co., Ltd. (Saraburi 1/Saraburi 2/ Nakorn Prathom/Chonburi/Nakorn Rajchasma/ Lamphun/Khonkaen/Nakorn Sri Thammaraj)	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
38	Thai Ceramic Roof Tile Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
39	Thai Ceramic Holding Co., Ltd.															
40	MRC Roofing Co., Ltd.															
41	The Siam Sanitary Fittings Co., Ltd. (Pathumthani/Nakorn Rajchasma)	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
42	Sosuco and Group (2008) Co., Ltd.															
43	Saraburirat Co., Ltd.	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
44	Thai-German Ceramic Industry Public Company Limited	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
45	Siam Sanitary Ware Co., Ltd.															✓
46	Siam Sanitary Ware Industry Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
47	Siam Sanitary Ware Industry (Nongkae) Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
48	Quality Construction Products Public Company Limited	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
49	Q-Con Eastern Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
50	SCGT Automobile Co., Ltd.															
51	Panel World Co., Ltd.															
52	Sosuco Ceramic Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
53	SCG-Sekisui Sales Co., Ltd.															✓
Associates, Jointly-Controlled Entity and Other Companies																
1	Sekisui-SCG Industry Co., Ltd.	✓	✓	✓	NR	NR	NR	✓	✓	NR	NR	NR	NR	✓	✓	✓
2	Noritake SCG Plaster Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	✓	✓
3	SCG Nichirei Logistics Co., Ltd.															
SCG Chemicals																
1	SCG Chemicals Co., Ltd.															✓
2	Thai Polyethylene Co., Ltd.	✓	✓	✓	NR	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.															✓

	Business/Company	Production	Environment											Safety		
			Energy		Air				Water						Waste	
			Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
7	RIL 1996 Co., Ltd.															✓
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	✓	✓	✓	✓	✓	✓	NR	✓	✓	
12	TPC Paste Resin Co., Ltd.	✓	✓	✓	NR	NR	✓	✓	✓	NR	✓	✓	NR	✓	✓	
13	The Nawaplastic Industries (Saraburi) Co., Ltd.	✓	NR	✓	NR	NR	NR	✓	✓	NR	✓	✓	NR	✓	✓	
14	Nawa Plastic Industries Co., Ltd.	✓	NR	✓	NR	NR	NR	✓	✓	NR	✓	✓	NR	✓	✓	
15	Nawa Intertech Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	
16	Total Plant Service Co., Ltd.															
17	SCG Ico Polymers Co., Ltd.														✓	
18	Map Ta Phut Tank Terminal Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	
19	Map Ta Phut Olefins Co., Ltd.	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	NR	✓	✓	
20	Rayong Olefins Co., Ltd.	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	NR	✓	✓	
21	Siam Stabilizers and Chemicals Co., Ltd.	✓	✓	✓	NR	NR	NR	✓	✓	NR	✓	✓	NR	✓	✓	
22	Flowlab & Service Co., Ltd.															
Associates, Jointly-Controlled Entity and Other Companies																
1	Siam Mitsui PTA Co., Ltd.	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	NR	✓	✓	
2	SMH Co., Ltd.															
3	Rayong Terminal Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	✓	
4	Thai MMA Co., Ltd.	✓	✓	✓	NR	NR	✓	✓	✓	NR	✓	✓	NR	✓	✓	
5	Grand Siam Composites Co., Ltd.	✓	NR	✓	NR	NR	NR	✓	✓	NR	✓	✓	NR	✓	✓	
6	Thai MFC Co., Ltd.	✓	✓	✓	NR	NR	✓	✓	✓	✓	✓	✓	NR	✓	✓	
7	Thai PET Resin Co., Ltd.	✓	✓	✓	NR	NR	✓	✓	✓	NR	✓	✓	NR	✓	✓	
SCG Packaging																
1	SCG Packaging Public Company Limited														✓	
2	Thai Paper Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	
3	Thai Union Paper Public Company Limited	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4	Siam Kraft Industry Co., Ltd. (Kanjanaburi/Ratchaburi)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
5	Siam Cellulose Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6	The Siam Forestry Co., Ltd.														✓	
7	Panas Nimit Co., Ltd.														NR	
8	Thai Panason Co., Ltd.														NR	
9	Thai Panadorn Co., Ltd.	✓	NR	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	NR	NR	
10	Thai Panaram Co., Ltd.														NR	
11	Suanpa Rungsaris Co., Ltd.														NR	
12	Siam Panawes Co., Ltd.														NR	

Business/Company	Production	Environment												Safety	
		Energy		Air				Water					Waste		
		Thermal	Electricity	Dust	SO _x	NO _x	GHG	Water Withdrawal	Recycled Water	BOD	COD	TSS			
13 Thai Panaboon Co., Ltd.	✓	NR	NR	NR	NR	NR	✓	NR	NR	NR	NR	NR	NR	NR	NR
14 Thai Wanabhum Co., Ltd.		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
15 Phoenix Pulp & Paper Public Company Limited	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
16 Phoenix Utilities Co., Ltd.		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
17 SCGP Excellence Training Center Co., Ltd.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
18 SCG Paper Energy Co., Ltd.															
19 Thai Cane Paper Public Company Limited (Kanjanaburi/Prachinburi)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20 Thai Containers Group Co., Ltd. (Pathumthani 1/Pathumthani 2/Samut Prakarn/Ratchaburi/Songkhla/Chonburi/Prachinburi/Saraburi)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21 Thai Containers Khonkaen Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
22 Thai Containers Rayong Co., Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓
23 InfoZafe Co., Ltd.	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	✓
24 TC Flexible Packaging Co., Ltd.															
25 Dyna Packs Co., Ltd.															
26 Orient Containers Co., Ltd.															
27 Tawana Container Co., Ltd.															✓
28 D-In-Pack Co., Ltd.															
29 Prepack Thailand Co., Ltd.															
Associates and Other Companies															
1 Siam Nippon Industry Paper Co., Ltd.															
2 Thai British Security Printing Public Company Limited**	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	✓
3 Thai British DPost Co., Ltd.**		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
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 Siam Innovation Product and Solution Co., Ltd.															
8 SCG Learning Excellence Co., Ltd.															
9 Siam GNE Solar Energy Co., Ltd.															

