

**UPLIFT,
TRANSFORM
AND THRIVE
TOWARDS
NET ZERO**



Annual Report 2022
Form 56-1 One Report
Global Green Chemicals Public Company Limited

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Vision



To be a Leading **Green Chemical Company**
by Creating Sustainable Value



Mission

Customers

Innovate and provide excellent quality products and services for long-term partnership.

Society

Show responsibility and care for sustainable development of the environment and society.

Employees

Create a work-life balance environment and high performance organization by investing in human resources.

Stakeholders

Maximize sustainable value for stakeholders with transparency and integrity.

Green Flagship Company

of GC Group.



Objectives and Goals

Global Green Chemicals Public Company Limited (GGC) (“the Company”) systematically reviews its vision, mission, and business directions each year to align with business circumstances and outlook. For 2022-2031, GGC has objective to be a Leading of Oleochemicals and Biochemicals industry to support value-added of agricultural productivity and improve farmers’ lives through its internationally sustainable operations.



Leader in the regional oleochemical industry

GGC strives to be a domestic and regional leader in the methyl ester and fatty alcohol businesses while nurturing its ability to constantly maintain profit margins and improving its oleochemical growth capacity in the industry.

Green Flagship Company of GC Group

GGC strives to be an outstanding world-class green chemical producer in each market where it operates: biochemicals, biofuel, and bioplastics.



A company that generates secure and continual growth and profits

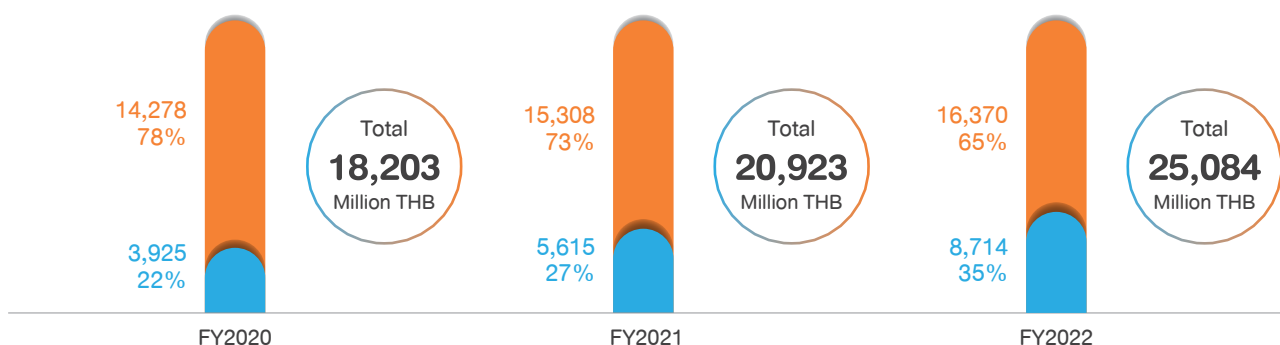
GGC strives to grow its businesses for steady return growth by improving its current plants, capacity growth by investing in new plants, market share and sales growth with a focus on high-value products, and diversified product types.

Key Financial Highlights

● Methyl Ester ● Fatty Alcohols

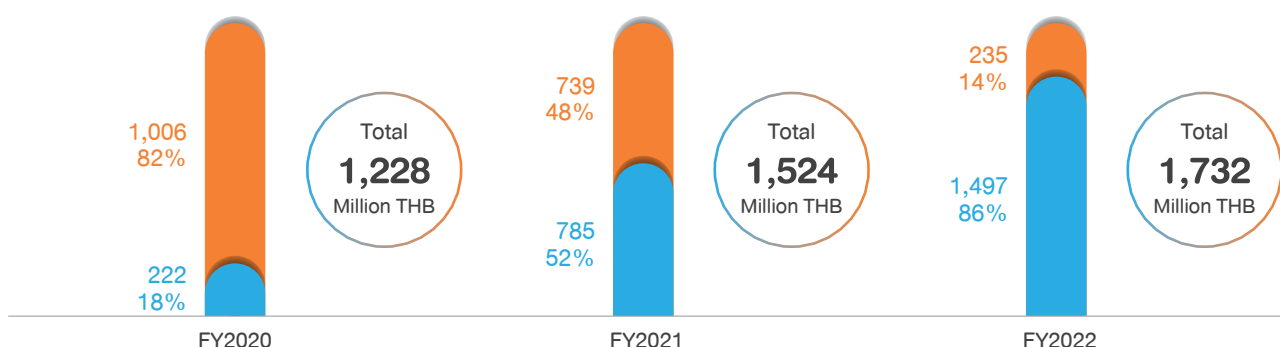
Sales Revenue

(Million THB)



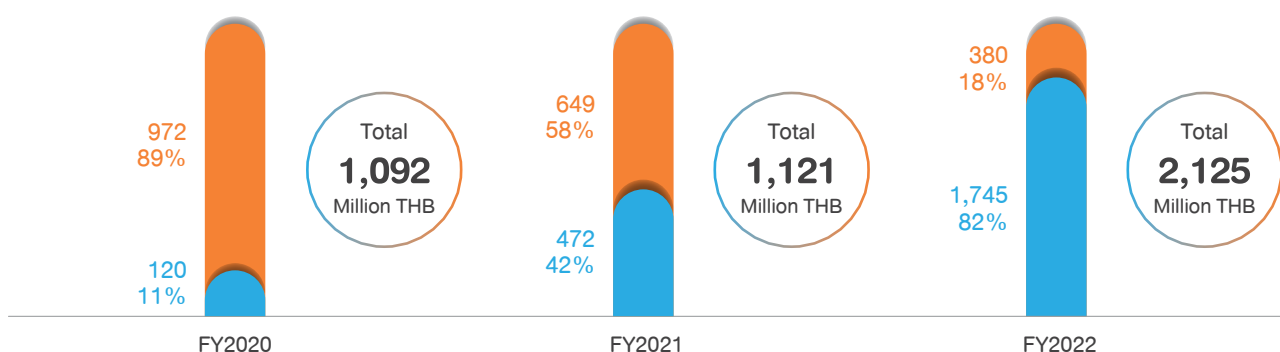
EBITDA⁽¹⁾

(Million THB)



Adjusted EBITDA⁽²⁾ Breakdown by Business Group

(Million THB)



Net Profit



*Net Profit after extra items from the provision of contingent liabilities from lawsuit and deferred income tax items.

Note:

⁽¹⁾ EBITDA refers to earnings before interest, tax, depreciation and amortization

⁽²⁾ Adjusted EBITDA refers to EBITDA excluding impact of inventory of Stock Gain/Loss and NRV.

Statement of Financial Position (Unit : Million THB)

FY2020

FY2021

FY2022

Total Assets	13,239	13,517	13,633
Cash, Cash-Equivalent and Short-Term Investment	2,142	1,791	2,734
Other Current Assets	3,985	4,856	3,803
Property, Plants & Equipment	4,576	4,259	4,072
Other Non-Current Assets	2,536	2,611	3,024
Total Liabilities	3,246	3,547	3,306
Interest-Bearing Debts	1,946	1,267	1,352
Other Liabilities	1,300	2,280	1,954
Total Equity	9,993	9,970	10,327

Financial Ratios

FY2020

FY2021

FY2022

Current Ratio (times)	3.2	2.2	3.3
EBITDA to Sales Revenue (%)	6.7	7.3	6.9
Net Profit to Sales Revenue (%)	3.1	1.6	3.8
Return on Total Assets (%)	4.9	3.5	7.8
Return on Equity (%)	5.7	3.3	9.4
Debt to Equity (times)	0.3	0.4	0.3
Interest-Bearing Debt to Equity (times)	0.2	0.1	0.1
Interest-Bearing Debt to EBITDA (times)	1.6	0.8	0.8

Dividend Paid (THB/Share)

Dividend Payout Ratio (%)

Year	Full Year	
2020 ⁽¹⁾	0.35	64%
2021 ⁽²⁾	0.35	109%
2022 ⁽³⁾	0.50	54%

Note:

- ⁽¹⁾ The Board of Directors at its meeting No 2/2021 held on February 10, 2021 has approved the proposal to propose at the 2021 Annual General Meeting of Shareholders to consider and approve on the dividend payment for the year 2020 operating performance of THB 0.35 per share. The final dividend payment of year 2020 was paid of THB 0.35 per share on April 21, 2021.
- ⁽²⁾ The Board of Directors at its meeting No 2/2022 held on February 11, 2022 has approved the proposal to propose at the 2022 Annual General Meeting of Shareholders to consider and approve on the dividend payment for the year 2021 operating performance of THB 0.35 per share. The final dividend payment of year 2020 was paid of THB 0.35 per share on April 20, 2022.
- ⁽³⁾ The Board of Directors at its meeting No 2/2023 held on February 10, 2023 has approved the proposal to propose at the 2023 Annual General Meeting of Shareholders to consider and approve on the dividend payment for the year 2022 operating performance of THB 0.50 per share, of which an interim dividend payment of the first 6 months year 2022 (January - June 2022) of THB 0.25 per share was paid on September 6, 2022. The final dividend payment of year 2022 (July - December 2022) of THB 0.25 per share. But the right to receive dividend is subject to the approval of shareholders at the 2023 Annual General Meeting.

Message from the Chairman

Global Green Chemicals Plc (“the Company” or “GGC”) is fully committed to be a leading green chemical company for business growth and be a role model for sustainable business with social and environmental responsibility under the core of the good corporate governance principle.

Throughout 2022, the Company encountered with internal and external factors: falling demand for methyl ester, a declining global economy with concerns of possible economic recession, soaring prime interest rates, a rise in inflation, a strengthening US currency, including ongoing geopolitical tension between Russia and Ukraine. Even though the COVID-19 pandemic situation has been improved, GGC persistently continued to maintain its strong competitiveness under various situation and challenging factors with proactive management, a consistent increase in efficiency and reduction of costs across the value chain, continuous improvement in short-term and long-term efficiency of production processes to maximize productivity and competitiveness. GGC managed its portfolio with marketing plan adjustment in tune with market demand, adoption of a business portfolio management approach to corporate management, and continual pursuit of business models for business opportunities. To strengthen the good corporate governance, GGC developed Risk and Control Self-Assessment (RCSA) program to fortify its risk management process and increase internal-control system efficiency. Thanks to all these efforts, GGC was rewarded with business success as originally planned in its strategy along with high-record year profitability.

Throughout the year, GGC focused on executing its strategy in four main areas to cope with the vibrant business environment: (1) Strengthening Business as Usual to fortify our competitiveness with higher potential to meet challenges in the business environment and become more resilient and ready for future growth, (2) Enlarging growth portfolio with more business opportunities for environment-friendly products through additional investments to produce high

value products from palm oil feedstock, (3) Developing its business sustainability to become a role model for sustainable business, and (4) Enhancing corporate capability with a strong foundation by focusing on people development through education, competency and skill enhancement to tackle the business environment as well as pursuing organizational transformation and increasing its strength on governance, risk and compliance (GRC) and internal control.

As a leader of oleochemicals, GGC has fully adhered to driving the corporation toward the vision through the United Nations’ Sustainable Development Goals (UN-SDGs) principles involving all aspects of development, including Economic, Social and Environment, to enhance public confidence in its sustainable growth together with creation of values and acceptance of its operating standards both domestically and internationally. Also, as a BCG role model (Bio-Circular-Green economy), GGC has invested in the Nakhonsawan Biocomplex Phase 1 and Phase 2 under joint-venture, GGC KTIS Bio Industrial Company Limited (GKBI), which is Thailand’s first Bio-Hub for high-value added products from local agricultural produce. As well as increasing its capability in the biochemicals business and also multiplying business opportunities in the biochemicals and bioplastics businesses. The project is also set to support the national pursuit of goals under the SDGs as well as boosting public confidence and expanding opportunities for business investment and partnership in the future.

Under the commitment as a member of the international sustainable organizations toward the reduction of greenhouse gas (GHG) emissions under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, GGC demonstrated this commitment with an announcement to reduce our GHG emission by 20% by 2030 and become a Net-Zero organization by 2050. These targets pose challenges with an enormous opportunity for oleochemical products to grow consistently and sustainably.



Because of the business conduct under sustainable development principles and commitment to operating its business under balanced Environment, Social and Governance (ESG), GGC has garnered an outstanding five-star corporate governance for five years in a row. GGC also earned the 'Gold Plus' Eco Factory plus Social Value (Eco Factory +^{SV}) in 2022, demonstrating business capability to operate with the right balance of Economic, Social and Environment. Also, International institutes on sustainability assessment recognized GGC's management on climate change at A-, equivalent to the 'Leadership Level' with international reliability on the Carbon Disclosure Project (CDP) for 2022, reflecting the dedication to manage its business and operate its activities with social and environmental responsibility.

On behalf of the Board of Directors, Executives, and all employees, I thank all shareholders and all stakeholders for your excellent cooperation and support throughout the years. GGC continues to fully adhere to management under sustainability development practices to cope with prevailing global challenges while creating opportunities to secure business growth to strive for industrial leadership of oleochemicals with consistent organizational growth and a business role model for sustainability under the core of the good corporate governance principle.



GGC continues to fully adhere to management under sustainability development practices to cope with prevailing global challenges while creating opportunities to secure business growth



Mr. Kongkrapan Intarajang
Chairman



Chapter 1

Business Operations and Business Overview



Business Operations and Business Overview

1. Structure and Operation of Group Companies

1.1 Policy and business overview

1.1.1 Vision, mission, business objectives and strategies

Vision

To be a leading green chemical Company by creating sustainable value

Mission

- 1) Customers: Innovate and provide excellent quality products and services for long-term partnership
- 2) Stakeholders: Maximize sustainable value for stakeholders with transparency and integrity
- 3) Employees: Create a work-life balance environment to maximize employees' value while pursuing corporate excellence
- 4) Society: Show responsibility and care for sustainable development of the environment and society
- 5) Green Flagship Company of GC Group.

Objectives and goals

Each year Global Green Chemicals Plc ("GGC or Company") systematically reviews its vision, mission, and business directions to align with business circumstances and outlook. For 2023-2032, it strives to be a leader in the oleochemical and green chemical industry in support of value addition to agricultural produce and improvement of farmers' lives. through its internationally sustainable operations

1) Leader in the regional oleochemical industry

GGC strives to be a domestic and regional leader in the methyl ester and fatty alcohol businesses while nurturing its ability to constantly maintain profit margins and improving its oleochemical growth capacity in the industry.

2) Green Flagship Company of GC Group

GGC strives to be an outstanding world-class green chemical producer in each market where it operates: biochemicals, biofuels, and bioplastics.

3) A Company that generates secure and continual growth and profits

GGC strives to grow its businesses for steady return growth by improving its current plants, capacity growth by investing in new plants, market share and sales growth with a focus on high-value products, and diversified product types.

Operating strategies

GGC remains committed to implementing its vision and mission. The Company focused on establishing and maintaining competitiveness, green biochemical business growth, stakeholder-oriented approach, sustainable business conduct, and other organizational developments to support future growth plans. The Company also deliberated, reviewed, and adjusted operating and corporate strategies in line with the dynamic environment. The Company adopt the directions and strategic plans as a corporate goal-setting framework and monitor the results regularly to ensure achievement of both short-term and long-term goals.

In 2022, the Company actively improved business processes by accelerating the implementation of corporate strategies in response to the changing internal and external situations. The key strategies are as follows:

1. Strengthen Business as Usual (BAU)

To strengthen ourselves and command competitiveness in a challenging business environment, the Company focus on accelerating competitiveness and resilience to lay a foundation for future growth with the following key strategies:

1) Sustainable Market Strategy with RSPO Demand & Market Focus: Two groups of sales and marketing activities accommodate this strategy:

- i) **Biofuels:** The Company focuses on sales stability with business partners by way of greater security of product delivery, whether product or service quality, through advocacy of sustainability across the supply chain. To this end, GGC will establish cooperation with GC Group while strengthening the supplier network by joining hands with methyl ester producers in managing product security and transportation. The Company will buy, sell, or barter with other producers in case of problems at our plants, thus fostering confidence among our customers in uninterrupted delivery as agreed.
- ii) **Biochemicals:** The Company engages in portfolio management toward higher-value markets. As the sole domestic producer of fatty alcohols, GGC commands a competitive edge against competitors in Malaysia and Indonesia. The Company therefore set a target for raising domestic sales to raise the profit per unit. Then GGC engages in scaling up oleochemical products for downstream businesses by working with GC Group companies on product development and marketing strategies to suit customers' needs. Also, the Company builds demand for biochemicals derived from RSPO-certified raw materials (building RSPO demand) through promoting sustainable oil palm planting by the domestic RSPO standard.

- 2) **Supply Chain & MTP Integration:** The Company reviews and trims operating costs for optimal efficiency across our supply chain, from feedstock supply, transport, processing, marketing, and inventory management. We manage risks from volatile feedstock and product prices; manage feedstock supply, transport, and storing feedstock and products; manage projects with GC in the Map Ta Phut Integration Project (MTPI). The hydrogen project, a group synergy project, enhances the security of our feedstock, costs, and an efficient logistics system for GGC. The Company also deploy more automatic systems and eliminate non-essential processes to enable GGC to engage in more efficient management under proper costs while raising competitiveness.
- 3) **Operational Excellence:** The Company improved its processes by developing and elevating operational excellence, aiming for targets for processing stability and efficiency—meaning maximum productivity. At the same time, The Company maintains product quality for uniform standards while maintaining GC Group’s operational excellence with due regard for safety and environmental impacts.

2. Growth Portfolio

GGC envisaged opportunities for growing the oleochemical business to create continual revenue over the long term to supplement its current business leadership by investing in products that leverage oil palm as feedstock into high-value products. To elaborate, the Company focuses is on assorted downstream products to meet our growth strategies for oleochemicals. Three groups support this aspect:

1) Biofuel Diversification:

The Company considers scaling up and add value to B100 and E100 by investigating various products to add value and markets. Equally important, GGC aims to lower the pressure produced by competition in a currently oversupplied market along with the rise in EV car use. The decision to invest is tied to the readiness for technology license, customers’ needs, the public sector’s domestic promotional measures, and international entitles that support biofuels in the medium to long term.