* Economic performance covers all significant consolidated subsidiaries, associates, joint venture and other companies according to Annual Report 2015

** Company share reduced from subsidiary to associate in November 2015, however, performance data of the company still included in SCG data presented in this report

NR = Non Relevance

Office/Investment/Sales/Service where the collection of environmental and safety 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

GRI Content Index

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G4-33	Policy regarding report assurance	122-126	126-128		
GOVERNANCE					
G4-34	Governance structure of the organization	41, 89-92	15		
G4-35	Process for delegating authority for sustainability topics from the board to senior executives and other employees	42-44	16-19		
G4-36	High-level accountability for sustainability topics	42-44	16		
G4-37	Processes for consultation between stakeholders and the board on sustainability topics	81-82	35		

AR = Annual Report

SR = Sustainability Report

* Only Selected Subject Matter : Report Assurance

G4 Indicator	Description	Page		Omission/ Note	External Assurance
		AR	SR		
G4-38	Composition of the board and its committees	41-42, 82-84, 85-86, 95	15, 17		
G4-39	Indicate if Chair of highest governance body is also an executive officer	84-86	14, 15		
G4-40	Nomination and selection processes for the board and its committees	94-95	-		
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed	74-75, 117	-		
G4-42	Board and executives' roles in the organization's mission statements, strategies, policies, and goals related to sustainability impacts	82-85	-		
G4-43	Board knowledge of sustainability topics	87-89	-		
G4-44	Board performance with respect to governance of sustainability topics	85-87	-		
G4-45	Board role in the identification and management of sustainability impacts, risks, and opportunities	109-116	14-15		
G4-46	Board role in reviewing risk management processes for sustainability topics	109-116	14-15		
G4-47	Frequency of the board's review of sustainability impacts, risks, and opportunities	109-116	28		
G4-48	Highest committee or position that formally reviews and approves the organization's sustainability report	109-116	126		
G4-49	Process for communicating critical concerns to the board	109-116	15, 28		
G4-50	Nature and total number of critical concerns that were communicated to the board	109-116	15, 28		
G4-51	Remuneration policies for the board and senior executives	63-65	-		
G4-52	Process for determining remuneration	63-65	-		
G4-53	Stakeholders' views on remuneration	63-65	-		
G4-54	Ratio of the annual total compensation for the organization's highest-paid individual to the median annual total compensation for all employees	63-65	-		
G4-55	Ratio of percentage increase in annual total compensation for the organization's highest-paid individual to the median percentage increase in annual total compensation for all employees	63-65	-		
ETHICS AND INTEGRITY					
G4-56	Code of conduct	68-69, 78, 98-99	14-15, 40-43, 95-97		
G4-57	Helplines or advice lines for employees	98-100	24-26, 32, 43		
G4-58	Mechanisms for reporting concerns about unethical or unlawful behavior	80-81, 100	43		
SPECIFIC STANDARD DISCLOSURES					
CATEGORY: ECONOMIC					
ASPECT: ECONOMIC PERFORMANCE					
G4-DMA	Generic Disclosures on Management Approach	82-85	-		
G4-EC1	Direct economic value generated and distributed	4-7	118		
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	112	29, 59-61		
G4-EC3	Coverage of the organization's defined benefit plan obligations	40, 65	-		
G4-EC4	Financial assistance received from government	200	118		
ASPECT: MARKET PRESENCE					
G4-DMA	Generic Disclosures on Management Approach	82-85	-		
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	114-115	-		
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	115	119		
ASPECT: INDIRECT ECONOMIC IMPACTS					
G4-DMA	Generic Disclosures on Management Approach	82-85	52-58		
G4-EC7	Development and impact of infrastructure investments and services supported	66-67	84-87, 100-111		
G4-EC8	Significant indirect economic impacts, including the extent of impacts		108-115		
ASPECT: PROCUREMENT PRACTICES					
G4-DMA	Generic Disclosures on Management Approach	68-69, 98-99	21, 26, 37		
G4-EC9	Proportion of spending on local suppliers at significant locations of operation		21, 95-96		
CATEGORY: ENVIRONMENTAL					
ASPECT: MATERIALS					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 126		
G4-EN1	Materials used by weight or volume		9-11, 120		
G4-EN2	Percentage of materials used that are recycled input materials		76-78		
ASPECT: ENERGY					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 59, 65, 124, 126		
G4-EN3	Energy consumption within the organization		59-60, 121, 124-125		✓
G4-EN4	Energy consumption outside of the organization		-	Data are collected for logistics but they are not publicly reported.	

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G4 Indicator	Description	Page		Omission/Note	External Assurance
		AR	SR		
G4-EN5	Energy intensity		59-60, 121, 125		
G4-EN6	Reduction of energy consumption		60-62		
G4-EN7	Reductions in energy requirements of products and services		63-64		
ASPECT: WATER					
G4-DMA	Generic Disclosures on Management Approach		24-26, 66		
G4-EN8	Total water withdrawal by source		68-69, 123		✓
G4-EN9	Water sources significantly affected by withdrawal of water		66-69	Note: no water sources significantly affected by withdrawal of water.	
G4-EN10	Percentage and total volume of water recycled and reused		69, 123		✓
ASPECT: BIODIVERSITY					
G4-DMA	Generic Disclosures on Management Approach		102		
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas		102-107, 124-125		
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas		102-107		
G4-EN13	Habitats protected or restored		102-107, 124-125		
G4-EN14	Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk		-	Note: no IUCN Red List species and national conservation list species with habitats in areas affected by operations.	
ASPECT: EMISSIONS					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 59, 65, 124-127		
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)		60-62, 122, 125		✓
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)		60-62, 122		✓
G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope 3)		63-64		
G4-EN18	Greenhouse gas (GHG) emissions intensity		122, 125		
G4-EN19	Reduction of greenhouse gas (GHG) emissions		59-64		
G4-EN20	Emissions of ozone-depleting substances (ODS)		-	non-materiality	
G4-EN21	NO _x , SO _x , and other significant air emissions		122, 125	assurance for cement business	✓
ASPECT: EFFLUENTS AND WASTE					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 79, 127		
G4-EN22	Total water discharge by quality and destination		123		
G4-EN23	Total weight of waste by type and disposal method		80, 123		✓
G4-EN24	Total number and volume of significant spills		119		
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally		-	note: no waste under the terms of the Basel Convention Annex I, II, III, and VIII.	
G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff		-	note: no plant located near by identity, size, protected status, and biodiversity value of water bodies.	
ASPECT: PRODUCTS AND SERVICES					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 83		
G4-EN27	Extent of impact mitigation of environmental impacts of products and services		63, 67-69, 80-87		
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category		83-87		
ASPECT: COMPLIANCE					
G4-DMA	Generic Disclosures on Management Approach		24-30, 36-37		
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations		-	note: no fines for non-compliance with environmental laws and regulations in 2015.	
ASPECT: TRANSPORT					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 44-51, 63		
G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce		46-49, 63		
ASPECT: OVERALL					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37		
G4-EN31	Total environmental protection expenditures and investments by type		118		
ASPECT: SUPPLIER ENVIRONMENTAL ASSESSMENT					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 98, 100-101		
G4-EN32	Percentage of new suppliers that were screened using environmental criteria		98		
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken		-	note: no significant environmental impacts in the supply chain in 2015.	

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G4 Indicator	Description	Page		Omission/ Note	External Assurance
		AR	SR		
ASPECT: ENVIRONMENTAL GRIEVANCE MECHANISMS					
G4-DMA	Generic Disclosures on Management Approach		14-15, 40-43, 95-97		
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms		-	note: no grievances about environmental impacts filed or addressed.	
CATEGORY: SOCIAL					
SUB-CATEGORY: LABOR PRACTICES AND DECENT WORK					
ASPECT: EMPLOYMENT					
G4-DMA	Generic Disclosures on Management Approach	76-77	24-26, 36-37, 52		
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region		118-119		
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	76-77	53-54		
G4-LA3	Return to work and retention rates after parental leave, by gender		118-119		
ASPECT: LABOR/MANAGEMENT RELATIONS					
G4-DMA	Generic Disclosures on Management Approach	76-77	24-26, 36-37, 52		
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements		53-54		
ASPECT: OCCUPATIONAL HEALTH AND SAFETY					
G4-DMA	Generic Disclosures on Management Approach	76-78	24-26, 36-37, 44-45, 124		
G4-LA5	Percentage of total workforce represented informal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs		44-45, 126		
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender		46, 97, 119, 125		✓
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation		44-51, 124		
G4-LA8	Health and safety topics covered in formal agreements with trade unions	77-78	44-54, 124		
ASPECT: TRAINING AND EDUCATION					
G4-DMA	Generic Disclosures on Management Approach	76-78	24-26, 36-37, 55		
G4-LA9	Average hours of training per year per employee by gender, and by employee category		58		
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	77-78	55-58		
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category		118-119		
ASPECT: DIVERSITY AND EQUAL OPPORTUNITY					
G4-DMA	Generic Disclosures on Management Approach	76-78	24-26, 36-37, 52, 55		
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity		118-119		
ASPECT: EQUAL REMUNERATION FOR WOMEN AND MEN					
G4-DMA	Generic Disclosures on Management Approach	76-78	24-26, 36-37, 40, 95		
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation		118-119		
ASPECT: SUPPLIER ASSESSMENT FOR LABOR PRACTICES					
G4-DMA	Generic Disclosures on Management Approach	78	24-26, 36-37, 40, 95		
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria		97		
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken		-	note: no significant actual and potential impacts on labor practices in the supply chain.	
ASPECT: LABOR PRACTICES GRIEVANCE MECHANISMS					
G4-DMA	Generic Disclosures on Management Approach	76-78	24-26, 36-37, 40		
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms		-	note: no grievances about labor practices filed or addressed in 2015.	
SUB-CATEGORY: HUMAN RIGHTS					
ASPECT: INVESTMENT					
G4-DMA	Generic Disclosures on Management Approach	76-78	24-26, 36-37, 52		
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening		-	note: all agreements are in compliance with SCG Code of Conduct.	
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained		57-58		

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G4 Indicator	Description	AR	Page		SR	Omission/ Note	External Assurance
ASPECT: NON-DISCRIMINATION							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 52			
G4-HR3	Total number of incidents of discrimination and corrective actions taken				-	note: no incidents of discrimination in 2015.	
ASPECT: FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 52			
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights				52-54		
ASPECT: CHILD LABOR							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 40			
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor				40-43		
ASPECT: FORCED OR COMPULSORY LABOR							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 40, 95			
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor				40-43, 52-54, 95-101	note: no operations and suppliers identified as having significant risk for incidents of forced or compulsory labor according to SCG Code of Conduct.	
ASPECT: SECURITY PRACTICES							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 52			
G4-HR7	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations				-	note: 100% were trained according to contract agreement.	
ASPECT: INDIGENOUS RIGHTS							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 52			
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken				-	note: no violation involving rights of indigenous peoples in 2015.	
ASPECT: ASSESSMENT							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 52			
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments				-	note: 100% reviewed by Code of Conduct.	
ASPECT: SUPPLIER HUMAN RIGHTS ASSESSMENT							
G4-DMA	Generic Disclosures on Management Approach	78		24-26, 36-37, 95			
G4-HR10	Percentage of new suppliers that were screened using human rights criteria				97		
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken				-	note: there was no negative human rights impacts in supply chain.	
ASPECT: HUMAN RIGHTS GRIEVANCE MECHANISMS							
G4-DMA	Generic Disclosures on Management Approach	76-78		24-26, 36-37, 40			
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms				40-43		
SUB-CATEGORY: SOCIETY							
ASPECT: LOCAL COMMUNITIES							
G4-DMA	Generic Disclosures on Management Approach	79		24-26, 36-37, 108			
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs				108-115		
G4-SO2	Operations with significant actual and potential negative impacts on local communities				108-115	note: no operations with significant actual or potential negative impacts on local communities in 2015.	
ASPECT: ANTI-CORRUPTION							
G4-DMA	Generic Disclosures on Management Approach	97-99		14-15, 40			
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	97-99			15		
G4-SO4	Communication and training on anti-corruption policies and procedures	112-113			42		
G4-SO5	Confirmed incidents of corruption and actions taken				-	note: no incidents of corruption in 2015.	
ASPECT: PUBLIC POLICY							
G4-DMA	Generic Disclosures on Management Approach				-	Non Relevance	
G4-SO6	Total value of political contributions by country and recipient/beneficiary				-	Non Relevance	
ASPECT: ANTI-COMPETITIVE BEHAVIOR							
G4-DMA	Generic Disclosures on Management Approach				-	Non Relevance	
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes				-	Non Relevance	

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G4 Indicator	Description	Page		Omission/ Note	External Assurance
		AR	SR		
ASPECT: COMPLIANCE					
G4-DMA	Generic Disclosures on Management Approach	69-109	14-15		
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations		-	note: no significant fines in 2015.	
ASPECT: SUPPLIER ASSESSMENT FOR IMPACTS ON SOCIETY					
G4-DMA	Generic Disclosures on Management Approach	78	24-26, 36-37, 95		
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society		97		
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken		-	note: no significant negative impacts on society in the supply chain found in 2015.	
ASPECT: GRIEVANCE MECHANISMS FOR IMPACTS ON SOCIETY					
G4-DMA	Generic Disclosures on Management Approach	76-79	24-26, 36-37, 108		
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms		108-115		
SUB-CATEGORY: PRODUCT RESPONSIBILITY					
ASPECT: CUSTOMER HEALTH AND SAFETY					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 83, 88		
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement		-	note: 100% of significant products.	
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes		-	note: incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products in 2015.	
ASPECT: PRODUCT AND SERVICE LABELING					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 83, 89		
G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements		-	note: all significant product and service categories are assessed regarding health and safety impact.	
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes		88	note: no incidents of non-compliance in 2015.	
G4-PR5	Results of surveys measuring customer satisfaction		99		
ASPECT: MARKETING COMMUNICATIONS					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 83, 89		
G4-PR6	Sale of banned or disputed products		-	note: no banned or disputed products in SCG in 2015.	
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes		88	note: no incidents of non-compliance in 2015.	
ASPECT: CUSTOMER PRIVACY					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 83, 89		
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data		91-94		
ASPECT: COMPLIANCE					
G4-DMA	Generic Disclosures on Management Approach		24-26, 36-37, 83, 88		
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services		88	note: no significant fines for non-compliance concerning the provision and use of products and services in 2015.	