2) Bioplastics / Biochemicals:

The Company plans to grow our businesses to biochemicals and bioplastics under two approaches:

- 2.1) Investment in the Phase 2 Nakhonsawan Biocomplex (NBC Phase 2) or the Utility Provider Project to support utility systems based on surplus agricultural produce, including bagasse, for power and steam generation. Also included are systems for regular water, demineralized water, and wastewater treatment systems, together with a sugar-melting plant to foster synergy among GGC and business partners in biochemicals and bioplastics.

2.2) A feasibility study of project investment or pursuit of joint-venture opportunities by establishing a joint study with business partners and technology licensors. GGC commands a strategic plan for investigating product extension from methyl ester, ethanol, fatty alcohols, and glycerine to add value and keep up with world megatrends, for instance, advanced biofuels and surfactants for home and personal care (HPC), as well as biochemicals serving as bioplastics feedstock.

However, The Company pays attention to factors potentially affecting GGC, including performance, market growth, investment potential, Company preparedness, and other key factors like suitable management and business models, before the Company decides on investment for the best interests of GGC's shareholders.

3) Food & Nutraceuticals: The Company plans to grow its investment through emerging businesses to address market growth prospects for food & nutraceutical products, which has attracted health-conscious consumers' interest. The goal is to pursue such business opportunities and bring product diversity, not to mention adding value to current products to meet current customers' needs. To this end, The Company has planned short-term to medium-term activities, ranging from strategy definition, investigation of market target groups, planning business models, and developing our current feedstock, including sugar, sugarcane, palm, and palm oil, into higher-value products through processing or through various production technologies that apply products as ingredients for the food and nutraceutical group.

Finally, the medium-term to long-term goal of the Company is to enter businesses through selection of proper business partners. Such partners should be competitive in business, with their own production formulas, marketing and sales channels, and market accepted trademarks. The Company will mainly focus on business acquisitions or joint ventures, but another possibility is to invest in its own plants.

3. Sustainability

As Thailand's oleochemical leader, GGC has driven the corporation in pursuit of its sustainability vision, which agrees with the United Nations Sustainable Development Goals (SDGs), embracing economic, social, and environmental aspects to foster confidence in the sustainable growth of business, create value, and upgrade business standards for national and international acceptance. To this end, the Company has operated under the following:

1) BCG Role Model: GGC's business promotes the BCG Model, a holistic approach to economic development. The Bioeconomy focuses on using bioresources to create value, especially high-value products. It is connected to the Circular Economy, which values the maximum use of materials. In turn, such action falls under the Green Economy, which focuses on economic development in parallel with balanced socio-environmental activities. Thus, security and sustainability arise.

2) Decarbonization Pathways: The Company operates under the ESG concept by defining decarbonization pathways to Net Zero 2050. Such target-setting is a business challenge, for which the Company applies the Circular Economy to guidelines for carbon compensation through decarbonization in the following aspects:

- (1) Efficiency-Driven (Production processes, both process improvement through advanced technology and process loss reduction, to lower energy consumption and pollutant release for defined efficiency and goal achievement)
- (2) Portfolio-Driven (long-term business restructuring toward low-carbon businesses while maintaining organizational growth in line with economic directions and global business trends)
- (3) Compensation-Driven (application of carbon sequestration and pursuit of sequestration technology in support of goal achievement in a most efficient way)

The goal is to investigate Life Cycle Assessment (LCA) to achieve proper GHG emissions and GHG intensity by 2023.

3) CSV & SE Model: Remodeling CSR activities toward the social enterprise model means the Company's CSR align with SDGs in achieving business balance by way of CSR activities designed to resolve socio-environmental problems in a sustainable way. The Company has laid down strategies and plans to alter its CSR to create shared value (CSV) and social enterprises.

4) Sustainable Company: GGC strives to become a sustainable Company that is nationally and internationally accepted. To this end, the Company follows the sustainable development ways to be the oleochemical core by fostering confidence among stakeholders through operational excellence, transparency, fairness, with relentless innovation development. A sustainability management scope ensures that all practice in the same direction under international standards, with engagement of executives and employees in supporting and driving our sustainability activities.

4. Foundation

GGC values the strengthening of its foundation and ready the corporation to align with future business directions. To this end, the Company has defined a strategy for people development (current employees for competency and skills aligning with corporate directions), organizational restructuring, and corporate cultural strengthening to sustain business growth and transformation. Equally important, the Company must efficiently strengthen GRC and internal control more efficiently for GGC's comprehensive compliance with laws and regulations as well as for stakeholders' confidence in the transparency and accountability of its operations.

1.1.2 Milestone development and awards of 2022

Milestones

April 2022:

GGC launched TOPSA training to cultivate sustainable knowledge among farmers

GGC in conjunction with GIZ Thailand, a German international organization, organized the Thailand Oil Palm Smallholder Academy (TOPSA) training, consisting of five major topics: RSPO standard for oil palm production, group management, agriculture, environment, and society. The course aimed for palm growers under the Sustainable and Palm Oil Production and Procurement in Thailand (SPOPP) to turn them into instructors who pass on knowledge and understanding of the RSPO (Roundtable on Sustainable Palm Oil), which is a standard for sustainable oil palm production in economic, social, and environmental aspects. Mr. Piroj Samutthanant, the Managing Director, and management executives took part in the activity, held at Khao Lak Emerald Beach Resort and Spa, Phang Nga.

June 2022:

GGC, GIZ, and allies sign MOU to elevate oil palm and palm oil production to sustainability

GGC in conjunction with GIZ Thailand managed a project on production of oil palms and palm oil under SPOPP to promote and develop the capacity of small domestic farmers who plant oil palms and achieve the RSPO standard in the hope of elevating sustainable oil palms in Thailand. GGC and GIZ Thailand, along with palm oil extraction plant allies and a groups of oil palm growers in the South signed a memorandum of understanding for cooperation under the project. To elaborate, together they promote, support, and develop the quality of life of small farmers who plant oil palms by leveraging TOPSA to establish connectivity with the farmer network and oil palm extraction plants and grooming the farmer group for winning the RSPO standard by 2024.

August 2022:

GGC KTIS Bioindustrial Company Limited (GKBI) and GGC Group initiate NBC Phase 2

The Board of Directors and Management team congratulated GGC KTIS Bioindustrial Company Limited (GKBI) at a foundation stone-laying ceremony for the NBC Phase 2 Project at its site in Tambon Nong Pho, Amphoe Ta Khli, Nakhon Sawan. This project features GGC and KTIS as joint venturers and is operated by GKBI. Worth Baht 1.43 billion in investment, NBC Phase 2 scales up the biochemical and renewable-energy industry that focuses on creating value for agricultural produce and pursue sugarcane-based bioplastics and biochemicals industries, leveraging sophisticated and socio-environmentally friendly technology.

October 2022:

GGC took the entire business transfer of Thai Fatty Alcohols Co., Ltd.

The Board of Directors on April 27, 2022 approved the acceptance of an entire business transfer and dissolution of Thai Fatty Alcohols (TFA), wholly owned by GGC, as part of business restructuring. The move would support improvement of operating efficiency within GGC and raise its competitiveness in the fatty alcohols business further. The transfer became formally effective on October 1, 2022. TFA registered its business dissolution on October 31, 2022.

Awards of 2022

May 2022:

Plaque won for supporting community forest conservation, rehabilitation, and development

GGC received a plaque of honor from the Ministry of Natural Resources and Environment in recognition of its role as a private agency supporter of community forest conservation, rehabilitation, and development on the National Community Forest Day. GGC in conjunction with SET and public sector allies, namely the Royal Forest Department, the Thailand Greenhouse Gas Management Organization (Public Organization) and the public sector ran the Care the Wild Project (Plant & Protect) in a 20-rai community forest at Tambon Ban Sahakon Nikhom in Kanchanaburi as part of the private sector network supporting community forests and ease global warming. The project lasts 10 years.

July 2022:

White Banner, Gold Star and White Banner, Green Star Award (2021)

GGC won an award for environment and safety good governance award (White Banner, Gold Star) for the fifth consecutive year along with another (White Banner, Green Star) for the fifth consecutive year, presented by the Industrial Estate of Thailand in honor of plants equipped with efficient environmental governance management, which fosters confidence and acceptance between communities, society, and the industrial sector for sustainable co-existence.

August 2022:

CSR-DIW Continuous Award (8th consecutive year) marking sustainable responsible business

GGC received a CSR-DIW Continuous Award for 2022 certificate and plaque for the eighth consecutive year from the Department of Industrial Works, Ministry of Industry. The acclaim echoed GGC's commitment to green business, its earnest effort to uphold business standards for CSR in compliance with requirements on CSR, community engagement, and addressing community complaints. The goal is for the plants to command CSR standards that balance economic, social, and environmental aspects while striving for sustainable community development.

October 2022:

GGC garners top award for Eco Factory plus Social Value

GGC received the Eco Factory plus Social Value (Eco Factory +^{SV}) at the Gold Plus level (highest level) for 2022, presented by the Department of Industrial Works, Ministry of Industry. The acclaim echoed GGC's operations that paid regard to economic, social, and environmental balance while managing its resource consumption efficiently. The Company was regarded as ready to upgrade the community and local economies as well as creating social values to form part of the efforts to advocate Thailand's eco-industries, thus leading to the goal of a livable industrial town.

October 2022:**Five-star (Excellent) listed Company ranking for the fifth consecutive year**

GGC was selected by SET with Excellent (Five-star) ranking for the fifth consecutive year under the Corporate Governance Report of Thai Listed Companies (CGR) of Thai Institute of Directors (IOD), with the support of SET. This acclaim echoed GGC's business potential that focuses on relentless upgrading of corporate governance, embracing good corporate governance and CG, with due regard for stakeholders' roles. This fosters confidence among investors and stakeholders in GGC's operations in parallel with sustainability operations to grow business as well as confidence among all stakeholders.

December 2022:**A- ranking on Carbon Disclosure Project (CDP)**

GGC earned A- (A- Level) ranking on climate change management under the Carbon Disclosure Project (CDP) for 2022. The Company was regarded as committed to operation on a platform of sustainability, as seen in its role in joint resolving and easing impacts of climate change, transitioning to a low-carbon society as targeted by the accord reached in Sharm El Sheikh, Egypt (COP 27). GGC has set a goal for Net Zero GHG emission by 2050.

December 2022:**Third consecutive annual Sustainability Disclosure Award**

For the third consecutive year, GGC garnered the Sustainability Disclosure Award, first category, this year. The acclaim was based on the assessment of GGC's sustainability data disclosure status among the public and related stakeholders through the corporate sustainability report. GGC's sustainability report echoed operations committed to economic, social, and environmental development for the sake of sustainable growth under the standard code of the Global Reporting Initiative (GRI). Besides boosting the morale of such companies, the award recognizes business organizations for addressing SDG 12.6. There are currently 133 companies that belong to the Sustainability Disclosure Community (SDC).

1.1.3 Business overview

GGC engages in the green chemical business. Its present core products consist of methyl ester, fatty alcohols, refined glycerine, ethylene oxide (EO) products (namely fatty alcohol ethoxylates, FAEO) and ethanol.

Virtually all sold to domestic customers, methyl ester (“B100”) serves as a blending agent in high-speed diesel and the rest were exported for blending into high-speed diesel. Methyl ester is typically blended with basic diesel oil to produce high-speed diesel for sale at service stations. The total nameplate capacity of GGC’s Plant 1 and Plant 2 is 500,000 tons/year.

GGC is the sole domestic producer of fatty alcohols, the core blending component of cosmetics, surfactants, and pharmaceutical products. The nameplate capacity of GGC’s fatty alcohol plant is 100,000 tons/year.

GGC also produces refined glycerine, which finds widespread application in cosmetics and pharmaceutical products together with several by-products, including raw glycerine, yellow glycerine, potassium sulfate, methyl ester residue, and fatty alcohol residue. The total nameplate capacity of GGC’s Plant 1 and Plant 2 is 51,000 tons/year.

Methyl ester, fatty alcohols, and refined glycerine are produced by GGC and Thai Fatty Alcohols Co., Ltd. (TFA). On April 27, 2022, the Board of Directors approved the transfer of the entire TFA business, which it wholly owned directly and indirectly, to GGC as part of the business restructuring in support of its business efficiency improvement and raise its competitiveness in the fatty alcohols business. This transfer became legitimately completed on October 1, 2022.

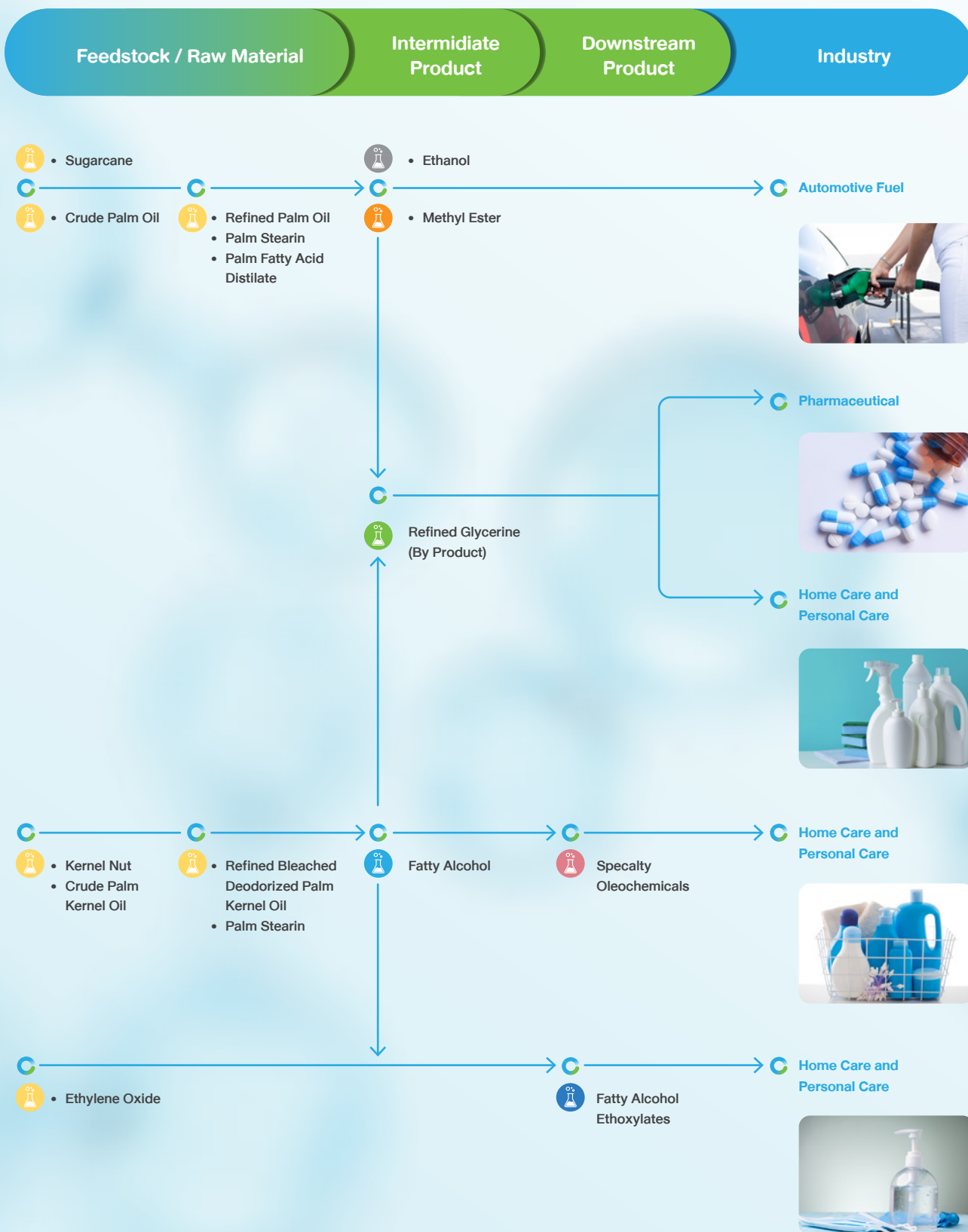
Thai Ethoxylate Co., Ltd. (TEX), equally owned by GGC and its joint-venture partner BASF (Thai) Co., Ltd., is Thailand’s sole producer of fatty alcohol ethoxylates, feedstock for personal care and home care products. It also finds application as a scouring agent in fabric preparation processes as well as a softener in the final stage of fiber preparation. With a nameplate capacity of 124,000 tons/year of fatty alcohol ethoxylates, TEX is the key domestic customer of GGC’s fatty alcohol products.

GGC wholly owns GGC Bio Co., Ltd (GGC Bio), a holding Company that operates and invests in the oleochemical business. It was formed on December 24, 2018.

GGC Bio and KTIS Bio Ethanol Co., Ltd., (KTBE) each holds 50% equity in GGC KTIS Bioindustrial Co., Ltd., formed on January 11, 2019, to invest in the construction and operation of a sugarcane mill plant, an ethanol plant, a biomass power plant complete with an option of distributing power to business operators, and a location and amenities, public utilities, and other infrastructural components needed for business operations. Commercial operation is projected to begin by Q1/2023.

GKBI produces ethanol (E100) for blending with basic gasoline. Its nameplate capacity is 600,000 liters a day (186 million liters a year or 147,000 tons a year); its power and steam generation capacity is 85 megawatts and 475 tons an hour.

Business Value Chain



Feedstock / Raw Material



GKBI Products



GGC Products



TEX Products



Products with Promising Businesses

1.1.4 Investment of funds derived from IPO

GGC's IPO took place on April 20-21 and 24, 2017, amounting to 283,666,700 shares at Baht 11.20 per share, or roughly 27.71% of all issued and subscribed shares. The Company derived a net sum of about Baht 3.056 billion after distribution fees, underwriting fees, and IPO-associated expenses. The spending objectives and investment report as of December 31, 2022, appear below.