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United Nation Global Compact (UNGC)

Communication on Progress for the Advanced Level

Criteria for the GC Advanced Level	Action	Page
Strategy, Governance, and Engagement		
1. High-level sustainability in line with UNGC	<ul style="list-style-type: none"> • Message from President & CEO • Business Philosophy and Vision • Management approach to sustainability 	4-5 12-13 20-21
2. Effective decision-making processes and systems of governance for corporate sustainability	<ul style="list-style-type: none"> • Corporate Governance • Management approach to sustainability • Corporate Governance Practice 	14-15 20-21 40-43
3. Engagement with all key stakeholders	<ul style="list-style-type: none"> • Defined stakeholder engagement policy, strategy and practices 	31-35
UN Goals and Issues		
4. Actions taken in support of broader UN goals and issues	<ul style="list-style-type: none"> • Sustainable Management Approach • Sustainable Actions and Challenges • Corporate Governance Practice 	20-21 36-37 40-43
Human Rights Implementation		
5. Robust commitments, strategies or policies in the area of human rights	<ul style="list-style-type: none"> • Respect to Diversity; No discrimination against gender, age or physical condition; Employee Treatment with Equality and Fairness • Employee caring and development • Whistleblower system 	52-58 52-58 40-43
6. Effective management systems to integrate the human rights principles	<ul style="list-style-type: none"> • Health and Safety for Employee and Contractor • Employee caring and development 	44-51 52-58
7. Monitoring and evaluation mechanisms of human rights performance	<ul style="list-style-type: none"> • Employee opinion survey and engagement • Safety Performance Assessment Program (SPAP) • SCG Contractor Safety Certification System (SCS) 	32 44-51 51, 97
8. Outcomes of human rights principles integration	<ul style="list-style-type: none"> • Number of contractors certified with SCS • Social Performance 	97 118-119
Labor Principles Implementation		
9. Appropriate commitments, strategies or policies in the area of labor	<ul style="list-style-type: none"> • Risk assessment, guidance and compliance system (labor and safety) • Safety framework and illness & injury free target 	28 44-51

Criteria for the GC Advanced Level	Action	Page
10. Effective management systems to integrate the labor principles	• Complied with Occupational Health and Safety Management System (TIS/OHSAS 18001), Thai labor standard (SA8000) and SCG Safety framework	44-51
	• Improve contractor safety standard by verifying against SCG Contractor Safety Certification System	51, 97
	• Employee caring and development	52-58
11. Monitoring and evaluation mechanisms of labor performance	• Employee opinion survey and engagement	32
	• Safety Performance Assessment Program (SPAP)	44-51
	• SCG Contractor Safety Certification System (SCS)	51, 97
12. Outcomes of labor principles integration	• Summarized accident statistics and social indicators (community satisfaction) and WBCSD-CSI indicators • Social Performance	46, 118-119, 125 118-119
Environmental Implementation		
13. Appropriate Commitments, strategies or policies in the area of environmental responsibility	• Risk assessment, defined practices, and promoted management approach as per sustainable development guidelines	16-21
	• Targeted to reduce greenhouse gas emissions at least 10 percent by 2020 from base year (2007)	59-65
14. Effective management systems to integrate the environmental principles	• Defined sustainable development structure and approach	16-21
	• Improved production process to be environmentally friendly with international standard	21
	• Projects to level-up Environmental Management for contractors and environmentally friendly procurement	95-101
	• Created sustainable value from environmentally friendly products and services (SCG eco value Label, Carbon Reduction Label, Carbon Footprint Label)	83-88
15. Monitoring and evaluation mechanisms of environmental performance	• Environmental Performance Assessment Program (EPAP)	21, 142-143
	• Progress of environmental development plan	59-88
	• Create sustainable value towards suppliers	95-101
16. Outcomes of environmental principles integration	• Sustainable actions and challenges	36-37
	• Environmental performance	120-123
Anti-Corruption Implementation		
17. Appropriate commitments, strategies or policies in the area of anti-corruption	• SCG business philosophy and vision	12-13
	• Announced anti-corruption policy and guidelines through SCG Corporate Governance Handbook	14-15
	• Announced SCG Supplier Code of Conduct	95-101
	• Embedded company cultures on business transparency to employees and suppliers	40-43

Criteria for the GC Advanced Level	Action	Page
18. Effective management systems to integrate the anti-corruption principle	• Clearly defined authority of each level of executives	14-15
	• Strict internal audit system and communicated opinions or complaints via Whistleblower system	40-43
19. Monitoring and evaluation mechanisms anti-corruption performance	• Audit reporting system to Board of Directors via audit committee	14-15
	• Defined responsibilities for risk management and internal control and regular workshops for employee	40-43
20. Outcomes of anti-corruption principle integration	• No complaint against anti-corruption policy found, with few non-significant cases of misconducted on code of conduct	40-43
Value Chain Implementation		
21. Implementation of the UNGC principles in the value chain	• Identified Value Chain Management approach on SCG Supplier Code of Conduct, Green Procurement, SCG Contractor Safety Certification System, and customer relationship management	89-101
Transparency and Certification		
22. Information on the company's profile and business context	• About SCG	8-11
23. Highest standards of transparency and disclosure	• Excellence: Sustainability Report Award of 2015	149
	• Sustainability Performance Data	118-123
	• GRI Content Index	133-138
24. Independently certified by a credible third-party	• Environmental Performance Assessment Program (EPAP) Assurance Statement	142-143
	• Independent Assurance Statement on Sustainability Report 2015	144-145