Objective	Investment plan (Baht million)	Spending period	Investment as of December 31, 2022	Remaining fund as of December 31, 2022
1. Methyl Ester Plant	1,150	2017-2019	1,150	0
2. Biocomplex Project	1,350	2017-2024	1,221	129
3. Working capital and investment under (1) and (2) if necessary and future projects	556		308	248
Total	3,056		2,679	377

1.1.5 Key project updates

GGC reports three types of projects this year: completed projects, projects under construction, and projects under investment study.

Joint venture in the green chemical industrial estate

(under construction and under investment study)

In this joint venture in the green chemical industrial estate, GGC participated as a pilot project under Thailand's bio-industry promotional measures spanning 2018-2027. On December 24, 2018, GGC Biochemicals Co., Ltd. (GGC Bio), a GGC affiliate, signed a joint-venture agreement with KTIS Bioethanol Co., Ltd. (KTBE), an affiliate of KTIS Plc, to form a joint-venture project called "Nakhonsawan Biocomplex Project". Subsequently GGC Bio and KTBE formed a 50-50% joint-venture GGC KTIS Bioindustrial Co., Ltd. (GKBI), on January 11, 2019. The project is in Amphoe Ta Khli, Nakhon Sawan. The details are as follows;

- (1) A sugarcane juice and sugarcane syrup plant with a capacity of 2.4 million tons/year
- (2) An ethanol plant with a nameplate capacity of 186 million liters/year or 600,000 liters/day whose raw material is processed sugarcane juice or sugarcane syrup
- (3) A biomass power plant with high-pressure steam production, whose nameplate capacities are 85 megawatts (MW) and 475 tons/hour of steam

For phase 1 investment, the Board approved the project in March 2019 with a construction capital of Baht 7.5 billion; the plant is now completed, with ethanol production on stream since March 2022. First ethanol sale was in April 2022, and the Commercial Operation Date (COD) is expected in the first quarter of 2023.

It is GGC's belief that such joint venture will raise its biofuel business caliber while broadening investment opportunities for sugarcane-based biochemicals. Synergy benefit is expected through the biochemical industrial chain, and sugarcane growers in Thailand will benefit from this promotion.

Utility Provider and Infrastructure for Nakhonsawan Biocomplex Phase 2 Project

(under construction)

The Utility Provider and Infrastructure for Nakhonsawan Biocomplex Phase 2 Project is an extension to grow the caliber and value of the Nakhonsawan Biocomplex Project. To elaborate, the investment extends and foster value for Thailand's agricultural produce as well as addressing Thailand's strategies for development under the BCG Model. Finally, it underlines GGC's leadership role in the green business.

In 2021 GGC successfully attracted a new investor from the USA with confirmation made by NatureWorks LLC, the world's No. 1 producer of polylactic acid (PLA). In this Company, PTTGC holds 50%, as does Cargill Incorporated (Cargill). In this investment, GKBI provides public utility and infrastructural support, including high-stability power distribution, steam production and distribution, water production and wastewater treatment, and long-term sugar dissolution systems. Project construction is ongoing, and COD is expected by Q2/2024 with an investment of about Baht 1.43 billion.

1.2 Nature of business

1.2.1 Revenue structure

GGC's sales revenue consists of revenue derived from the sale of methyl ester, fatty alcohols, and refined glycerine in addition to by-products, including raw glycerine, yellow glycerine, potassium sulfate, methyl ester residue, and residue of fatty alcohols, in addition to sale of feedstock during certain periods.

Sales revenue by product type appears below.

For the year ended December 31

Product	2020		2021		2022	
	Sales revenue (Baht million)	Percentage of total revenue	Sales revenue (Baht million)	Percentage of total revenue	Sales revenue (Baht million)	Percentage of total revenue
Methyl ester	13,346.5	73.3%	13,924.2	66.5%	13,927.8	55.5%
Fatty alcohols	3,752.9	20.6%	5,307.7	25.4%	8,428.4	33.6%
Refined glycerine	692.2	3.8%	1,304.7	6.2%	2,006.9	8.0%
Others ⁽¹⁾	410.9	2.3%	386.8	1.8%	720.9	2.9%
Total	18,202.5	100.0%	20,923.4	100.0%	25,084.4	100.0%

Remark:

⁽¹⁾ Mainly raw glycerine, yellow glycerine, potassium sulfate, methyl ester residue, residue of fatty alcohols, and others.

Below are domestic and international sales revenues.

For the year ended December 31

Product	2020		2021		2022	
	Revenue (Baht million)	Percentage of total revenue	Revenue (Baht million)	Percentage of total revenue	Revenue (Baht million)	Percentage of total revenue
Domestic sale	15,557.5	85.5%	16,954.6	81.0%	18,665.8	74.4%
International sale						
- China & India	1,121.8	6.2%	2,258.7	10.7%	3,647.9	14.5%
- CLMV countries ⁽¹⁾	23.3	0.1%	24.5	0.1%	44.5	0.2%
- Other Asian countries	662.3	3.6%	896.4	4.4%	1,050.4	4.2%
- Others	837.6	4.6%	789.2	3.8%	1,675.4	6.7%
Total	18,202.5	100.0%	20,923.4	100.0%	25,084.0	100.0%

Remark:

⁽¹⁾ CLMV countries are Cambodia, Laos, Myanmar and Vietnam

1.2.2 Product data

Methyl Ester

(1) Nature of product

Methyl ester (also known as B100) is a basic oleochemical. It is environmentally friendly enough to be used as a blending agent in diesel fuel to produce biodiesel that meets the European standard (EN 14214). Methyl ester also enhances diesel fuel performance (lubricating, combustion efficiency, and engine life). Most important, it contributes to reduction in pollution, for instance, the PM2.5 problem or environmental impacts.

(2) Market and competition

a) Policy and Nature of Market

Methyl ester is sold to those who produce and blend high-speed diesel, the majority of whom are domestic customers. GGC sells them direct to customers under specifically agreed periods.

b) Market Overview and Trends

2022 Market Overview

The domestic methyl ester demand this year amounted to less than last year, totaling 1.26 million tons (down 0.19 million tons or 13%), mainly due to the public policy requiring reduction of the biodiesel blending ratio to only B5, effective February 5 to October 9, to ease public impacts from rising fuel prices. To elaborate, the government required a rise in the ratio to B7 from October 10, 2022 to March 31, 2023. In addition, the subsiding Covid-19 pandemic prompted the public to resume their normal lifestyles around the fourth quarter of the year, coupled with the rebounding tourism sector (both domestic tourists and visitors) probably playing a role in the rise in diesel demand from that period onward.

Supply for 2022 rose with capacity growth from current producers commanding and to the new producers commanding 300,000 tons a year—thus producing fiercer competition. The average utilization rate for the year declined to 35-40%.

Methyl ester prices in 2022 rose to about Baht 53.61 a kg, up Baht 6.18 a kg or 13% from Baht 47.43 a kg last year in line with the domestic crude palm oil (CPO) price despite the restructured methyl ester prices (reference prices of EPPO, Ministry of Energy). As a whole, prices came down from the old formula, effective October 3, 2022.

2023 Market Trends

Demand in 2023 looks brighter, at about 1.60 million tons a year (up 0.34 million tons or 27%). Again, accounting for this is the public policy to raise the blending ratio in high-speed diesel from B7 alone to three grades (B7, B10, and B20) since 1 April, 2023 after the CPO price returned to normal. Moreover, people have resumed their normal lifestyles after the subsiding Covid-19 pandemic, while the rebounding tourism sector attracted both domestic and foreign tourists. The overall demand for methyl ester therefore looks bright, whereas the supply side seems relatively stable because of no plan to grow capacities from current and new producers. It is therefore projected that the average utilization rate of the industry will rise to 50-55%.

Prices in 2023 look likely to drop to Baht 47.41 a kg (down Baht 6.20 a kg or 13%) from Baht 53.61 a kg this year in line with the domestic CPO prices and the price structure reformulation for methyl ester, based on the reference prices of EPPO, effective October 3, 2022.

Fatty Alcohols

(1) Nature of Product

Fatty alcohols are basic oleochemicals and key feedstock for the personal care industry. They are also mainly used in a wide range of products, including surfactants, plasticizers, solvents, flavorings, fragrances, detergents, foam stabilizers, lubricants, cosmetics, plastic intermediates, shampoos, paints and coatings, parts of textiles and leather products, and other industries.

(2) Market and Competition

a) Policy and Nature of Market

Thai Fatty Alcohols Company Limited (TFA) produces and sells fatty alcohols to domestic as well as foreign customers. The major customers are consumer goods manufacturers, oleochemical companies, traders and distributors, who buy and pass them on to their customers. Domestic customers sell them mostly to Thai Ethoxylates Co., Ltd. (TEX), whereas overseas markets are in Asia, Europe, South Africa, and South America.

b) Market Overview and Trends

2022 Market Overview

Demand for natural fatty alcohols this year proved more stable than last year due to the mutation of the Omicron B.1.1.529 variety of Covid-19, which proved fast-spreading and became many countries' concerns worldwide, notably China, which is the key buyer in the market. China had a policy of lockdowns to stem the spread of Covid-19, which was prevalent there in economic zones like Shanghai and main port cities in the south of China. The Zero Covid-19 policy announcement remained in use. But with the subsidence of Covid-19 situations in other countries and the border opening in buyer countries in Europe and the US as well as Asia, in addition to the tight supply, buyers returned to the market. However, the overall market demand proved vulnerable to other negative factors, including fluctuation in feedstock prices, uncertainty of geopolitical conflicts between China and Taiwan as well as between Russia and Ukraine, which could become protracted, global economic regression, inflation, the strengthening dollar, and the high logistics cost. All these have forced buyers to exercise greater care.

As for overall market demand, this year proved extremely tight. Accounting for this was the Domestic Market Obligation (DMO) of Indonesia, a major producer, which announced extension of the export ban to goods derived from palm oil (including fatty alcohols and glycerine). Exporters in that country were required to sell at least 20% to domestic markets from February 15, 2022 to March 9, 2022 to be adjusted to 30% from March 10 - 17, 2022. Naturally, during these periods, one saw limited exports in the markets and more formal export procedures. Delays were common for goods delivery to destination countries. At the same time, several major producers in the Americas and Southeast Asia faced processing problems that forced them to lower their productivity year-round. As a result, the overall market supply saw drastic reduction.

In 2022, average price of natural fatty alcohols surged from previous year. The price of mid-cut fatty alcohols fell to US\$2,008 a ton (down US\$136 a ton or 6%) whereas that of short-chain fatty alcohols jumped to US\$4,299 a ton (up US\$1,649 a ton or 62%), in much the same way as that of long-chain fatty alcohols, which surged to US\$2,554 a ton (up US\$739 a ton or 41%).

2023 Market Trends

The market for natural fatty alcohols in 2023 should stabilize to improve slightly from 2022 with the subsiding Covid-19 situation and revocation of lockdown announcements by buyer countries in Europe and US as well as Asia. Most buyers will be returning to the markets, notably that in China, the key buyer. As a result, the overall demand picture will become brighter despite the outlook of global economic regression due to rising interest rates, inflation worries, and the strengthening dollar, which depress the market's buying power. Also, uncertainty regarding the Russia-Ukraine war would deter market demand from getting too active. The overall supply of the industry appears healthier than this year, when several major producers faced processing problems and needed to trim production temporarily. And with Indonesia's DMO policy announcement in February 2022, exporters needed to sell at least 20% fatty alcohols to domestic markets before proceeding with exports, thus sharply shrinking market supply; in contrast, 2023 has not seen any Indonesian plan to declare DMO for oleochemicals.

As for the average price of fatty alcohols in 2023, one would likely see sharp reductions from 2022 to about US\$1,929 a ton (down US\$398 a ton or about 17% from this year's US\$2,327 a ton), in line with the CPKO price trend and the state of market competition, which rises with improving supply.

Refined Glycerine

(1) Nature of Product

Glycerine is a major byproduct of the manufacturing process of methyl ester and fatty alcohols. It is commonly used as an ingredient in pharmaceutical, food and personal care, and other industries.

(2) Market and Competition

a) Policy and Nature of Market

GGC sells refined glycerine to health and personal care product manufacturers and suppliers, both domestic and international, mainly through distributors, while some portions are sold direct to customers such as multinational corporations (MNCs) in the medical supply and hygiene industry as well as major medicine producers of South Asia that rely on glycerine as feedstock.

b) Market Overview and Trends

2022 Market Overview

Demand for refined glycerine in 2022 went from stable to slight improvement over previous year because of the lingering Covid-19 epidemic, which affected behavior change of the public for more cleanliness and sanitation, as well as looking after health and hygiene more, which called for increasing consumption of detergents and health care products. Despite the slow change in the Covid-19 situation in China (the key buyer), the lockdown policy to stem the spread of the virus in economic zones like Shanghai and major port cities in the south of the country, coupled with the continuing enforcement of the Zero Covid-19 policy, the glycerine market was relatively tame. During the latter part of 2022, infection began to decline, national borders were opened in buyer countries in Europe and the US as well as Asia, coupled with the tight supply of glycerine, and buyers flocked to the market again despite the geopolitical vulnerability posed by the dispute between China and Taiwan and the lingering Russia-Ukraine war, gloomy global economy, inflation, and the strengthening dollar, which made buyers more careful.

One saw extremely tight supply for glycerine in 2022 due to a DMO announcement by major producer Indonesia, which extended its announcement to oleochemicals (including fatty alcohols and glycerine). Exporters needed to sell at least 20% domestically from February 15, 2022 to March 9, 2022 rising to 30% from March 10 to 17, 2022 thus limiting market supply, with an additional process of export license application—which resulted in logistical delays before reaching destination countries. In the latter half of 2022, supply experienced a spike produced by the policy of greater blending ratios in many countries, from B5 to B7 in Thailand and from B30 to B35 in Indonesia, which naturally proved a boon to the supply of byproduct glycerine.

In 2022, glycerine averaged US\$1,295 a ton (up US\$70 a ton or 6%) against US\$1,225 a ton previous year, a healthy rise, in line with the rising CPO price and tight supply.

2023 Market Trends

In 2023, glycerine demand is to stabilize or improve mildly despite the unfolding Covid-19 situation along with healthy demand for detergents and personal health care products. Gone are national border lockdowns, particularly in China (the main market), which herald the return of demand. But with the anticipated global economic meltdown, soaring interest rates, inflation, and the strengthening dollar, the market buying power is in decline. The potentially lingering Russia-Ukraine war makes buyers even more careful with their orders.

The overall supply of glycerine in 2023 is set to rise, with the main producer of fatty alcohols beginning to operate as usual, as well as more favorable policies on alternative fuels in countries where blending ratios in biodiesel are changed, including from B7 to B7, B10, and B20 in Thailand, from B10 to B20 in Malaysia, and from B30 to B35 in Indonesia including the test of using B40 instead of B35—all of which point to increasing yields of byproducts like glycerine. At the moment, there is no plan to expand on DMO measures in 2023, so the overall market glycerine supply looks healthy, prompting more competition.

The average price of glycerine in 2023 is expected to erode sharply from last year, going from US\$1,279 a ton to about US\$1,131 a ton, or a 13% decline, in line with the price of CPO, which is projected to weaken together with rising competition amid rising supply.

Fatty Alcohol Ethoxylates

(1) Nature of Product

Fatty alcohol ethoxylates (FAEO) are produced from ethylene oxide (EO) and fatty alcohols (FA). Thai Ethoxylate Company Limited (TEX) is Thailand's sole manufacturer and distributor of FAEO, which are non-ionic surfactant feedstock for personal care products (like shampoos) and home care products (like dishwashing and cleaning solutions). FAEO also serves as a chemical for industrial and institutional applications, including the textile industry as a scouring agent for the fabric preparation process and a fabric softener in the final stage of fiber preparation. In the paper industry, FAEO serves as a wetting/dispersing agent as well as an ingredient in insecticides and weed killers.

(2) Market and Competition

a) Policy and Nature of Market

TEX has a policy to maintain and increase its FAEO market share in domestic markets while exporting them to overseas markets, Southeast Asia in particular, since the region is a production base for home and personal care products. It also aims to grow its markets to other regions where competition is low for lack of regional producers, including South Asia, the Middle East, and Africa.

b) Market Overview and Trends

2022 Market Overview

FAEO demand in 2022 came to a screeching halt from last year due to rising inflation and interest rates together with the weakening baht against the dollar. This spelled economic regression risks facing downstream industries. This happened despite relaxed Covid-19 measures of the public sector, which benefited the tourism and service sectors as well as the agricultural sector because demand in other industries—notably home and personal care industry and the paper chemical industry—appeared to be in decline along with the sluggish economy.

During the first half of the year, with the lingering Russia-Ukraine war, changes occurred in the supply chain balance, causing food and fuel price rises and in turn causing a spike in FAEO demand accompanying rising purchasing power, as the public became worried about the rising costs of feedstock. On the other hand, in the latter half of the year, FAEO demand plunged with weak prices of fatty alcohols and EO together with the lower purchasing power of consumers facing clearer economic regression. Customers chose to buy what they needed and lowered capacities in line with the market.

The FAEO supply picture in 2022 in Southeast Asia is considered healthy even though certain producers switched a part of their FAEO lines to produce polyol ethoxylate instead of polymerization in the coating and paint industry. As a result, major customers rushed to hire other producers, including producers in China. Therefore, most FAEO producers were still operating at full capacities despite demand slowdowns. Note that the situation concerning containers and freight rates favored more transport, thus lowering supply chain disruption risks.

In 2022, FAEO prices rose US\$233 a ton from previous year (a 14% rise), from an average of US\$1,659 to US\$1,873 a ton, that is, moving in the US\$1,500 to \$2,000 a ton band, in line with the fatty alcohol price range, which swung heavily this year. This is because the CPKO price rose early in the year and crashed from the beginning of the second quarter. As a result, the prices of fatty alcohols plummeted with CPKO, hitting the bottom in July and then improving a bit in the middle of the third quarter before slowing down again in the fourth quarter. The same applies to EO prices, which swung wildly due to volatile crude oil prices, a result of the Russia-Ukraine war.

In the fourth quarter, the price of FAEO followed those of fatty alcohols and EO. Probably, FAEO prices are mainly dictated by rising demand from China and India, which could spur drops in the stock levels of palm oil and CPKO, thus moving feedstock prices.

2023 Market Trends

It is GGC's projection that the global economy would continue to slow down from the latter half of 2022. Risk factors, including oil prices, rises in interest rates, and volatile global currencies would make up the environment faced by GGC. National border opening and less severity of Covid-19 infection would likely depress demand for FAEO, which is used in cleaning and personal health care. In the meantime, the recovering tourism business would spur demand for cleaning products in hotels, hospitals, and public places. GGC projects that require FAEO for chemical production in the home and personal care products would stabilize against 2022, whereas demand for FAEO for chemical production in the textile chemical, paper chemical, and construction chemical group would likely drop from 2022, as the economy becomes more sluggish.

The currently popular demand for natural feedstock or renewable feedstock would likely lower demand for products derived from the petrochemical industry, to be increasingly replaced by natural products. Products that help cut production costs for customers together with providing solutions to R&D and innovation represent ways to preserve current customers and extend a new clientele in 2023.

Ethanol

(1) Nature of Product

Ethanol is derived from sugarcane, among others. Pure ethanol (E100) can blend with basic gasoline—known as gasohol—for use in gasoline engines. Since it comes from a natural raw material (sugarcane), its consumption supports farmers while lowering pollution and environmental impacts.

(2) Market and Competition

a) Policy and Nature of Market

Ethanol is sold to gasoline producers and blenders, most of whom are domestic customers. GGC sells it direct to customers under defined sales contracts covering specific time periods.

b) Market Overview and Trends

2022 Market Overview

In 2022, the demand for E100 proved healthy, rising to about 1.12 million tons a year (up 0.05 million tons or 4%), mainly due to the public's lifestyles return to normalcy from the subsiding Covid-19, coupled with the resilient tourism industry, once again attracting domestic as well as international tourists.

Ethanol supply this year was also healthy, as a new producer (GGC KTIS Bioindustrial Co., Ltd.), with a 147,000-ton/year capacity, entered the picture, spurring competition. GGC projects that the utilization rate of the industry dropped this year to about 56%.

As for its prices this year, ethanol cost about Baht 27.40 a liter (down Baht 1.93 a liter or 8% from Baht 25.47 a liter), rising with the prices of raw materials: sugarcane, molasses, and particularly cassava chips, which soared. Thus, one saw rises in the average production costs and market prices of ethanol.

2023 Market Trends

Demand for E100 in 2023 would result in improvement from this year to about 1.30 million tons a year (up 0.18 million tons a year or 16%), mainly due to the public's return to normalcy from the subsiding Covid-19 situation, coupled with the resilient tourism industry attracting domestic as well as international tourists, and to the prices of feedstock (especially cassava chips) which look set to drop to near-normal levels. Such adjustment would cut the production cost and average price of ethanol, hence our projection for a rising supply.

On the supply side, 2023 would probably see growth accompanying current producers' capacity expansion plan by 159,000 million tons a year or 9%--in other words, comparable to rising demand. The Company therefore projects that the industry's utilization rate would rise to about 60%.

As for the average ethanol price in 2023, it would likely fall to about Baht 24 a liter (down Baht 3.40 a liter or 12% from Baht 27.40 a liter). This weakening trend follows the feedstock price trend from sugarcane, molasses, and cassava chips, which are projected to start returning to normal levels, thus depressing both production costs and average ethanol price.

1.2.3 Procurement of raw materials

Crude Palm Oil (CPO)

The most common raw material for GGC's methyl ester plants is crude palm oil (CPO), purchased strictly from domestic sources to promote Thailand's agriculture and downstream industries.

In the process of CPO production from palm clusters, the inner seeds can be extracted into crude palm kernel oil, the most common raw material for fatty alcohols (FA). GGC again emphasizes purchase CPKO from domestic sources to promote domestic agriculture and downstream industries. Yet, at times domestic CPKO supply may fall short of GGC's demand, hence occasional imports from Malaysia and Indonesia.

Another byproduct from the production of methyl ester and FA is raw glycerine, which in turn yields refined glycerine. Apart from raw glycerine, GGC procures it from other producers of methyl ester. Currently GGC commercially operates plants with a total nameplate capacity of 51,000 tons/year.

2022 Domestic Oil Palm Overview

In 2022, the domestic oil palm volume was about 18.84 million tons, a rise from 16.57 million tons last year, due to this year's greater palm acreage of Thailand's South. Farmers expanded their acreage by planting palm oil in empty lots instead of other plants, including rambutan, southern langsat, coffee, old para rubber, and para rubber with decaying roots. Notably, the excess rainfall from late 2021 to 2022 proved a boon to oil palm planting, with evenly distributed crops and heavier clusters than previous years; the rising palm prices also enabled farmers to use quality fertilizers, in turn leading to higher productivity.

This year the CPO demand for energy registered about 0.93 million tons, down from 1.15 million tons last year, caused by the government's measure to prevent and curb Covid-19, thus resulting in lower diesel consumption in the transport and logistics sector. Since late 2021, the public sector has required a decrease in the palm oil blending ratio in biodiesel from three grades (basic B10, B7, and alternative B20) to B5 from February 5 to October 9, 2022 and to B7 from October 10, 2022 onward. CPO demand for consumption this year was about 1.23 million tons, down from 1.25 million tons last year, whereas its export demand was about 1.01 million tons, up from 0.62 million tons last year. Accounting for this rise were elevated world market prices caused by Indonesia's export ban on all palm oil to solve domestic cooking oil shortage, expensive commodity problems including palm oil, and a political crisis. Thailand benefited from this and continually exported the product, resulting in the year-end 2022 palm oil stock of about 349,213 tons (up 172,657 tons from the same time last year). The year-round stock was not too high, while overseas prices were high, resulting in the year-round high CPO prices.

The overseas market for palm in the first half of 2022 saw tight supply due to the previously mentioned announcement of Indonesia banning exports of any type of palm oil. On the demand side, due to the Russia-Ukraine war, exports of sunflower seeds to India fell, causing India to secure palm oil to make up for the fall. But during the second half of the year, with Indonesia's abolition of the ban on exports, supply looked promising. Indonesian and Malaysian CPOs were higher than expected, while both countries' stocks remained high. In the meantime, demand dropped with the concern over falling demand in China, where more Covid-19 infected victims were discovered each day, thus prompting China to return to lockdowns. Finally, demand dropped because of concerns over global economic regression, which also caused prices to erode from the first half of the year.

The average price of CPO announced by the Department of Internal Trade was Baht 43.59 a kg, up from the average last year of Baht 38.02 a kg.

2023 Domestic Oil Palm Outlook

The Company projected that the domestic palm output would rise from this year because of favorable weather conditions, with rising rainfall in the South because of the La Nina phenomenon. In addition, the average planting areas appear to grow by 100,000-200,000 rai (1 acre equals 2.5 rai) a year. Currently, oil palm trees aged over 8 years command high yields per rai. The Office of Agricultural Economics has projected that a yield of palm shall be about 3.42 million tons, up about 4.5%. Domestic demand is also expected to grow 12-14% due to the following. First, the public sector's relaxation of Covid-19 measures, which would enable the economy to pick up. Second, the buoyant effect of the refined palm oil industry. Third, demand for CPO for the refined palm oil process, which could grow by 7-8% along with the tendency of the food industry that looks set to rebound with the recovering tourism, hotel, and restaurant businesses. As for the biodiesel industry, steady growth is projected at 5.3-5.5 million liters a day (averaging 20-22% a year) in line with rising demand posed by diesel vehicles in the transport sector. Finally, according to projections, exports would return to normal, with 21-23% growth a year.

Fatty Alcohols and Ethylene Oxide

The most common raw materials for fatty alcohol ethoxylate are fatty alcohol (FA) and ethylene oxide (EO). Thai Ethoxylates Co., Ltd. (TEX) takes FA via a pipeline from GGC, which connects to the fatty alcohol ethoxylate plant of TEX.

TEX also imports some FA and purchases EO from GC Glycol Co., Ltd., an affiliate of GC Group, under a long-term purchase agreement. TEX's operation is carried out at its 124,000-ton/year plant.

Sugarcane

The most common raw material for GGC KTIS Bioindustrial Co., Ltd. (GKBI) plant is sugarcane juice. Primarily, sugarcane is purchased from plantations around the plant to promote Thailand's agriculture and downstream industries.

GKBI's 146,750-ton/year plant is producing ethanol on a commercial scale.

2022 Domestic Sugarcane Overview

In 2022, the sugarcane harvest stood at about 92 million tons, up about 37% or about 25 million tons from previous year. The major factor was Thailand's recovery from drought, which enabled farmers to plant sugarcane and deliver more harvest to market.

Nevertheless, the year also saw sugarcane demand hikes, notably in the energy sector, which has relied on sugarcane as an ethanol raw material, at about 67 million tons a year (up 1 million tons or 2%). The subsiding Covid-19 enabled the public sector to ease its measures curbing travel, issue measures for country reopening, and issue a tourism promotion policy. The public has begun to resume its lifestyles, in the process requiring more gasohol, with ethanol blending, for travel.

The average price of sugarcane this year was Baht 1,070 per ton, rising 16% or Baht 150 per ton from last year in line with higher market demand.

2023 Domestic Sugarcane Outlook

GGC projects that 2023 will see a greater domestic sugarcane harvest than this year, amounting to about 106 million tons, supported by favorable climate and a stronger call for sugarcane for domestic ethanol production, which looks set to grow about 16% to address the public sector's relaxed Covid-19 measures. Recovering and bound for steady growth are the tourism and hotel business as well as the economy as a whole.

1.2.4 Business assets

Key fixed assets of GGC and subsidiaries

As of December 31, 2022, the following items and book values after cumulative depreciation and losses resulting from impairment of their buildings and equipment appeared in GGC's financial statements as detailed below.

Key permanent asset	Ownership	Net book value as of		
		December 31, 2021 (Baht)	December 31, 2022 (Baht)	Obligation (Baht)
Plants, machinery, equipment, and plant apparatus	Business-owned	3,730,074,364	3,532,731,318	No Obligation
Buildings and building addenda	Business-owned	320,538,776	303,405,100	No Obligation
Relandscaping	Business-owned	26,595,414	24,024,609	No Obligation
Fixtures and office equipment	Business-owned / leased assets	7,189,836	11,328,564	No Obligation
Vehicles	Business-owned / leased assets	2,141,817	1,582,725	No Obligation
Assets under construction	Business-owned	172,273,596	198,982,933	No Obligation
Total net book value		4,258,813,803	4,072,055,249	

Land lease rights

Below is a list of GGC's and subsidiaries' land lease rights as of December 31, 2022.

- (1) Title deed No. 111033 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 27 rai 3 ngan 13.598 sq. wah, owned by PTT Global Chemical Plc. Lease period of 30 years from August 1, 2006, to July 31, 2036. Location of Methyl Ester Plant 1.
- (2) Title deed No. 123254 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 9 rai 3 ngan 43.9 sq. wah, owned by PTT Global Chemical Plc. Lease period of 30 years from August 1, 2006, to July 31, 2036. Location of Methyl Ester Plant 1.
- (3) Title deed No. 126435 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 28.70 sq. wah, owned by PTT Global Chemical Plc. Lease period of 16 years 7 months 15 days from December 17, 2019, to July 31, 2036. Location of Methyl Ester Plant 1.
- (4) Title deed No. 6150 in Tambon Khao Sok, Amphoe Nong Yai, Chon Buri, occupying 27 rai 2 ngan, owned by Thai Eastern Industrial Land Co., Ltd. Lease period of 30 years from April 1, 2006, to March 31, 2046. Location of Methyl Ester Plant 2.
- (5) Title deed No. 6150 in Tambon Khao Sok, Amphoe Nong Yai, Chon Buri, occupying 2 rai 2 ngan, owned by Thai Eastern Industrial Land Co., Ltd. Lease period of 30 years from March 1, 2018, to February 29, 2048. Location of Refined Glycerine Plant 2.
- (6) Title deed No. 111033 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 2 rai 86.402 sq. wah, owned by PTT Global Chemical Plc. Lease period of 30 years from August 1, 2006, to July 31, 2036. Location of Fatty Alcohols Plant.

Other lease rights not recorded with other land lease rights as of December 31, 2022.

- (1) Space lease contract for offices and service contracts with Energy Complex Co., Ltd., at 555/1 Energy Complex, Building A, 4th Floor. Contract period of 2 years from October 1, 2022, to September 30, 2024. Lease area of 837 sq. m.
- (2) Space lease contract rent for offices with GC Estate Co., Ltd., at 888, 3rd Floor, Map Chalut – Laem Son Road, Tambon Huai Pong, Amphoe Mueang Rayong, Rayong. Contract period of 3 years from September 1, 2020, to August 31, 2023. Lease area of 750 sq. m.
- (3) Land lease contract with PTT Global Chemical Plc, part of title deed No. 77010, land plot No. 45. Contract period of 8 months from May 1 to December 31, 2022. Lease area of 1 rai.

Usage rights assets

Below are details of GGC's and subsidiaries' usage rights assets as of December 31, 2022.

(Baht)

Usage right	Net value after cumulative amortization and provision for asset impairment
Land	156,169,662
Buildings	7,811,645
Plants, machinery, equipment, and tools	185,075,901
Vehicles	36,106,154
Total net book value	385,163,362

Intangible assets

Below are details of GGC's and subsidiaries' intangible assets as of December 31, 2022.

(Baht)

Intangible asset	Net value after cumulative amortization and provision for asset impairment
Production process patent fees	18,308,837
Goodwill	33,527,418
Other intangible assets	23,731,167
Total net book value	75,567,422

Trademarks and service marks

As of December 31, 2022, GGC and / or subsidiaries owned key trademarks below.

Service mark / trademark	THAIOL	For industrial application of fatty alcohols
Country	Period	
Thailand	August 21, 2017 – August 21, 2027	
India	August 22, 2017 – August 22, 2027	
South Africa	September 7, 2017 – September 7, 2027	
Mexico	August 23, 2017 – August 23, 2027	
New Zealand	August 20, 2017 – August 20, 2027	
Indonesia	September 7, 2017 – September 7, 2027	
Malaysia	September 19, 2017 – September 19, 2027	
Chile	February 27, 2018 – February 27, 2028	
Philippines	March 10, 2018 – March 10, 2028	
Columbia	April 30, 2018 – April 30, 2028	
Argentina	August 15, 2018 – August 20, 2028	
Brazil	March 24, 2015 – March 24, 2025	
Canada	March 21, 2016 – March 21, 2025	

Service mark / trademark		For application of chemical fertilizer (potassium sulfate)
Country	Period	
Thailand	September 23, 2019 – September 22, 2029	

Other intellectual property rights

GGC holds no current intellectual property.

GGC entered into a licensing agreement with UHDE GMBH (Uhde) with effect from September 7, 2006, under which Uhde licensed application of Agrar Technik's technology in GGC's methyl ester plants through the plants' operating periods. GGC has paid the full sum for this license as laid out in such agreement.

GGC also entered into a licensing agreement with a leading German technology firm for technological application in its fatty alcohol plant through its operating period. Development of technology for fatty alcohol production belongs solely to the Company; in return, GGC is eligible for the rights to upgraded technology in its processes, but such rights are non-transferable and not limited to GGC. GGC has paid the full sum for this license as laid out in such agreement.

Investment promotion certificates

GGC and subsidiaries earned investment promotion certificates from the Office of the Board of Investment of Thailand (BOI) in the form of tax privileges, including corporate income tax rebates for net profits applicable to income generation of business, beginning on the start date of net profit accrual.

Below are details of GGC's and subsidiaries' certificates valid as of December 31, 2022.

Promoted project number	Promotion date	Product and capacity	Expiry of income tax privileges	Remarks
1. Production of methyl ester, fatty alcohols, glycerine, and potassium sulfate. Promotion approved under notification No. Nor Ror 1308/526, under application for certificate issuance in line with efficiency improvement measure	June 1, 2022	- Methyl ester, about 300,000 tons/year - Fatty alcohols, about 120,000 tons/year - Glycerine, about 42,000 tons/year - Potassium sulfate, about 4,500 tons/year	3 years from the issuance date of the certificate	
2. Production of biodiesel, Certificate No. 59-1251-1-00-1-0	September 28, 2016	Biodiesel or methyl ester, about 346,820,810 liters/year (300,000 tons/year)	November 17, 2026	
3. Refined glycerine, Certificate No. 60-1232-1-18-1-0	October 10, 2017	Refined glycerine (99.5% purity or more), about 45,000 tons/year	November 23, 2033	
4. Fatty alcohols, Certificate No. 65-1245-0-00-0-2	October 4, 2022	- Fractionated fatty alcohols, about 120,000 tons/year - By-products (light-ends hydrocarbons, about 1,700 tons/year, and residue, about 1,250 tons/year)	Privileges were only for machinery, feedstock, and non-tax privileges	This was a business transfer from Thai Fatty Alcohols Co., Ltd.

Policy on investment in subsidiaries

GGC's policy is to invest in subsidiaries and associated companies that agree with its goals, vision, and strategic plans for its own growth and supports the businesses of downstream companies, or downstream businesses, or those with comparable nature, or those investing in synergistic undertakings with GGC to raise competitiveness and produce sound outcomes as well as long-term security. GGC implements its investment strategy and operational philosophy to ensure that scrutiny of investment, investment models, and its project implementation align with the nature of business and core competencies of GGC before defining suitable scrutiny approaches for the corporate business plans. To this end, GGC analyzes investment feasibility by setting criteria for such scrutiny in aspects including market demand and supply chain, technology and engineering, competitiveness, and requirements, contracts, and regulations. It also conducts project risk assessment. Appropriate analytical procedures and consideration are in place, following GGC's investment scrutiny process, including the Board of Directors's approval or the AGM's approval (as applicable). Requests for approval by subsidiaries or associates, or both, must comply with applicable SEC and SET announcements.

For proper governance of these companies, the Company delegates its Executives as managing directors of subsidiaries. The Executives, meaning its vice presidents or above, also serve as directors of these companies. Through these actions, GGC takes part in the formulation of policies, proper and watertight internal control system through oversight under the GGC Way of Conduct approach, has access to data, and periodically monitors these companies' operations as a way of stewardship of GGC's investment funds against GGC's criteria. If any of these companies engages in businesses with significant involvement with GGC, such engagement must secure prior approval from management committee meetings or Board meetings, or both, as applicable.