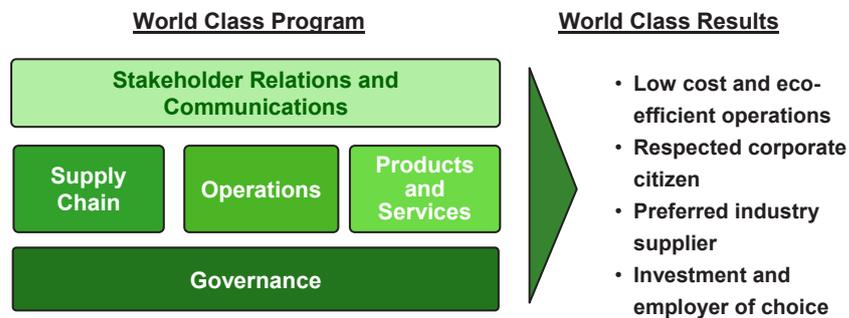
Assurance Statement

Environmental Assurance Statement, 2015

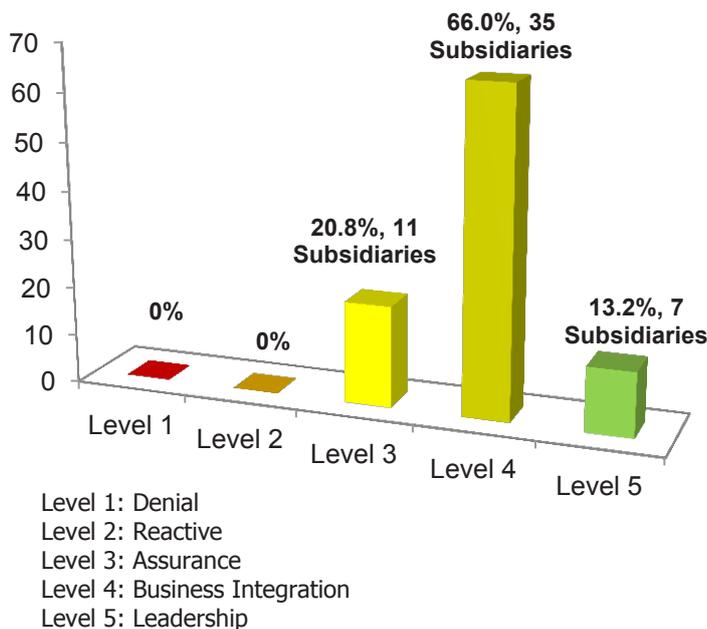
SCG

Environmental Performance Assessment Program

SCG has implemented the Environmental Performance Assessment Program (EPAP) since 2001 with a continuous increase in the number of subsidiaries participating in this program. Up to 2015, 55 subsidiaries in total have been in the program with 184 assessments conducted. The participating subsidiaries are those required by SCG criteria considering business type and its activities that have potential environmental impacts. Since 2013, the assessment approach and criteria cover all dimensions of sustainable development that are relevant to environmental management. These approach and criteria provide benefits to the subsidiaries by driving environmental performance improvement and ensuring the alignment with sustainable development policy of SCG. Each participating subsidiary is assessed every 3 years with the scope of the assessment comprising 5 main elements i.e. Governance; Supply Chain; Operations; Product and Service; and Stakeholder Relation and Communication.

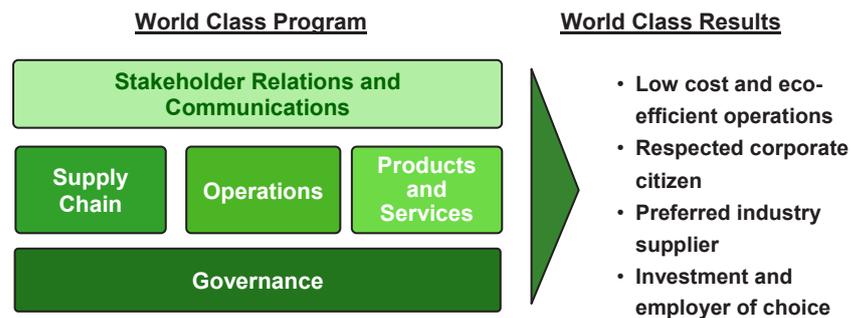


The maturity level for each subsidiary, considering management system, compliance, effectiveness and performance, is demonstrated in 5 Levels, i.e. Level 1: Denial; Level 2: Reactive; Level 3: Assurance; Level 4: Business Integration; and Level 5: Leadership. In general, the results of the assessment indicate a continual improvement in the environmental performance. The cumulative maturity levels of the total 53 subsidiaries being through the EPAP program until the end of 2015 show 13.2% in Level 5, 60.0% in Level 4 and 20.8% in Level 3, respectively.

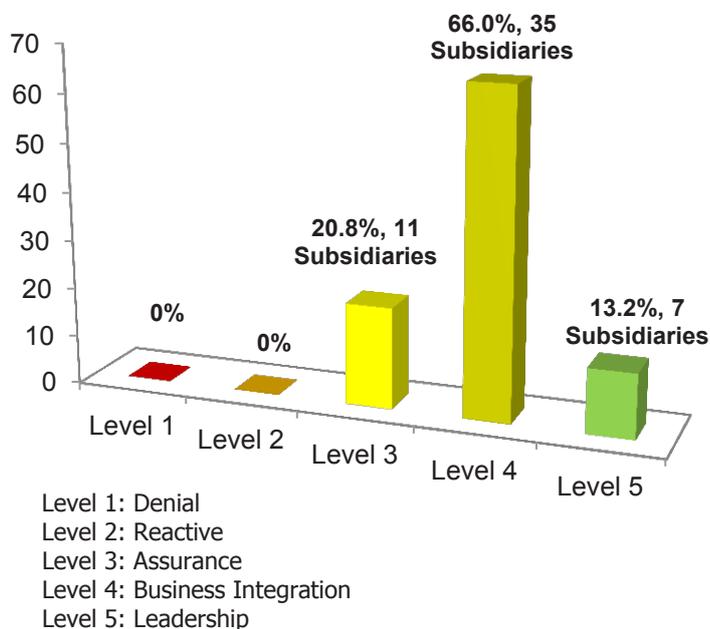


Based on the 14 assessments conducted in 2015, the overview of management of each element and key issues being focused by SCG to achieve the aim on operating businesses sustainably are summarized as followings.

SCG has implemented the Environmental Performance Assessment Program (EPAP) since 2001 with a continuous increase in the number of subsidiaries participating in this program. Up to 2015, 55 subsidiaries in total have been in the program with 184 assessments conducted. The participating subsidiaries are those required by SCG criteria considering business type and its activities that have potential environmental impacts. Since 2013, the assessment approach and criteria cover all dimensions of sustainable development that are relevant to environmental management. These approach and criteria provide benefits to the subsidiaries by driving environmental performance improvement and ensuring the alignment with sustainable development policy of SCG. Each participating subsidiary is assessed every 3 years with the scope of the assessment comprising 5 main elements i.e. Governance; Supply Chain; Operations; Product and Service; and Stakeholder Relation and Communication.