In 2022, GGC commanded investment in the following subsidiaries and associated companies.

Company	Abbreviation	Business	Registered capital (Baht million)	Paid-up capital (Baht million)	Percentage of shareholding	Share type
Subsidiaries						
1. Thai Fatty Alcohols Co., Ltd. ⁽¹⁾ 555/1 Energy Complex Building A, 15 th floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Phone: +66 (0) 2 265-8400 Fax: +66 (0) 2 265-8500	TFA	Production and sale of fatty alcohol products	1,060	1,060	100	Common
2. GGC Biochemicals Co., Ltd. 555/1 Energy Complex Building A, 4 th floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Phone: +66 (0) 2 558-7300 Fax: +66 (0) 2 558-7301	GGC Bio	Oleochemical business	1,672.5	1,374.25	100	Common
Joint venture						
3. Thai Ethoxylate Co., Ltd. 555/1 Energy Complex Building A, 15 th floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Phone: +66 (0) 2 265-8400 Fax: +66 (0) 2 265-8125	TEX	Production and sale of fatty alcohol ethoxylates	420	420	50	Common
Indirect Joint venture						
4. GGC KTIS Bioindustrial Co., Ltd. 133 Vibhavadi Rangsit Road, Samsen Nai, Bangkok 10400 Phone: +66 (0) 2 248-2767	GKBI	Power generation and distribution together with production of sugarcane-based ethanol	3,315	2,725.50	50 (through GGC Bio)	Common

Remark:

⁽¹⁾ On April 27, 2022, the Board approved the entire business transfer of Thai Fatty Alcohols (TFA) to GGC, which was completed on October 31, 2022

1.3 Shareholding structures of Group companies

1.3.1 Shareholding structures of Group companies and relationship with major shareholders



Remarks:

Subsidiaries

- Thai Fatty Alcohols Co., Ltd. (TFA)
On April 27, 2022, the Board approved the entire business transfer of TFA to GGC, which was completed to October 31, 2022
- GGC Biochemicals Co., Ltd. (GGC Bio)

Joint venture

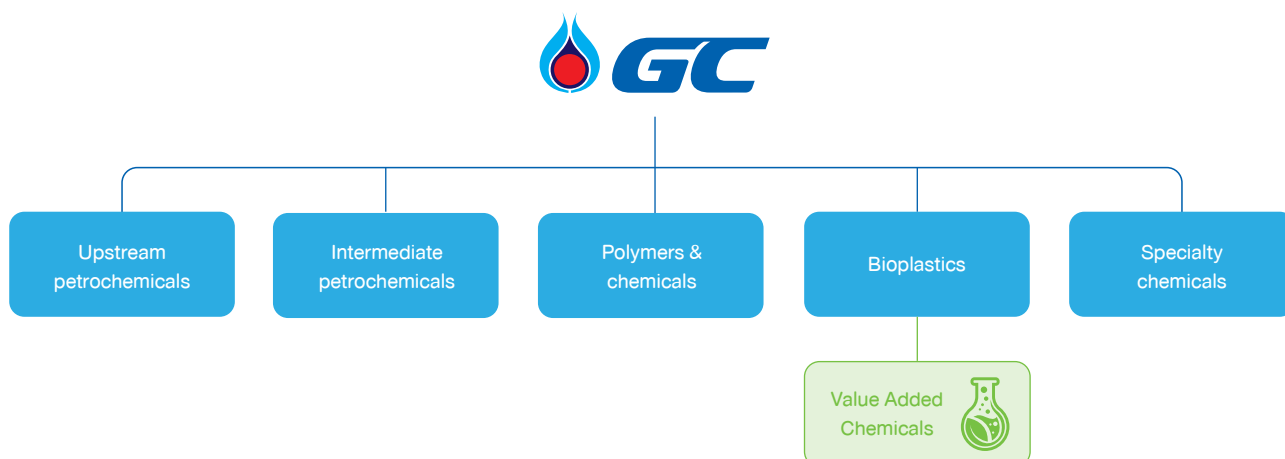
- Thai Ethoxylate Co., Ltd. (TEX, a joint venture between GGC and BASF (Thai) Co., Ltd.)

Indirect joint venture

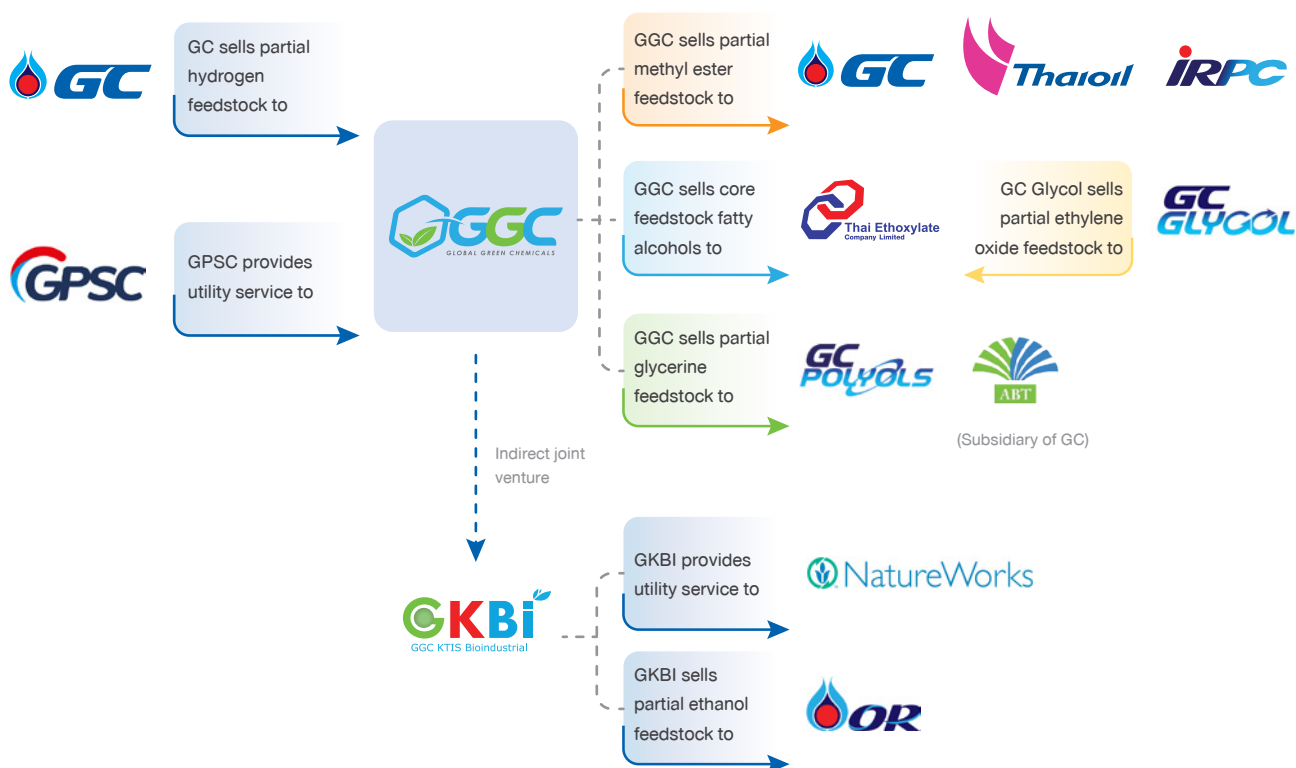
- GGC KTIS Bioindustrial Co., Ltd. (GKBI, a joint venture between GGC and KTIS Bio Ethanol Co., Ltd.)

Relationship with major shareholders' businesses

GGC belongs to the oleochemical business under the management of the oleochemical business of PTT Global Chemical Plc, as shown in the management structure below:



Key relationship between GGC and other companies under PTT Group engaging significantly in businesses with GGC's core businesses is shown below.



1.3.2 Shareholders

Below are the top 10 shareholders as of the share-roster closing date of August 23, 2022.

Name	Shareholding	Percentage
1. PTT Global Chemical Plc ⁽¹⁾	739,999,980	72.29
2. Mr. Samroeng Manoonpol ⁽²⁾	139,631,900	13.64
3. Ms. Pensri Ratanasuntharakul	14,149,400	1.38
4. Mr. Songchai Ajchariyahiranchai	7,500,000	0.73
5. Mr. Suthat Tejavibul	6,818,800	0.67
6. Ms. Pornrat Ajchariyahiranchai	4,937,900	0.48
7. Thai NVDR Co., Ltd.	4,238,300	0.41
8. Mr. Sanchai Wiriathawichai	4,100,000	0.40
9. Ms. Rattiporn Kornsutthisopon	2,960,000	0.29
10. Ms. Khanthong Udommahantisuk	2,900,000	0.28

Remarks:

⁽¹⁾ The de facto major shareholder significantly influencing GGC's management policy or its operations was PTT Global Chemical Plc (GC), with 72.29% shareholding. It was represented on the Board of Directors by three Directors/Executives out of the 11 directors. GC's major shareholder is PTT Plc.

⁽²⁾ Mr. Samroeng Manoonpol, another major shareholder, held significant influence over GGC's management policy or its operations and was represented on the Board of Directors by one out of the 11 directors.

As of August 23, 2022, GGC had a total of 21 foreign shareholders, with a combined shareholding of 6,091,605 shares or 0.60 percent of the paid-up registered capital.

1.4 Registered capital and paid-up capital

As of December 31, 2022, GGC's registered capital amounted to Baht 9,724,833,650, consisting of 1,023,666,700 ordinary shares at Baht 9.50 per share. The paid-up portion amounted to Baht 9,724,833,650.

Limit on GGC's share transfer

Under its articles of association on GGC's restriction on aliens' shareholding, Clause 8 reads "The Company's shares may be freely transferred except if a transfer gives alien shareholders more than 37% of all sold shares. GGC reserves the right to reject such share transfer should such percentage be exceeded."

1.5 Dividend policy

GGC's dividend policy

The Board of Directors meeting No. 7/2558 of September 25, 2013, defined a dividend payment policy to shareholders at no less than 30% of net profit after tax and capital provisions provided that such payment is subject to investment plans, necessity, and other justifications.

Subsidiaries'/associates' dividend policy

In deciding this matter, the board of each subsidiary/associate in question endorses and proposes the matter to the shareholders' meeting for approval each year. Dividend payment considers essential investment plans and other appropriate matters, including the adequacy of cash flow after legally required capital provisions.

Dividend payment profile the last 3 years

Year	Dividend paid (Baht/share)			Percentage of dividend paid to net profit	Net profit per share (Baht/share)
	First half-year	Second half-year	Full year		
2019 ⁽¹⁾	0.15	0.20	0.35	56 ⁽²⁾	0.09
2020 ⁽³⁾	-	0.35	0.35	64	0.55
2021 ⁽⁴⁾	-	-	0.35	109	0.32
2022 ⁽⁵⁾	0.25	0.25	0.50	54	0.93

Remark:

⁽¹⁾ Board Meeting No. 2/2563 of February 14, 2020, endorsed a proposal for the 2020 AGM to approve dividend payment for the performance of GGC and subsidiaries in 2019 at Baht 0.35 per share, to be divided into interim payment for first-half (January-June) performance of 2019 at Baht 0.15 per share. This was paid out on October 9, 2019. For the second-half (July-December) performance of the same year, the rate was to be Baht 0.20 per share, and the payment was made on April 23, 2020.

⁽²⁾ Calculated from the 2019 separate financial statements.

⁽³⁾ Board Meeting No. 2/2564 of February 10, 2021, endorsed a proposal for the 2021 AGM to approve dividend payment for the performance of GGC and subsidiaries in 2020 at Baht 0.35 per share.

⁽⁴⁾ Board Meeting No. 2/2565 of February 11, 2022, endorsed a proposal for the 2022 AGM to approve dividend payment for the performance of GGC and subsidiaries in 2020 at Baht 0.35 per share.

⁽⁵⁾ Board Meeting No. 2/2566 of February 10, 2023, endorsed a proposal for the 2023 AGM to approve dividend payment for the performance of GGC and subsidiaries in 2019 at Baht 0.50 per share, to be divided into interim payment for first-half (January-June) performance of 2022 at Baht 0.25 per share. This was paid out on September 6, 2022. For the second-half (July-December) performance of the same year, the rate was to be Baht 0.25 per share. However, the right to receive such dividend is subject to the approval of the 2023 AGM.

2. Risk Management

2.1 Risk Management Policy and Plan

Risk Management

Global Green Chemicals Public Company Limited (“GGC or Company”) encountered multiple domestic and international challenges throughout 2022 including military tension between Russia and Ukraine, leading to severe disruption of the supply chain and cross-border trade, rapid rise in global inflation, more forceful trade competition, and higher volatile prices of feedstock and products. Nevertheless, thanks to a fully reliable risk management system and close supervision by the Enterprise Risk Management Committee (ERMC) and the Risk Management Committee (RMC), the Company was able to cope with and manage the challenges, closely monitor the market situation and mitigate all key risks affecting its business performance such as sales management, supply chain management, inventory management, operating performance of GGC and subsidiaries, exchange rate volatility, and other emerging risks potentially impacting corporate goals.

Market competition was escalated by feedstock and product price volatility and the fall in biodiesel demand driven by the government measures countering the rising oil price by short-term adjustment of a lower biodiesel composition in B5. However, the energy outlook became normalized after the lower price of global energy and crude palm oil while demand for transport fuels was higher following the relaxation of cross-border travel bans and tourism promotion, leading to the adjustment of a higher biodiesel composition in B7 and resulting in softening market competition from early in the year.

GGC actively and continually seeks more business opportunities and emerging markets, including solvents and health care products. The global demand for fatty-alcohol products rose sharply in 2022, following the escalation of the Covid-19 pandemic.

GGC’s risk mitigation practices range from close monitoring of market situations, weekly impact assessment, to implementation of various measures to minimize risk exposures and reduce potential impacts, resulting in reduction of expenses and production costs, business partnering to maintain market shares, customer relationship and responses to customer demands, key project capital review, adjustment of production and sales plans to minimize price risks and price differences, feedstock and product price volatility reviews, inventory management improvement, and exchange rate management to prevent financial losses. All these practices are continuously executed by Executives and employees of all units coherently to promptly respond to the dynamic market environment, leading to efficient and decent standards of risk management, and consistent system improvements enterprise-wide, intended to reduce chances and damage or conversely, to capture business opportunities which in turn increase GGC’s competitive advantages and sustainable business performance.

GGC is fully committed to executing its risk management system and continuously improve its internal control system in line with corporate strategic management to achieve strategic objectives and corporate business goals under manageable risk control and risk appetites. GGC's risk management coverage includes quality, security, safety, occupational health, and environment; legal, regulatory, and operating standard compliance; anti-corruption practices; and fair responses to stakeholders. All employees are systematically encouraged to adhere to the enterprise risk management system. All performances are annually evaluated against corporate strategic objectives and measured against strategic targets. To ensure ongoing business operations and full alignment within the corporation, corporate communication with emphasis on risk management policy, principles, and procedures is continuously engaged with all Executives and employees. Communication also enhances the awareness of potential risks and their impacts on the entire value chain, leading to reliable and efficient risk management. The risk management system is managed by the corporate workforce, ranging from the RMC and the Board of Directors to operating Executives and personnel, with specific assignments on managing risks and risk assessment of domestic and international factors potentially affecting GGC's business performance. Risk management is incorporated with strategic planning, investment schedules, and business plans to meet short-term and long-term annual goals under an acceptable and manageable risk threshold.

Risk Management Standards

To ensure achievement of short-term and long-term strategic objectives and business goals, risk management is a prime tool to enhance the overall performance and drive business operations. GGC has adopted the 2017 Committee of Sponsoring Organizations of the Treadway Commission for its enterprise risk management (COSO-ERM 2017), the 2018 International Organization for Standardization (ISO 31000:2018), and the 2017 Thai Corporate Governance Code for Listed Companies, as well as adhering to guidelines for and commitment to anti-corruption practices. The Company was certified as a member of the Thai Collective Action against Corruption (CAC). The enterprise risk management system is incorporated with policies, laws, regulations, and standard operating procedures, as well as corporate governance, integrated risk management and internal control, and governance, risk and compliance (GRC). This fully integrated enterprise risk management system successfully prevents, reduces, and mitigates risks and their impacts to achieve strategic objectives and business targets.

Risk Management Structure

GGC has adopted a triple-tier risk management architecture to interconnect the facets of its enterprise risk management system. Additional system improvements were made during 2022 as follows:

Risk Management Structure

1. The Board of Directors Level

Existing Assignments

- Officiating a Risk Management Committee (RMC) with the following roles, duties and responsibilities:
- Executing risk management on behalf of the Board, including reviewing, making comments and suggestions, and defining the risk framework for the Company to pursue business goals successfully under prevailing environment.
 - Reviewing the risk management policy to guide the overall operating controls in full alignment.

Additional Assignments in 2022

Organizing a review of risk identification to ensure clarity and risk management efficiency in direct response to the overall business goals, both short-term and long-term.

2. The Top Management Level

Existing Assignments

- Officiating an Enterprise Risk Management Committee (ERMC) with top management executives from various business units as members and the Managing Director as chairman. ERMC is tasked with following roles, duties, and responsibilities:
- Promoting and defining a risk management framework for maximum efficiency.
 - Supervising and periodically monitoring the overall risk management and activities.

Additional Assignments in 2022

Redefining roles and responsibilities of risk owners and risk and internal control coordinators under the ERMC resolution to enhance the efficiency of supervision and periodic monitoring of risk management activities.

3. The Operating Unit Level

Existing Assignments

- Existing assignments include
- Assessing risks, developing mitigation plans, and defining proper key risk indicators by risk owners and risk and internal control coordinators, as well as the corporate strategy unit.
 - Preparing risk management reports and presenting them to ERMC on a monthly basis.

Additional Assignments in 2022

Charging Corporate Risk Management and internal control taskforces with the quarterly reports and updates on key risks with extreme classification and their specific mitigation plans to ERMC to ensure continuous monitoring and proper risk management.

In addition, GGC appointed committees to manage their specific risks with direct and immediate involvement. These committees are

- **Value Chain Management Committee (VCM):** The VCM committee is in charge of reviewing and making suggestions on sales and marketing plans, procurement management, product distribution management, inventory management of feedstock and products, management of risks associated with product prices and spreads between products and feedstock, exchange rate risk management under the risk management framework guided and endorsed by RMC, and routine monitoring of the economic outlook, industrial situation, and market volatility involving corporate businesses.
- **Investment Committee (IC):** IC is tasked not only to supervise and make investment decisions for all units, but also to offer opinions on business opportunities and impacts on project investments under the strategic objectives and growth strategy.
- **Other committees** in charge of direct determination and supporting activities toward business targets while minimizing relevant risks. These include
 - Credit Committee: The committee is charged with managing risks associated with credit arrangement with customers and feedstock suppliers.
 - GC Operation Excellence: The committee is tasked to manage risks associated with reliability and stability of production in line with laws, regulations, instructions, and plant standards.
 - SHE Committee: The committee looks after risk management associated with safety, occupational health, and environmental aspects.
 - Human Resource Management Committee: The duties involve review of the policies related to the management of human resource.
 - Sustainable Development Committee: This committee is responsible for formulating policies, strategies, supervisory roles, monitoring, promotion, and review activities under the sustainable development philosophy in line with corporate strategic objectives.
- **Covid-19 Prevention and Control Committee:** The committee was specially officiated to closely monitor the pandemic and develop specific mitigation plans to cope with changing patterns of the pandemic in a timely manner, intended to prevent and control the pandemic to support the business continuity of all units.
- **A special water resource taskforce assigned to closely monitor drought and water resource shortfalls in Rayong and Chon Buri provinces,** with a focus on areas affecting water supply to the Industrial Estate Authority of Thailand (IEAT) and GGC's operating areas, and report to management to develop practically proper strategic plan.
- **A Personal Data Protection Act Committee (PDPA)** is tasked to properly manage personal data including data processing, ensuring awareness of the law, and providing correct guidelines in compliance with the PDPA.

Risk Management Tools and Monitoring Program

Various management tools have been adopted and modified to suit corporate needs for risk identification, assessment, and development of a risk management framework to define all parameters such as risk appetites or acceptable levels of risks, a risk map to assess risk levels and rank all risks, monitoring of mitigation plans, and key risk indicators (KRIs).

An early warning system developed under the PESTEL Analysis Framework is in place to help GGC closely and continuously monitor all external risk factors potentially affecting short-term and long-term businesses. This system significantly enhances our ability to move offensively before actual impacts. The system analyzed seven aspects for precise risk identification for risk management in 2022:

- 1) **External Factors:** The system monitors and analyzes all risks potentially as threats and opportunities for our businesses including political, economic, social, technological, environmental, and legal & regulation aspects.
- 2) **Strategic Focus:** All potential risks are mandatorily defined in association with the corporate strategy endorsed by the Board.
- 3) **Management Concerns:** These concerns are regularly compiled from suggestions of the Board at the annual strategy forum and from top management during 2022.
- 4) **Residual risks of 2021:** Certain risks in 2021 were incorporated into the 2022 risk management system due to their prolonged nature, including price and spread volatility risks, sales volume risks, and plant reliability risks.
- 5) **Stakeholder expectations:** All concerns and suggestions from shareholders and investors during the 2021 AGM were compiled, reconciled, and added to the list of risk identification.
- 6) **Policy/Standard/Regulation Changes:** All changes and trends pertaining to policies, standards, regulations, and procedures that might directly impact the Company are included.
 - **The 30@30 EV policy:** Thanks to the public sector's promotion policy to increase the use of electric vehicles (EVs) by 30% within 2030 (B.E. 2573) and to issue vehicle registration only to EVs in 2035 (B.E. 2578), a jump in electricity demand poses a potential risk.
 - **Alternative Energy Development Plan (AEDP):** Another state EV car policy on promoting the use of EVs by reviewing and readjusting the use of B10 biodiesel and E20 ethanol gasoline can also pose a risk to the Company.
 - **The promulgation of Oil Fuel Fund Act 2024 (B.E. 2567).**
 - **The Royal Gazette announcement of a decree to postpone the enforcement of the Personal Data Protection Act (PDPA) to May 2022.**

7) Existing Internal Control Management: All internal control issues brought up by all levels of management were compiled and reconciled to support risk and internal control management, including the following:

- **Compliance:** Improvement of roles and clarity of approval authority associated with legal, regulatory, and procedural compliance to ensure a full range of operations.
- **Project management:** Promotion of clear management of all stages of invested projects and reporting schedules to the Board as planned.
- **Human resource development & management:** Supporting human resource development and human resource management plans to enhance operations of the existing businesses and business plans.

In addition, GGC continuously focuses on identification of emerging risks and planned for the development of risk management and associated mitigation plans. Periodic monitoring and assessment reports are routinely presented to ERM, RMC and the Board of Directors on a quarterly basis, or on call by the Committees for significant events which could create risks at the extreme level and significantly impact businesses.

Risk Management Culture

GGC pursues development and institutionalizes the risk management culture throughout the organization via 6 key aspects, including risk management system supervision, leadership, risk management architecture, risk management techniques, communication, and continuous learning on risk management. Risk management system supervision is executed through development of a risk management policy with clear objectives, acceptable risk levels, and a risk management framework. Risk management architecture covers the entire organization with clear roles and responsibilities of monitoring and reporting to management and the Board regularly. The system also calls for process reviews and evaluation of roles, duties and performance of the Executives, RMC, and risk management taskforce regularly. Communication and promotion of knowledge-sharing on risk management in various patterns are consistently conducted under coordination of Corporate Risk Management and internal control taskforce, which routinely communicate with assigned risk owners and risk and internal control coordinators. This ongoing coordination is fully supported to strengthen the risk management culture in addition to the monthly reports presented to ERM. Details of the performance are as follows:

- **Risk management principle:** Routinely communicating to all Executives and employees to become fully aware of the risk management policy, operating guidelines, and risk management framework.
- **Risk management awareness creation:** Driving the tone-from-the-top approach to manage behavioral change of the organization and all employees to be fully aware of potential risks associated with their work environment.

- **Risk management tools:** The corporate risk management and internal control division has consistently improved the risk assessment report form with clear classification of existing controls, mitigation plans, and key risk indicators (KRIs) and communicated with all relevant units thoroughly on how to fill the form to ensure consistency.

To further advance the risk management system, a self-assessment risk and control (RCSA) process was developed jointly with external experts and shared among all involved Executives and employees. The system supports all workers to self-evaluate risks and internal control procedures at sites, with expected outcomes of risks and potential impacts, and comparison with acceptable levels of risks, as well as proper risk mitigation to ensure success of the business plan. RCSA not only helps create and maintain a high level of risk awareness at the working level, but also helps reduce losses and damage of such operations. In 2022 GGC was successful in development and completion of the operating internal control system under good governance and the GC Way of Conduct RCSA in both core business processes and support & management business processes. A quarterly review of the mitigation plans is in place to ensure sufficiency and efficiency of internal control. External experts have been asked to assess the maturity level of the self-assessed risk and internal control system. The assessment scores were in the range of 2-3 out of 5 on good governance, people & culture, RCSA process, and tools and technology. The Company is obliged to continue improving the overall processes with the highest possible score from the assessment sustainably.

2.2 Risk Factors Affecting GGC's Businesses

In addition to the internal factor analysis, a PESTEL analysis is routinely executed to determine impacts and volatility of political situations, economic outlooks, social movement, technology shifts, environmental conditions, and changes in laws. Key strategics and outcomes in 2022 are as follows:

1. Risks associated with sales and marketing

Sales and marketing risks are significant to the Company's performance. These external risks are generally uncontrollable, such as volatility of market situations and prices of feedstock and the uncertain policy on biodiesel composition, driving GGC to improve certain operations to maintain and strengthen its core businesses with higher flexibility. The sales and marketing strategies include domestic market expansion with a focus on target customers, market development, and product development to higher-value product groups of biofuels and biochemicals, with variety as its competitive advantage. VCM is tasked to supervise the system, define price ranges of feedstock and raw materials, set product prices, and monitor price movements of feedstock, raw materials, products, market demand and supply weekly, as well as providing suggestions on production cost improvement throughout the value chain, ranging from feedstock management, feedstock selection, inventory management, process improvement, loss prevention in processes, and technology integration to improve processes. Alternative qualified feedstock at reasonable costs can be brought into processes to maintain the spreads between product prices and feedstock prices. Specific risk management for specific product lines is described as follows:

1.1 Methyl Ester (ME) Product Line

Major risks associated with the ME product line are pricing competition with new players in the market and declining demand of biodiesel, which was driven by the public policy on reduction of biodiesel fuels to only B5 in early 2022, leading to stronger market competition. However, after the falling price of oil palm, the Energy Policy Executive Committee (EPEC) decided to revoke the previous announcement and increase the biofuel composition from B5 to B7 from October 10 to March 31, 2022. The change in policy resulted in higher consumption of biodiesel. EPEC also defined weekly biodiesel prices with reference to the announcement of the Energy Policy and Planning Office (EPPO), which tied them to prices other feedstock, including crude palm oil, refined bleached deodorized palm oil (RBDPO), and palm stearin. These reference prices are announced weekly by the Department of Internal Trade. The reference price basket helps define the range of feedstock prices. However, feedstock price volatility continues to pose threat to the Company's performance.

Mitigation measures for managing risks associated with volatility and volumes of sales of ME

- VCM is in charge of supervising and defining price ranges for feedstock and products, monitoring price movements of feedstock and products, and market movement weekly as well as searching for qualified alternative feedstock and raw materials for processes.
- Commercial arrangements and agreements with various business partners are made in both short and long terms to diversify risk exposure.
- Increasing the values of biodiesel products by moving into the environment-friendly chemical products and other new business development.
- Looking into the feasibility of exporting certain biodiesel products with competitive costs through partnership with business partners and other companies in the Group under the market expansion strategy.
- Developing a forecast capability on market and feedstock prices by analyzing integrated quarterly forecasts of product sales and domestic feedstock prices of crude palm oil (CPO) closely.
- Working closely with business partners to maintain sales volumes and sales management during planned maintenance shutdowns.

1.2 Fatty Alcohols (FA)

The risk exposure for FA is similar to that for ME mentioned in Section 1.1 on external impacts including economic, social, and other movements in 2022, with additional risks related to new players in the market. To maintain our competitive position amid highly volatile sales and marketing of FA, the Company pursued the following mitigation plans:

Mitigation measures for managing risks associated with volatility and volume of sales of FA

- Extending product sales agreements with key business partners into a long-term format intended to increase the domestic market share.
- Preventing FA product price risks and avoiding undesirable FA product-to-feed-margin (P2F) by implementing back-to-back production cost control, resulting in controllable FA prices. The Company also closely monitors FA product P2F to ensure that price risks are under control.

- Working closely with the business and product development department to develop new products under the Home and Personal Care Platform (HPC Platform) to pursue new businesses and add values to the FA product line.
- Seeking more business partners to support sales and marketing of FA during planned maintenance shutdowns.
- Increasing the market shares of FA manufactured under the Roundtable on Sustainable Palm Oil (RSPO) standard.
- Organizing marketing promotion to strengthen relations and confidence among customers.

2. Risks associated with value chain management

The price volatility of the feedstock, palm oil, and crude palm kernel oil is the major risk significantly affecting the Company's costs. The price reference is announced by the government, which is out of GGC's control. Moreover, other external factors such as weather conditions and climate change affect the supply volumes and prices.

Given the nature of feedstock supply and price volatility, the Company's risk management focuses not only on any specific supply issue, but the entire value-chain under supply chain management, including feedstock management and logistics and warehouse management, as follows:

2.1 Feedstock Management

2.1.1 Feedstock selection: Feedstock selection is determined by a set of specific criteria, including data from various agencies, with the ultimate aim of process optimization. A simulation model was initiated to incorporate factors affecting prices of domestic palm oil, referenced by the Department of Internal Trade, and prices posted by the Malaysian Palm Oil Board (MPOB). It is then assessed and developed for use as a planning tool.

2.1.2 Feedstock procurement: GGC has decided to increase its long-term procurement volume from credible suppliers with excellent track records of quality feedstock and timely delivery. This one-year procurement of crude palm oil and refined palm oil (RPO), instead of spot procurement, resulted in higher efficiency of value chain management. Thanks to joint procurement with GC Group, the computerized automatic procurement process development provided higher efficiency of procurement and delivery processes.

2.2 Logistics and Warehouse Management

2.2.1 Feedstock inventory control: The Company has utilized SAP system applications to handle the procurement of feedstock determined by rating presented by suppliers, with approval from the Credit Committee.

2.2.2 Logistics management: A plan was put in place to further improve the logistics system in 2023, including storage tank adjustment to optimize logistical efficiency.

2.2.3 Warehouse management: Under the Map Ta Phut Integration (MTPI), GGC has jointly improved warehouse management with GC Logistics Co., Ltd., with the automation system to optimize the use of internal warehouses and reduce the use of contract warehouses.

To maintain its competitive advantage on adequate feedstock supply under reasonable prices and fit well with production plans, the Company has defined the following additional mitigation plans to minimize impacts on volatile prices and volumes of feedstock.

Mitigation measures for risks associated with volatility of prices and volumes of feedstock

- Quarterly reporting the inventory risk management framework to RMC and seeking recommendations for further improvement to cope with changing market environment, especially when higher inventory risks are predicted to impact business performance.
- Charging VCM with responsibilities to supervise the entire value chain of feedstock management, inventory management, and volatile external parameters affecting the overall economy and industry, within the risk management framework endorsed by RMC.
- Continuously reviewing the risk management framework pertaining to the inventory of feedstock and products ready for sale to ensure optimal inventory management efficiency, as well as close monitoring and periodic reviewing to cope with the prevailing market environment.
- Moving procurement agreements of palm oil and crude palm kernel oil into long-term agreements to minimize risk exposure to price volatility.
- Minimizing the dead stock by reducing the number of tanks for storing feedstock and raw materials ready for production.
- Abolishing the use of tanks for unnecessary products and replacing them with the delivered-duty-paid (DDP) or door-to-door delivery after sale.
- Managing advance delivery of feedstock during planned maintenance shutdowns.

3. Risks associated with operating and plant efficiency and reliability

GGC has been highly successful in maintaining its plant reliability under the Plant Reliability Master Plan, including consistent development and improvement to increase stability and efficiency of processes for optimal production capacity and highest-quality products. The Company also adheres to the Operational Excellence philosophy of GC Group and the Process Safety Management (PSM) standard for the entire operating areas, as well as a policy on safety, security, occupational health, and the environment. All these policies and standards are strictly implemented to ensure uninterrupted operations at maximum efficiency and safety. Additional mitigation measures are adopted to minimize risks and their impacts on operations.

Mitigation measures on risks associated with plant operations

- **Developing a system to effectively manage the reliability and efficiency of machinery:** This is done by integrating skill development of the maintenance team with a clear development timetable intended to groom the workforce to become experts, prioritizing levels of importance of all machinery and its planned maintenance program to minimize mechanical failure, development of a spares and parts schedule, especially critical items for production, preparation of emergency power supply, scheduling advance maintenance programs for machinery and parts to avoid early wear and tear, and development of emergency procedures for critical equipment and production units.

- **Process efficiency control:** An integration of digital technology and data analytics sharply increases the precision of the entire system and therefore increases process efficiency and production cost control as well as the Company's competitiveness.
- **Safety awareness:** Continuous promotion of safety awareness and adherence to operating standards are organized for all employees. The program includes Process Safety Management (PSM) standards, energy consumption reduction plans, work safety rules, and waste reduction plans.

4. Risks associated with safety

GGC has adopted the Operational Excellence Management (OEMS) system and PSM standards for operating safety throughout the operating value chain. The system covers all aspects of operating safety, security, occupational health, and environment as well as creation and nurturing of the safety culture among all employees and service contractors. Additional activities continuously supported are 5S promotion (clearing up, organizing, cleaning, standardizing, training, and discipline), regular safety committee meetings to update safety statistics and incident investigations on a monthly basis, safety walk observation (SWO), and development of safe operating procedures and standards.

Nevertheless, accident and incidents can still happen, and they could become more damaging and tarnish the image and safety goals of the Company. The following mitigation plans are therefore put in place to minimize potential impacts.

Mitigation measures to eliminate unsafe incidents

- Enforcing the mandatory Operational Discipline orientation for all employees and service contractors before they enter operating areas.
- Organizing the One Supervisor One Project scheme to support GC Group's B-CAREs safety culture.
- Promoting the application of the safety culture with the Process Safety Awareness program and Field Risk Assessment (FRA) as a tool to assess potential risks at work sites so that workers could clearly determine any abnormal and deviated conditions from the original design to significantly help the investigation and develop further protection from future accidents.

5. Risks associated with currency exchange rates

In addition to risks associated with sales and marketing, inventory of feedstock and products and delivery, risks associated with currency exchange rates can hurt the overall performance of the Company, recognizing that purchases and sales of products are also made in the US dollar (USD) currency and that GGC cannot avoid being exposed to financial exchange risks between foreign and Baht currencies. The following mitigation measures were therefore adopted to minimize such impacts.

Mitigation measures on risks associated with volatile of exchange rates

- Entering financial arrangements with commercial banks, including forward contracts or options to provide financial risk protection (hedging) during 2022 at exchange rates not lower than the budget rates with acceptable tolerance rates.
- Managing overseas revenues and expenses in US dollars (natural hedging) to avoid unnecessary exchange rate risks.
- Seeking other financial tools from commercial banks to prevent financial risks borne by volatile exchange rates.
- Putting up USD forward sales contract to cover up invoices with excess value by selling the USD in advance at a higher rate than recorded in the accounting record to minimize foreign exchange losses in the profit/loss account.
- Closely monitoring exchange rate markets and exercising hedging with available financials tools.

Reporting of the risks associated with exchange rates is made regularly to RMC. Thorough reviews of the mitigation plans on risks associated with exchange rates are necessary, especially when exchange rates become highly volatile.