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Based on the 14 assessments conducted in 2015, the overview of management of each element and key issues being focused by SCG to achieve the aim on operating businesses sustainably are summarized as followings.

INDEPENDENT LIMITED ASSURANCE REPORT ON SCG SUSTAINABILITY REPORT 2015

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, 2015 presented in the SCG sustainability report 2015 ("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
 - o Energy and alternative energy consumption (petajoules) (page 121)
 - o Greenhouse gases emission (scope 1 & 2) (million tons) (page 122)
 - o Total weight of waste by type and disposal method (thousand tons) (page 80 and 123)
 - o Water withdrawal (million cubic meters) and recycled water (%) (page 123)
- b) Social dimension performance indicators
 - o Total incident rate, incident rate (lost time cases), and number of fatalities (page 46, 97 and 119)
- c) WBCSD Cement Sustainability Initiative (CSI) Emission Monitoring and Reporting key performance indicators
 - o KPI1: Overall coverage (%) (page 125)
 - o KPI3: Dust, Nitrogen Oxide (NO_x) and Sulfur Dioxide (SO₂) emissions data (tons) (page 125)
 - o KPI4: Dust, Nitrogen Oxide (NO_x) and Sulfur Dioxide (SO₂) coverage rate pollutant (%) (page 125)

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" (page 126-128) which is in accordance with the Sustainability Reporting Guidelines version 4 - Comprehensive issued by the Global Reporting Initiative (GRI-G4), the WBCSD/WRI Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, and the WBCSD Cement Sustainability Initiative (CSI) guidelines including the WBCSD-CSI Guidelines for Emissions Monitoring and Reporting in the Cement Industry (updated March 2012, version 2.0), 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 management at SCG's head office, included the Sustainable Development team and those with operational responsibility for performance in the areas we are report on
- visiting selected sites of three business units:
 - SCG Cement-Building Materials
 - Cement business (The Siam Cement (Ta Luang) Co., Ltd.-Khoa Wong Plant)
For assurance of emission data, this selected site represents in average percentage to the cement group in Thailand of the following pollutants covered:
 - Dust: 23%
 - Nitrogen Oxides (NO_x): 15%
 - Sulfur Dioxides (SO₂): 6%
 - Building Materials business (The Siam Ceramic Group Industries Co., Ltd.)
 - SCG Chemicals (Rayong Olefins Co., Ltd.)
 - SCG Packaging (Thai Cane Paper Public Company Limited-Prachinburi Plant)
- 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 Guidelines version 4 - Comprehensive issued by the Global Reporting Initiative (GRI-G4), the WBCSD/WRI Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, and the WBCSD Cement Sustainability Initiative (CSI) guidelines including the WBCSD-CSI Guidelines for Emissions Monitoring and Reporting in the Cement Industry (updated March 2012, version 2.0), 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 according with ISAE3000 and ISAE3410 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, 2015 included in the SCG Sustainability Report has not been prepared, in all material respects, in accordance with the Criteria.



Suwatchai Meakhaamnouychai
Partner
Deloitte Touche Tohmatsu Jaiyos Audit Co., Ltd.

Bangkok, Thailand
February 19, 2016

Road to Sustainability

1913

Established the Siam Cement Public Company Limited

1987



SCG Code of Conduct

1991



Environmental Conservation and Safety Policy

1993



Member of Thailand Business Council for Sustainable Development (TBCSD)

2000



- Member of the World Business Council for Sustainable Development (WBCSD)
- TIS 18001 Certificate for Occupational Health and Safety Management System

2001



- SCG Code of Conduct (2nd Revision)
- Environmental Performance Assessment Program (EPAP)
- Cement Sustainability Initiative (CSI)
- Environmental Report

2002



- The Governance and Nomination Committee
- Guidelines for Environmental Conservation and Safety
- Sustainability Report

2006



- SCG Corporate Governance Handbook (1st Revision)
- SCG Sustainable Development Committee
- Guidelines for Sustainability Development
- Intellectual Property Policy
- Greening Supply Chain Program
- Sustainability Report

2007



- SCG Code of Conduct (4th Revision)
- Silver Class in the Sector of Building Materials & Fixtures from SAM/DJSI
- SCG and Business Operation following the Principles of Sufficiency Economy
- SCG Vision
- SCG Contractor Safety Certification System (SCS)
- SCG Safety Framework
- Check Dam Handbook
- SCG Distribution's Recycle Handbook
- Sustainability Report

1995



- The Environmental Conservation and Safety Committee
- Environmental Conservation Policy

1996

SCG Environmental Indicator Standards

1997

- SCG Code of Conduct (1st Revision)
- ISO14001 Certificate for Environmental Management System

1998



- The Audit Committee
- Green Label

1999

The Remuneration Committee

2003



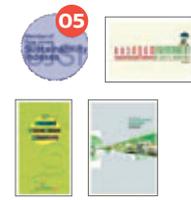
- The Donations Committee
- SCG Corporate Governance Handbook
- Safety Performance Assessment Program (SPAP)
- Sustainability Report

2004



- Sustainability Leader: Member of Dow Jones Sustainability Index (DJSI) in the Sector of Building Materials & Fixtures
- SCG Code of Conduct (3rd Revision)
- Guidelines for Green Procurement
- Sustainability Report

2005



- 3Rs (Reduce, Reuse/Recycle, Replenish) Handbook
- Guidelines for Sustainability Development
- The 1st Community Satisfaction Survey
- Sustainability Report

2008



- Gold Class in the Sector of Building Materials & Fixtures from SAM/DJSI
- The Forest Stewardship Council (FSC)
- Grease Trap and Bio-organic Liquid Handbook
- Risk Management Guidelines
- SCG Sustainable Development Guidelines
- Code of Conduct regarding SCG Information Disclosure
- Whistleblower Policy
- SCG Safety Framework (1st Revision)
- The 2nd Community Satisfaction Survey
- Sustainability Report

2009



- Gold Class in the Sector of Building Materials & Fixtures from SAM/DJSI
- Gold Label for Outstanding Energy Conservation Building
- Product Safety Management Guidelines
- SCG eco value Label
- Carbon Reduction Label
- Carbon Footprint Label
- Bird Guide of SCG Cement, Lampang Plant
- Sustainability Report

2010



- Gold Class in the Sector of Building Materials & Fixtures from SAM/DJSI
- Stakeholder Engagement Policy
- CSR by Heart: Anyone Can Do It Handbook
- Thailand Sustainable Development Symposium
- Sustainability Report