6. Risks associated with business performance of GGC Subsidiaries

In addition to risks associated with sales and marketing, inventory of feedstock and products and delivery, and exchange rates, risks associated with business performances of GGC Group subsidiaries are also crucial. The following mitigation measures were therefore put in place.

Mitigation measures on risks associated with subsidiary performance

- Closely evaluating and analyzing market situations to enhance product-to-feed-margin (P2F) pricing efficiency and the inventory efficiency of feedstock. Monthly risk management reviews with Global Green Chemicals Group. Continuous performance reporting, especially when exposed to significant impacts.

7. Risks associated with IT system cyberattacks from external sources and data safety and protection

The global frequency of cyberthreats has been increasing phenomenally, following widespread adoption of computer technologies during the Covid-19 pandemic.

To cope with these increasing threats, GGC's Information and Communication Technology (ICT) has been charged with protection of personal data of all employees, the corporate IT system, and key corporate data from disclosure to non-related parties under corporate governance. Risk assessment has been routinely conducted via all channels for both incoming and outgoing or data leaks, with the following measures:

Mitigation measures on risks associated with IT system cyberattacks

- Providing education and knowledge on cybersecurity to all Executives and employees via GGC IT News.
- Proactively organizing online training on cybersecurity to all Executives and employees with follow-up evaluation of understanding.
- Conducting phishing tests with all employees with a goal of 100% corporate knowledge of cybersecurity.
- Promoting various activities to encourage Executives and employees to push the 'phishing' button in the Company emails and LINE application to learn about phishing, and promoting meetings with human resource and corporate support Department on its roles to look after the corporate cybersecurity system.
- Integrating the cybersecurity awareness of executives and employees with the key organizational culture through change agents of all Department.
- Jointly developing an international standard cybersecurity IT system with GC Group. The system is structured to consistently track movements and updates on IT security and safety measures launched by the government including laws, regulations, and procedures. Consistently conducting cyberattack tests, IT system disaster management, and system efficiency evaluation.

Mitigation measures on risks associated with data security and protection

- Appointing a specific work group directly in charge of development or work plans, operating and business guidelines for the Personal Data Protection Act (PDPA).
- Organizing corporate communication, training, knowledge and understanding-sharing activities for all employees to be well prepared for work under the work manual, operating guidelines, and work plans designed to cope with the enforcement of PDPA.
- Conducting data protection process reviews and system checks to comply with the law.
- Creating IT security firewalls and authorized data access for various personnel to limit accessibility and increase data protection efficiency.
- Appointing personal data protection offices (DPO) to comply with the law and developing a process to continuously report progress to management.

8. Key GGC's project risks

Key ongoing project investments are Nakhonsawan Biocomplex Phase 2, including construction of infrastructure, power and steam generating systems, and water supply as well as water treatment systems to support future expansion of chemical and bioplastic industries under the corporate growth plan. GGC also engages in the investigation of product value addition to fatty alcohol. These projects are vulnerable to external uncertainties and risks, such as the Russian-Ukraine war and conflict and a potential global recession. The Company has therefore developed the following mitigation plans to support the continuity of these investment projects.

Mitigation measures on key project risks

- Close monitoring to identify possible changes, especially those on market supply capacity.
- Continuously monitoring international trade policies, trade barriers policies, energy policies, and alternative-energy promotion policies toward net zero emissions and carbon emission reduction.
- Conducting a preliminary study on market demand of business partners and target groups.
- Conducting studies on other product substitutes and market alternatives as possible choices in case of investment project failure.

9. Emerging Risks

9.1 Risks associated with climate change and energy transition measures

Global warming and climate change constantly cause severe catastrophes, including floods and drought, ravaging the entire global society. People's lives and the overall global economy as well as businesses are interrupted, bringing shortfalls of feedstock and supplies. These disasters are known to be increasingly severe, driving all countries and business sectors to become clearly aware and ready themselves through joint preparation to cope with the impacts and minimize the outcomes. Part of the mitigation measures is the development of an Energy Mix in transition to the clean-energy environment.

Equipped with the awareness of impacts of global warming, all social sectors have come together and agreed on setting up more stringent rules, with the prime goal of reducing Greenhouse Gas (GHG) emissions into the atmosphere, which is the key cause of global warming.

Essential today is the need to replace primary energy with renewable energy, including solar energy, wind energy, bio-based energy and fuel cells, and their associated technologies for higher energy efficiency.

Overall economic growth development therefore needs a fully integrated concept of 'bioeconomy' or focusing on bio-based resources for high-value products, 'circular economy' or focusing on recycling and reuse of all materials to optimize values, and combining the two concepts with the 'green economy' or focusing on not only economic growth development, but also the development of good society and the preservation of the environment in balance to strive for stability and sustainability.

These challenges come with potential impacts on the Company's businesses as follows:

Biofuel businesses: Faced with the plan to replace the internal combustion engine (ICE) vehicles with electric vehicles (EVs), the Company's indirect revenues and profits from shrinking sales of diesel and gasoline will inevitably decline. The opportunity, however, Opportunities remain for methyl ester derivatives and ethanol derivatives, whose growth trends track world megatrends.

Oleochemicals businesses: The need for bio-based and sustainable ingredients is obviously higher and likely to profit the Company by producing more high-value products (HVPs). The public policy on the BCG Model also provides investment incentives to the industrial sector on the higher consumption of agricultural produce for HVP production.

The following mitigation plans have therefore been developed to avert and minimize risks associated with this climate change and energy transition platform.

Mitigation measures on risks associated with climate change and energy transition platform

- Close monitoring of the revised alternative energy development plan (AEDP 2018), including the promotion of renewable and alternative energy and the national electric vehicle policy.
- A joint study with business partners on domestic market situation and market development to identify proper investment and proper technologies for the production of advanced biofuels.
- Joint conducting of market research within GC Group to identify market opportunities and proper technologies on production of higher-value ethanol products.
- A joint study with business partners and technology licensors on business expansion to produce and biochemical products.
- Conducting of studies to forge existing oleochemical products ahead to more downstream products, including home & personal care (HPC), which are higher-value products.

9.2 Risks associated with debt crises

According to a forecast made by the World Economic Forum (WEF), many countries are likely to encounter debt crises following higher cumulative debts in the wake of the economic crisis during the Covid-19 pandemic, affecting capital funding, debt repayment capability, and sharp falls in economic growth of countries and domestic business sectors. GGC has periodically reviewed the situation and conducted sensitivity analyses as well as stress tests to determine the impacts on its net profit and profitability to define limits of potential financial losses, including various simulations with various moving parameters, such as exchange rates, energy prices, and prices of feedstock and key products.

Risks associated with debt repayment inability and capital investment of business partners are considered emerging risks under these new challenges. These risks pose significant concerns to the Company's existing and future business plans. They were mainly derived from economic crises during the Covid-19 pandemic, global geopolitical tensions inducing domestic economic slowdowns, low liquidity of business partners and their inability to place orders due to rapid demand drop, causing disruption of the entire value chain and higher costs of production, a fall in demand for oleochemical and chemical products, and lastly, lower operating performance, which may in turn impact the Company's ability to repay its debts and deliver its goods and services. The higher production costs produced by changes in demand and supply and higher operating costs deteriorate GGC's profitability, which could further reduce its organizational competitiveness in the market and tarnish stakeholders' confidence.

To avoid these consequences, GGC has developed the following mitigation plans to ensure uninterrupted business operations and business performance.

Mitigation measures on risks associated with debt crises

- Defining strategies to launch new products with responsibility by adopting related innovation to offer the bio-based product including expanding the Company product to High Value Market such as advance biofuel, Biochemicals and food nutraceutical, which can improve the Business Competitiveness in Oleochemicals industry. GGC's policy is to review investment plans and marketing plans with due consideration of economic situations and risk assessment of each project so that GGC projects may be more watertight, in addition to assessing suppliers' and business partners' capability.
- Implementing the use of ESG Assessment with key business partners and new vendors under the vendor credit evaluation process to routinely monitor and assess acceptable levels of credit lines and liquidity.

GGC is fully confident in its risk management process and mitigation plans, intended to minimize risk impacts and risk exposure, grow business opportunities for sustainable growth, as well as achieving all business successes defined by its business goals and strategic objectives.

3. Driving Business toward Sustainability

3.1 Sustainability Policy and Targets

3.1.1 Sustainability Management Policy and Targets

GGC Group is committed to conducting business in accordance with sustainable development guidelines to become a leading Company in the oleochemical business with readiness to drive the power of creativity for sustainable value by enhancing trust among stakeholders through operational excellence, transparency, fairness, and continuous innovation development. Through its sustainability management framework, the guidelines align GGC Group in accordance with international standards. GGC's operating policies are as follows:

1. To comply with applicable laws and regulations of each country in which it operates and to respect international practices.
2. To maintain economic, social, and environmental balance together with all stakeholders' expectations in operating for sustainable growth.
3. To raise awareness of GGC Group's sustainability management policy among business partners, customers, and consumers and to promote application of sustainable practices to enhance and reduce the impact of operations throughout the value chain.
4. To continually promote the development of innovative processes and products for sustainable benefit to society and the environment.
5. To adhere to good corporate citizenship and apply the knowledge, expertise, and experience of GGC Group to participate in enhancing the quality of life for society.
6. To transparently disclose policies, management approaches, and performance outcomes and to be a role model in creating behaviors that lead to a sustainable business culture.

The Executives and employees of GGC Group are required to support, drive, and comply with the established sustainability policies and management framework.

3.1.2 Sustainability Strategy

As a leading oleochemical Company, GGC has pursued its vision of sustainable development, which is in line with the United Nations Sustainable Development Goals (SDGs) covering economic, social, and environmental aspects. The goal is to foster confidence in sustainable business growth, create value, and raise business standards for recognition, both domestic and international. GGC has established strategies which define four business operating approaches as follows:

- 1) **Being a role model for holistic economic development in all three aspects (Bio-Circular-Green - BCG Role Model).** GGC conducts its business to promote national BCG policies. BCG is a holistic economic development in all three aspects. Bio-economy, which focuses on using biological resources, creates value by focusing on the development of high-value products. It links to the Circular Economy, which takes into account the maximum reuse of various materials. This is definitely the Green Economy approach, which focuses on balancing economic development, social development, and environmental conservation, thus concurrently creating stability and sustainability.

- 2) **De-carbonization Pathway.** GGC has a plan to prepare the organization to achieve net zero greenhouse gas (GHG) emissions (Net Zero Target) by 2050. It has developed plans to use energy sources that do not generate carbon dioxide. Implementation of the plans incorporates climate change management through business operations and production. This year GGC formulated operational strategies and plans to reduce GHG emissions with study goals and assessment of the products' life cycle (Life Cycle Assessment: LCA) to establish targets to reduce GHG Emissions and GHG Intensity by 2023.
- 3) **Creating Shared Value and Social Enterprise Model (CSV & SE Model).** GGC has made adjustment of the implementation of its Corporate Social Responsibility (CSR) to achieve the balance of Creating Shared Values (CSV) and Social Enterprise (SE) so that their implementation is in line with the Sustainable Development Goals (SDGs). To achieve these objectives, GGC has implemented strategic plans and operational plans to transform the implementation of CSR projects into economic and social value creation projects, namely Creating Shared Values - CSV and Social Enterprise (SE) projects. This will sustainably mitigate social and environmental challenges.
- 4) **Being a Sustainable Company.** GGC is committed to becoming a sustainable organization recognized on both domestic and international fronts by conducting business in accordance with sustainable development guidelines. It is determined to be a leader in the oleochemical business by building trust among stakeholders through operational excellence, transparency, fairness, and continuous innovation development. Under the guidelines of the sustainability management framework, executives and employees perform in unison with international standards and actively participate to enable GGC's sustainable development operations.

GGC aims to achieve the Net Zero goal by 2050 and exemplifies a progressive organization with domestic and international recognition on climate change management by 2027.

3.2 Managing Impacts on Stakeholders across the Value Chain

3.2.1 Business Value Chain and Stakeholder Analysis in the Value Chain

GGC's supply chain management has implemented guidelines in the managing and controlling of sustainability risks across the value chain. This includes supplier selection and registration process, feedstock management, and logistics and warehouse management.

Supplier Selection and Registration Process

GGC's Credit Rating Committee is responsible for the selection and registration of suppliers. GGC has established criteria for the selection process, including technicality, quality, occupational health, environment and safety, finance, and social responsibility. In addition, it disseminates and communicates the Code of Business Conduct Handbook to key suppliers. The handbook describes guidelines of practices for employees and suppliers covering the code of conduct, quality, security, safety and occupational health, including the importance of human rights and labor. This improves suppliers' understanding of socio-environmental responsibility in their operations.

In addition, GGC conducts supplier assessment every year, encompassing five aspects, namely industrial environment, flexibility and bargaining power, accounting and finance, feedstock deliverability and competitiveness of suppliers. Furthermore, GGC conducts annual assessment of key suppliers in sustainability

covering the environment and social and good governance to develop, advocate, and follow up suppliers' implementation of sustainability, for example, regulatory compliance, business ethics, human rights and safety, occupational health, and the environment.

GGC and PTT Global Chemical Plc (GC) organize a suppliers' conference every year to engage in problem-solving and improving implementation with suppliers. The agenda of 2022 focused on operations improvement in response to global recession and promoting the Environment Social Governance (ESG) model in pursuit of sustainable supply chain management. In doing so, GGC implements "Three Step Plus" that emphasizes the development of business flexibility (Step Change) that strengthens core products, with growth and new venture in high-value and low-carbon undertakings (Step Out), integrated with sustainability and improving GHG management (Step Up), and lastly the transformation of more flexible implementation.

Feedstock Management

Committed to becoming an internationally accepted sustainability organization, GGC has made changes to its operations in the supply chain to align more with the sustainability and Sustainable Development Goals (SDGs) by United Nations. It has implemented a plan to encourage smallholders of oil palms in Thailand to follow the Roundtable on Sustainable Palm Oil (RSPO)'s standards and certification, part of green procurement.

GGC commands a raw-material selection process so that decisions can be made efficiently. In addition, long-term raw material procurement contracts with creditable business partners have been established, in particular, agricultural products with RSPO certification, for example, GGC's purchases and uses of RSPO-certified fatty alcohol in 2022.

In 2022 GGC together with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Thailand Oil Palm Smallholder Academy (TOPSA) completed a project to provide training and support to oil palm smallholders to achieve RSPO certification for their advancement. GGC implements the project in pilot provinces, namely Krabi, Trang, Phang Nga, and Chumphon. Participants included seven palm oil extraction factories and the network of some 1,000 oil palm smallholders. GGC has a goal to support 500 smallholders to achieve RSPO certification by 2024.

Logistics and Warehouse Management

GGC has implemented the RBDPKO Lorry Optimization Project to improve its hiring system of transportation to GGC facilities between logistics companies and suppliers. RBDPKO Lorry Optimization designs and analyzes to reduce costs with maximum efficiency for GHG reduction. In addition, GGC improves the management of feedstock storage tanks and reduces dependence on external storage tanks, thus reducing storage costs and dead stocks.

To this end, GGC analyzes the value chain from feedstock acquisition processes to market distribution. It has identified stakeholders in these activities. The details are reported in the 2022 Integrated Sustainability Report under "Creating Shared Business Values".

3.2.2 Materiality Assessment

GGC assesses material aspects to sustainable development along with issues related to positive and negative expectations of all stakeholders in the value chain. This includes Environment, Social and Governance (ESG) with reference to the Global Reporting Initiative (GRI). GGC reports the detail of materiality assessment in the 2022 Integrated Sustainability Report under “Determination of Report Content Process”.

3.2.3 Value Creation toward Sustainability

GGC is committed to improving its marketing capability and creating values toward sustainability through economic, social, and environmental considerations. Therefore, its holistic economic development includes three dimensions:

1. **Bio-economy Development.** It focuses on business growth related to raw agricultural materials. This will strengthen competitiveness and improve business partners’ economic and social potential, especially fair business partners and labor conduct in the supply chain.
2. **Circular Economy Development.** It emphasizes resource utilization to full potential, efficient waste management, minimal waste generation, and systematic water resource management. All these efforts are part of GHG reduction.
3. **Green Economy Development.** Focusing on improvement of processes and product development, it is a path toward the Net Zero target by investing resources in improving operations and increasing production efficiency with less GHG emissions. GGC employs life cycle assessment and 3Rs to manage the portfolio of GHG emissions, resulting in low-carbon products and new technologies for carbon capture and storage.

3.3 Managing Environmental Materiality

Quality, Security, Safety, Occupational Health, Environment, and Business Continuity Policy

GGC strives to be a leader in the chemical industry as well as an innovative and a community as well as a socially responsible organization. Our mission is to develop the effectiveness of quality, security, safety, occupational health, environment, and business continuity (QSHEB) through:

- Compliance with laws and regulations concerning quality, security, safety, occupational health, environment, and business continuity as well as applicable standards, rules, and requirements.
- Managing quality throughout the organization by applying quality and knowledge management tools along with productivity tools to meet customers’ needs and develop environmentally friendly innovations.
- Managing risks to prevent threats, occupational illnesses, accidental losses, injuries, property damage, and nurturing the B-CAREs safety culture along with Process Safety Management (PSM) to secure everyone’s safety.
- Awareness of security threats and definition of emergency management plans to preserve lives, properties, and business continuity.

- Paying attention to occupational health and a good work environment to promote well-being and a happy workplace.
- Assessing and preventing impacts on the environment and ecosystem, as well as maintaining biodiversity by managing integration of the environment (namely energy, air, and waste management) and efficient, sustainable resource consumption (Circular Economy) while maintaining its efficiency of GHG reduction and its ability to adapt to climate change. Also, GGC is keen on promoting an environmental culture by supporting all employees' and stakeholders' awareness and participation in the corporate environmental culture.

All Executives must drive the business to meet corporate target achievements as well as serving as role models in developing and maintaining GGC's quality, security, safety, occupational health, environment, and business continuity system by providing sufficient resources for all employees to participate in policy implementation. GGC is also responsible for communicating QSHEB outcomes to all related stakeholders. This year GGC completed the following environmental materiality issues.