2011



- The Donations Committee renamed to The CSR Committee for Sustainable Development
- Sector Leader and Gold Class in Building Materials & Fixtures from SAM/DJSI
- Green Happiness on the Salinity Land Handbook
- Repairing Homes to Bring Back Happiness Handbook
- Home Repair after Flooding Handbook & DVD
- ISO50001 Certificate for Energy Management System
- The 3rd Community Satisfaction Survey
- Thailand Sustainable Development Symposium
- Sustainability Report

2012



- Sector Leader for the 2nd consecutive year and Gold Class in Building Materials & Fixtures from RobecoSAM/DJSI
- LEED EB : OM Platinum, 1st certified building in ASEAN from the U.S. Green Building Council (USGBC)
- Green Building Products Handbook
- ASEAN Sustainable Development Symposium
- Sustainability Report

2013



- Industry Leader for the 3rd consecutive year and Gold Class in Construction Materials from RobecoSAM/DJSI
- LEED BD+C Platinum from U.S. Green Building Council (USGBC)
- SCG 100 Years of Innovations for Sustainability Book
- SCG Supplier Code of Conduct
- A Certified Company by The Thailand's Private Sector Collective Action Coalition against Corruption (CAC) Council
- Sustainability Report

2014



- Industry Leader for the 4th consecutive year and Gold Class in Construction Materials from RobecoSAM/DJSI
- Green Industry Level 5
- Eco Factory
- Carbon Footprint Reduction Label
- Satanee Plook Khid Pun Sukh Baan Toey, Phimai District, Nakhon Ratchasima Province
- Satanee Plook Khid Pun Sukh Hom Paya Sa Sob Hok, Lampang Province
- Sustainable Happiness on the Salinity Land Handbook
- The 4th Community Satisfaction Survey
- ASEAN Sustainable Development Symposium
- Sustainability Report

2015



- Industry Leader for the 5th consecutive year and Gold Class in Construction Materials from RobecoSAM/DJSI
- SCG Code of Conduct (The latest version)
- SCG Corporate Governance Handbook (The latest version)
- Satanee Plook Khid Pun Sukh Bann Pan Tai, Lampang Province
- National Excellent Project Award 2014 on "Natural Resource Conservation and Environment" for "SCG Conserving Water for Tomorrow Project" from The National Identity Office
- Innovation for Sustainability 2015 : The Power of Collaboration
- Sustainability Report

SCG

- H.R.H. Princess Maha Chakri Sirindhorn's Trophy for Thailand Corporate Excellence Awards 2015 from Thailand Management Association (TMA) and the Sasin Graduate Institute of Business Administration of Chulalongkorn University
 - Human Resource Management Excellence for the 14th consecutive year
 - Innovation Excellence for the 10th consecutive year
 - Product/Service Excellence for the 6th consecutive year
 - Leadership Excellence for the 3rd consecutive year

- Industry Leader in Construction Materials from Dow Jones Sustainability Indices (DJSI) by Robeco Sustainable Asset Management (RobecoSAM) for the 5th consecutive year and ranked highest level (Gold Class) for the 8th consecutive year (2008-2015) from Robeco Sustainable Asset Management (RobecoSAM)

- Sustainability Award 2015 from The Stock Exchange of Thailand
 - SET Sustainability Awards
 - SET Social Enterprise Investment Awards
 - Thailand Sustainability Investment

- ASEAN Green Building Awards for SCG 100th Year Building (1st Runner Up) in Large Green Building Category

- Sustainability Report Award 2015 in Excellence for the 3rd consecutive year from Thai Listed Companies Association (CSR Club), The Securities and Exchange Commission and Thaipat Institute

- Asia IP Elite 2015 for 2nd consecutive year for the corporate with necessary expertise to create, manage, commercialise and drive strategic value from interlectual property and outstanding in managing IP for continual success from Intellectual Asset Management (IAM)

- Thailand's Top Corporate Brand Values 2015 for the 4th consecutive year from Real Estate and Construction Group from Chulalongkorn University, SETTRADE.COM Company and Manager Magazine

- IP Champion 2015 on Trademark, Patent and Design from Ministry of Commerce

- National Excellent Project Award 2014 on Natural Resource Conservation and Environment for SCG Conserving Water for Tomorrow Project from The National Identity Office



H.R.H. Princess Maha Chakri Sirindhorn's Trophy for Thailand Corporate Excellence Awards 2015



Industry Leader in Construction Materials from Dow Jones Sustainability Indices (DJSI) by Robeco Sustainable Asset Management (RobecoSAM) for the 5th consecutive year and ranked highest level (Gold Class) for the 8th consecutive year (2008-2015)

Business Unit

- ASEAN Best Practices Energy Management for Buildings and Industrial Awards (Large Industry Category) from ASEAN Center for Energy
 - Map Ta Phut Olefins Co.,Ltd.
- ASEAN Coal Awards for Coal Distribution Category (1st Runner-Up) from ASEAN Center for Energy
 - SCG Logistics Management Co., Ltd.
- Thailand Energy Award 2015 from Ministry of Energy
 - Excellent Award on Energy Conservation
 - The Siam Cement PLC for SCG 100th Year Building, Energy conservation creative building: New and Existing Building
 - The Siam Cement PLC for SCG 100th Year Building, Energy conservation creative building: Green Building
 - SCG Logistics Management Co., Ltd. for Transport
 - Thai MFC Co., Ltd. for Energy conservation at the designated
 - Map Ta Phut Olefins Co., Ltd. for Energy conservation at the designated
 - Excellent Award on Energy Management Team
 - Thai-German Ceramic Industry Public Company Limited
 - Excellent Award on Energy and Alternative Energy on Conservation Promoter
 - The Siam Cement PLC
- Special Award for TPM Achievement from Japan Institute of Plant Maintenance (JIPM)
 - Thai Containers Group Co., Ltd. (Ratchaburi, Songkhla and Pathumthani Plants)
- Award for Excellence in Consistent TPM Commitment from Japan Institute of Plant Maintenance (JIPM)
 - The Siam Fibre-Cement Co.,Ltd. (Thungsong Plant)
 - Siam Kraft Industry Co., Ltd. (Wangsala Plant)
 - Thai Containers Group Co., Ltd. (Navanakorn Plant)
- An Outstanding Workplace Award for Workplace Health and Safety 2015 from Ministry of Labor
 - Thai MMA Co., Ltd. (the 15th consecutive year)
 - Rayong Olefins Co.,Ltd (the 13rd consecutive year)
 - Siam Mitsui PTA Co., Ltd (the 13rd consecutive year)
 - Thai Polyethylene Co., Ltd. (the 11th consecutive year)
 - The Siam Refractory Industry Co., Ltd. (the 11th consecutive year)
 - Thai Containers Group Co., Ltd.; Pathumthani Plant (the 10th consecutive year), Ratchaburi Plant (the 10th consecutive year), Saraburi Plant (the 7th consecutive year), Navanakorn Plant (the 6th consecutive year), Songkhla Plant (the 6th consecutive year), Samut Prakarn Plant (the 5th consecutive year), Prachin Buri Plant (the 3th consecutive year) and Chonburi Plant (the 1st year)
 - Siam Kraft Industry Co., Ltd.; Ban Pong Plant (the 10th consecutive year), Wangsala Plant (the 2nd consecutive year)
 - Thai Plastic and Chemicals Public Company Limited (Rayong Plant for the 9th consecutive year and Samut Prakan Plant for the 2nd consecutive year)



Prime minister grants plaque of honor to SCG for becoming a Dow Jones Sustainability Indices (DJSI) listed member and an Industry Leader in 2014



Sustainability Award 2015 from The Stock Exchange of Thailand for an outstanding sustainable performance Company and supporting social enterprise

- The CPAC Roof Tile Co., Ltd. (Khon Kaen Plant for the 5th consecutive year)
- Thai MFC Co., Ltd. (the 5th consecutive year)
- Grand Siam Composites Co., Ltd. (the 4th consecutive year)
- Thai British Security Printing Public Company Limited ; Samut Prakarn Plant (the 4th consecutive year) and Bang Poo Plant (the 3rd consecutive year)
- Thai PET Resin Co., Ltd. (the 3rd consecutive year)
- Nawaplastic Industries Co., Ltd. (the 3rd consecutive year)
- Nawaplastic Industries (Saraburi) Co., Ltd. (the 3rd consecutive year)
- Map Ta Phut Olefins Co.,Ltd (the 3rd consecutive year)
- Thai British DPost Co., Ltd. (the 3rd consecutive year)
- Nawa Intertech Co., Ltd. (the 2nd consecutive year)
- Thai Containers Khonkaen Co., Ltd. (the 1st year)
- Phoenix Pulp & Paper Public Company Limited (the 1st year)

● **CSR-DIW Continuous Award 2015 from Ministry of Industry**

- The Siam Ceramic Group Industries Co., Ltd.
- The Concrete Products and Aggregate Co., Ltd.
- The CPAC Roof Tile Co., Ltd. (Khon Kaen Plant)
- Sosuco Ceramic Co., Ltd.
- Nawaplastic Industries Co., Ltd.
- Nawaplastic Industries (Saraburi) Co., Ltd.
- Nawa Intertech Co., Ltd.
- Siam Mitsui PTA Co., Ltd (the 5th consecutive year)
- Siam Kraft Industry Co., Ltd. (Wangsala Plant)
- Phoenix Pulp & Paper Public Company Limited

● **Carbon Footprint for Organization from Ministry of Natural Resources and Environment**

- Grand Siam Composites Co., Ltd.
- Thai Polyethylene Co., Ltd.
- Thai MFC Co., Ltd.
- Map Ta Phut Olefins Co., Ltd.
- Nawaplastic Industries Co., Ltd.
- Thai Containers Group Co., Ltd. (Ratchaburi Plant)
- Nawa Intertech Co., Ltd.

● **The Prime Minister's Industry Award 2015 for Energy Management from Ministry of Industry**

- Thai Polyethylene Co., Ltd.
- Nawaplastic Industries Co., Ltd. (Saraburi Plant)

● **Green Industry Level 5 from Ministry of Industry**

- The Siam Cement (Ta Luang) Co., Ltd.
- The Siam Cement (Thung Song) Co., Ltd.
- The Siam Cement (Kaeng Khoi) Co., Ltd.



Sustainability Report Award 2015 in Excellence for the 3rd consecutive year



Thailand's Top Corporate Brand Values 2015 in Real Estate and Construction Group for 4th consecutive year

- **Green Industry Level 4 from Ministry of Industry**
 - The Siam Fibre-Cement Co., Ltd. (Saraburi Plant)
 - The Siam Fibre-Cement Co., Ltd. (Ta Luang Plant)
 - Siam Sanitary Ware Industry Co., Ltd.
 - The Siam Ceramic Group Industries Co., Ltd.
 - The Fibre-Cement Products (Lampang) Co., Ltd.
 - Nawaplastic Industries Co., Ltd.
 - Nawaplastic Industries (Saraburi) Co., Ltd.
 - Nawa Intertech Co., Ltd.

- **IP Champion 2015 in Patents Category and Industrial Design Rights Category from Ministry of Commerce**
 - SCG Cement-Building Materials Co., Ltd.

- **Best Employers Thailand 2015 from Aon Hewitt, in Cooperation with Sasin**
 - The Siam Cement (Kaeng Khoi) Co., Ltd.

- **National Innovation Awards 2015 (2nd runner-up) in the Category of Economics from Ministry of Commerce**
 - Siam Mortar Co., Ltd.

- **Green Building Council of Australia, PVC Best Practice Guidelines from BSI Institute (3rd from Australia)**
 - Thai Plastic and Chemicals Public Company Limited (Rayong Plant)

- **Red Dot Award: Product Design 2015 from Design Zentrum Nordrhein Westfalen**
 - Thai Ceramic Co., Ltd.

- **WorldStar Awards 2016 in Category: Luxury from World Packaging Organization**
 - Siam Kraft Industry Co., Ltd.

- **Asia Star Award 2014 from Asian Packaging Federation**
 - Thai Containers Group Co., Ltd.

- **Hall of Fame for Outstanding Sustainable Development Practices 2015 from Federation of Philippine Industries**
 - United Pulp and Paper Co., Inc. (The Philippines)

- **MCI Best Plant Award from Mitsui Chemicals Inc.**
 - Thai PET Resin Co., Ltd. for General Manager of Headquarters Level
 - Siam Mitsui PTA Co., Ltd. for Center Executive level

- **TIS 9999:2013 Sufficiency Economy for Industries from Ministry of Industry**
 - The Siam White Cement Co., Ltd.



The Royal Award: Excellent Architectural Art Conservation Prize in 2013 Institute and Public Building at Loading Center for historical architect of SCG 100th Year



Asia IP Elite 2015 for 2nd consecutive year



IP Champion 2015 from Ministry of Commerce

Our commitment
to sustainable future has
earned **SCG** the world's
No.1 for 5 consecutive years.

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SCG has been ranked as the world's No.1* in sustainable development for 5 consecutive years, successfully balancing economy, society and environment ensuring quality of life and sustainable future for everyone. *(Global Industry Leader in Construction Materials on DJSI)

MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM

Dow Jones Sustainability Indices (DJSI), the global indexes tracking the performance of the leading sustainability driven companies worldwide, are used by asset managers of mutual funds across the world as benchmarks for making investment decisions with the confidence that companies in the DJSI can create a better and more sustainable economic value for investors.



www.scg.co.th





CORPORATE HEADQUARTERS

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