Greenhouse Gas Management

In response to efficiency-driven strategy and waste reduction, GGC invests its resources to change energy usage (consumption) in processes and operations. Furthermore, GGC plans to invest resources in new technologies and clean-energy technologies which play an important role in efficient reduction of energy usage. In 2022 GGC installed advanced process control at the fatty alcohols distillation tower for energy saving. This software system automatically controls valve opening and closing through the detection of moisture and temperature in the distillation tower. This software also reduces the quantity of steam used in the distillation tower, thus reducing energy used for steam production.

Energy Management Performance

	2019	2020	2021	2022	(Target) 2023
 Energy used per unit production (MW-Hour / Ton of Product)	2.0949	2.1341	2.418* 2.00*	2.7835* 1.87**	2.13* 1.75**
 Energy reduction (Percent)	-1.02	+1.87	+13.3* +17.96**	+15.12* +7.17**	-0.65* -0.65**

* Exclusive of the total energy usage in Methyl Ester Plant 1

** Exclusive of the total energy usage in Methyl Ester Plant 2

Apart from internal GHG emission reduction, GGC seeks opportunities and invests resources in carbon compensation and capture through nature-based solutions, for example, reforestation and forest recovery and technical-based solutions. A notable project in 2022 included Care the Wild “Plant and Protect” Project. GGC actively participated in a reforestation project at Amphoe Thong Pha Phum, Kanchanaburi. There were 4,000 trees planted in 20 rai (8 acres), which is equivalent to 36 tons of GHG emission reduction per year. In addition, GGC together with PTT Global Chemical Plc studied and planned for carbon capture storage (CSS). Furthermore, GGC planned carbon compensation through Renewal Energy Certificates (RECs) and Carbon Credit.

Greenhouse Gas Reduction Performance

		2019	2020	2021	2022
	Greenhouse Gas: Scope 1 (Tons CO2 equivalent)	4,128	33,333	30,708	31,642
	Greenhouse Gas: Scope 2 (Tons CO2 equivalent)	61,382	59,481	57,481	72,050
	Greenhouse Gas: Scope 1 and 2 (Tons CO2 equivalent)	65,511	92,814	88,189	103,693

Remarks:

Emissions under Scope 1 and Scope 2 grew because of the extra purchase of steam from third parties in support of the activities designed to curb methanol loss and because of a business merger, which resulted in more process energy requirement.

Waste Management

GGC manages waste generated from its operations by applying 3Rs (Reduction, Reuse, and Recycle), resulting in minimized environmental impacts and waste disposal costs. GGC continues striving for zero waste disposal to landfill (Zero-Waste to Landfill). A notable project is oil loss recovery from wastewater. Based on wastewater monitoring data, wastewater generated from the distillation tower of the methyl ester unit was contaminated with oil. This year GGC therefore recovered the oil and in the process added over 5.7 million baht per year in value. We also managed a project on the reduction of ME residue in the biodiesel process, which lowered the purging of ME residue, which is B100 process waste precipitating on the lower part of the biodiesel distillation tower. We optimized the reaction and improved the vacuum system to cut B100 loss in the ME residue, thereby enabling GGC to produce 1.2 more tons of B100 per day, or roughly 4 million baht per year.

Water Resource Management

GGC has managed its water resources by applying 3Rs. In addition, water resource management is in line with the requirements of Map Ta Phut Industrial Estate, Rayong, to reduce impacts on communities in the Eastern Region. To improve water quality efficiency in its wastewater treatment system, GGC added the capacity for receiving wastewater from methyl ester and fatty alcohol plants and improved the COD (Direct Chemical Oxygen Demand) reduction efficiency in the aerated system, leveraging the Why-Why Analysis (systematic identification of root causes and problem-solving) concept. To resolve this problem, GGC cut process COD, planned system water feed management, and experimented with isolation of germs to preserve the efficiency of aerated wastewater treatment. GGC successfully lowered the glycerine residue high concentration in the surplus wastewater, thus lessening waste. As a result, GGC successfully lowered the export of glycerine residue high concentration for treatment and saved 7 million baht per year for disposal.

Water Resource Management Performance

	2019	2020	2021	2022
 Water consumption per product (Cubic m. / Product - Ton)	0.59	0.57	0.98* 0.90**	1.07* 0.89**
 Volume of water usage (Cubic m.)	231,939	208,706	282,366* 234,705**	186,294* 232,760**

* Exclusive of water usage in Methyl Ester Plant 1

** Exclusive of water usage in Methyl Ester Plant 2

Eco Friendly (Green) Products

GGC has formulated a strategy growth portfolio for environmentally friendly products to enhance the potential and competitiveness in oleochemicals and green chemical industry through delivering low-carbon products into domestic and international markets. This is in line with GGC's sustainability targets on Net Zero and responds to customers' quest for a low-carbon society. GGC has relentlessly developed low-carbon products. For six consecutive years, it has been ISO 14040-certified and ISO 14044-certified (Carbon Footprint Products: CFP and Carbon Footprint Reduction: CFR).

Type of certification	Product group	Percentage of revenue from product	GHG emissions per year
 Low-carbon product	Fatty alcohols main-cut and fatty alcohols pre-cut	34	- Fatty Alcohols Main-Cut = 189,885.15 tonCO ₂ e - Fatty Alcohols Pre-Cut = 16,437.40 tonCO ₂ e
 Avoided-emission product	Bio-methyl ester (BME)	56	243,097.80 tonCO ₂ e

3.4 Managing Social Materiality Aspect

Policies and Guidelines for Social Aspect

GGC strives to create corporate shared values along with development of communities' quality of life, economy, society, and environmental well-being by participating in community and stakeholder activities through CSR projects, which have developed the country economically and society. This year GGC operates its business by following its human rights policy and complying with rules of laws, including preventing and refraining from non-compliance concerning employees, joint ventures, business partners, contractors, customers, and communities. In addition, In conducting CSR work for communities and society, GGC has adopted a "3 Big Moves Strategy" of recognition, growth, and trust to create shared values in three aspects, namely environment, economy and society, by continuing CSR projects and initiating additional projects to build communities' and society's trust for sustainable mutual growth. GGC manages the social materiality aspects as follows:

Human Rights and Fair Labor Practices

GGC is committed to conducting its business and respecting human rights and stakeholders across the value chain. It conducts human rights due diligence to assess risks related to Company activities and establishes guidelines for managing control measures to those risks, including appropriate reparation for victims. Projects related to human rights and fair labor practices are handled without discrimination covering disabled and vulnerable groups. First, the Roundtable on Sustainable Palm Oil (RSPO) Project, which forms part of green procurement. GGC uses oil palm and palm oil as feedstock for methyl ester, fatty alcohols, and refined glycerine. The feedstock could pose environmental impacts and unfair labor practices in palm plantation, including unfair labor practices, foreign workers, and unfair labor compensation. GGC therefore values procurement and promotion for oil palm farming partners to be RSPO-certified. RSPO standards ensure that a given individual partner is committed to and complies with environmental standards, human rights, anti-corruption, anti-sexual harassment, and unfair labor compensation. With the stipulation of RSPO certification, GGC's oil palm procurement aligns with its commitment to adhering to human rights of stakeholders (see detailed GGC Human Rights Policy in Attachment 5: Policy and Guidelines for Good Corporate Governance and Code of Business Conduct). This year GGC organized a Train the Trainer course, which supported 49 smallholders to complete RSPO training, of whom 51% were females. As a result, GGC has contributed to well-being for 1,033 households. It further targets for at least 800 oil palm smallholders to be certified in 2024.

GGC Products with RSPO Certification

RSPO-certified product		2019	2020	2021	2022
	Methyl ester	1,471	2,246	0	0
	Fatty alcohols	2,464	6,398	3,901	4,280
	Refined glycerine	0	293	2,411	765

Safety, Health, and Environmental Management (SHE Management)

GGC has formalized a policy for managing safety, occupational health, and environment (SHE) through the Operational Excellence Management System (OEMS) to develop personal safety and process safety comprehensively and continuously, while forging confidence among stakeholders in its performance. In addition, it has formulated a Five-Year SHE Plan (2020 - 2024) that integrates operations with international safety standards. It focuses on occupational health and safety in personal safety, process safety, and off-the-job safety. In addition, GGC provides employees with training programs, for example, in safety orientation for newcomers; refresher SHE regulations & procedures; PSM awareness; basic fire training, and ISO 14001 environmental management standards.

Safety, Health and Environment Strategy

Personal Safety

- Build strong B-CAREs culture
- Collaborate with contractors to strengthen contractor safety management
- Strengthen understanding of risk for higher effectiveness of personal risk prevention



Process Safety

- Strengthen safety-committed culture
- Strengthen PSM governance via all levels of PSM committees
- Expand inspirational leadership program to all levels of management, supervisors & staff
- Enhance PSM technical capability of staff



Off the Job Safety

- Develop and implement road safety



Emergency/Crisis Management

- Strengthen emergency & crisis management



Moreover, GGC has appointed an SHE Steering Committee to supervise the safety, health, and environmental standards of operations to meet international standards and achieve the goal of being a zero-accident organization.

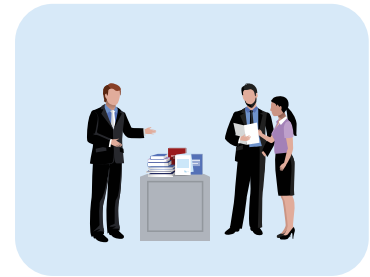
Duties of the SHE Steering Committee



1. Define and review policies, targets, and plans of SHE



2. Supervise, support, and monitor SHE performance of related divisions to operate under international standards and GGC policies



3. Review, approve, and declare SHE guidelines and processes related to GGC operations



4. Organize at least six meetings a year



5. Quorum of at least half of the committee



6. Appoint a sub-committee or working group as seen necessary

GGC fosters a safety culture to raise awareness of personal safety among employees, contractors, and related parties through various projects, notably the One Supervisor One BCAREs Project. GGC has implemented the One Supervisor One BCAREs Project to promote participation among supervisors and operators in fostering a safe work environment because supervisors are more aware of their own needs and safety challenges in their work teams. The project cultivates a “safety in line responsibility” culture. Supervisors, employees, and contractors are encouraged to submit their work safety improvement projects for a contest. This project aims to foster a strong safety culture, raise safety awareness, and develop improvement of ideas for work safety for the workforce. In addition, the B-CAREs KYT Project: The objective is to foster participation in safety among the workforce by forging active participation in workplace hazard analysis, its probable consequences, and identification of safety measures to avert hazards. GGC organized the B-CAREs KYT VDO clip contest, which drew active participation from the workforce by submitting their safety VDO clips to the contest. The results are safety awareness, assertiveness, and teamwork among the workforce.

GGC has continued implementing the Process Safety Management (PSM) plan for the fifth consecutive year, while allowing external auditors to audit such management and strengthen process safety in its operations through notable projects in 2022 on process safety, such as the Field Risk Assessment (FRA) Project and Bow-Tie Barrier Validation Checklist. Under the Field Risk Assessment (FRA) Project, GGC has extended the implementation of the FRA project to its second facility in Chon Buri for the third consecutive year to raise awareness while promoting knowledge and understanding of process flaw detection through the training of employees within work areas by assigning employees in the field with knowledge and expertise to share their knowledge and experience in operating various equipment and machinery. This allows employees to practice their skills on correctly observing and identifying unusual acts and conditions within the production process and promotes knowledge of safety risks or risk prevention while operating. In addition, expert workers are to inquire, consult, and record abnormalities with operators on job sites, and to assess risks, establish corrective measures, and report performance results at monthly meetings of the Safety Committee. As for the Bow-Tie Barrier Validation Checklist, GGC has implemented the Bow-Tie Analysis Project to monitor process safety incidents. This tool assesses and reviews process safety barriers to prevent and mitigate major accidents by reviewing preventive maintenance of equipment in the field. For any discrepancy, the work unit needs to correct it to normal conditions to prevent accidents and disruption of production, thus resulting in business continuity.

Remark:

The details of “In Pursuit of Sustainability” is shown in the Integrated Sustainability Report, which is prepared separately from Report 56-1 : One Report at www.ggcplc.com/th/sustainability/home

4. Management Discussion and Analysis (MD&A)

4.1 Management Discussion and Analysis

Executive Summary

As for performance in FY2022, Global Green Chemicals Public Company Limited (“the Company”) recorded the total revenue of THB 25,084 million, rose by 20% from FY2021 and Adjusted EBITDA of THB 2,125 million, rose by 90% from the previous year. In addition, the Company had a Stock Loss & NRV of THB 393 million, as a result, the Company posted the net profit before extra item of THB 849 million improved by THB 75 million or 10% from FY2021.

In 2021, the Company has recorded an extra item, which is the provision of contingent liabilities from the case for damages in lawsuits THB 444 million (details as shown in the Management Discussion and Analysis FY2021) resulting in the net profit after extra item of THB 330 million (or profit per share of THB 0.32). While in 2022, the Company has recorded an extra item of THB 104 million from the setting up of deferred tax assets from the tax benefits from the Company’s restructuring by the entire business transfer of Thai Fatty Alcohols Co., Ltd. (TFA), which is legally effective from October 1, 2022 onwards, resulting in the net profit for the year 2022 after the extra item of THB 953 million (or profit per share of THB 0.93), an increase of THB 623 million or 189% from the previous year.

For the performance of the methyl ester (ME) business in FY2022, the sales volume decreased by 9% compared to FY2021, stood at 293,466 tons, caused by the government policy for the adjustment of biodiesel mandatory in high speed diesel fuel to be only B5 from February 5 until October 9, 2022 and up to B7 From October 10, 2022 to March 31, 2023 to mitigate the impact on people’s cost of living from the energy price crisis, directly reduced the overall methyl ester consumption in the country significantly. While the methyl ester selling price increased by 13% compared to the previous year according to an increase of domestic CPO price in line with crude oil prices. Even though there was the restructuring of the methyl ester price formula by the Energy Policy and Planning Office (EPPO), Ministry of Energy effective from October 3, 2022 onwards which the restructuring of formula caused the methyl ester price to be dropped. However, the Company recorded revenue of methyl ester business increased by 7% compared to the prior year.

For the performance of the fatty alcohols (FA) business in FY2022, the Company’s sales volume of fatty alcohols increased by 13% compared to the previous year owing to the production volume in FY2022 was higher than FY2021 due to the longer shutdown period of the fatty alcohols plant for catalyst changing and maintenance than usual in FY2021 to improve production and product quality. While the Company had the shorter shutdown period in FY2022, together with an increase of fatty alcohols sale volume to other countries such as India, South America and Africa to compensate for the decrease in sales volume in China due to the COVID-19 pandemic there have not yet improved. In addition, an average price of natural fatty alcohols has increased in line with the crude palm kernel oil price (CPKO-MPOB) due to a decrease in production capacity affected from labor shortage in Malaysia including Domestic Market Obligation (DMO) measures that limit the export of palm oil (including fatty alcohols and refined glycerine) in Indonesia. Meanwhile the demand for fatty alcohols increased owing to the economic recovery. As a result of these factors, fatty alcohols sales revenue rose by 55% compared to the previous year.

As of December 31, 2022, the Company has total assets in the amount of THB 13,633 million which comprised of cash and short-term investment amounting to THB 2,734 million, with total liabilities of THB 3,306 million and total equities of THB 10,327 million.

Operating Performance

Table 1: Consolidated Company's Performance (UNIT: Million Baht)

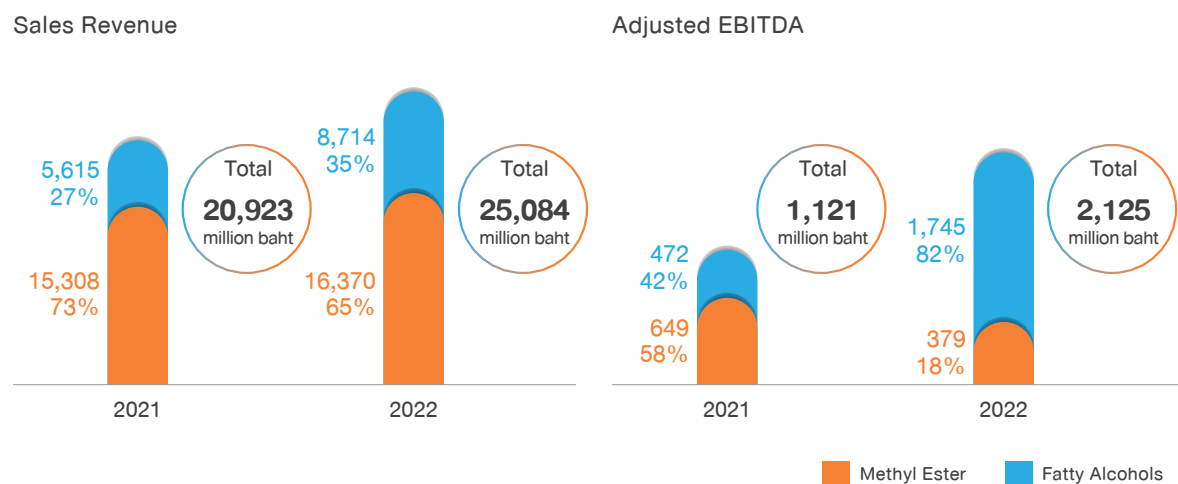
	FY2021	FY2022	% YoY
Sales Revenue	20,923	25,084	20%
EBITDA	1,524	1,732	14%
EBITDA Margin (%)	7.3%	6.9%	-0.4%
Stock Gain/(Loss) & NRV	403	(393)	-198%
Adjusted EBITDA ⁽¹⁾	1,121	2,125	90%
Adjusted EBITDA Margin (%)	5.4%	8.5%	3.1%
Net Profit	774	849	10%
Provision of contingent liabilities from lawsuit	(444)	-	n.a.
Income / (Expense) of Income Tax	-	104	n.a.
Extra items ⁽²⁾	(444)	104	-123%
Net Profit after extra item	330	953	189%
EPS (Baht/Share)	0.32	0.93	191%

Remarks:

⁽¹⁾ Adjusted EBITDA refers to EBITDA excluding impact of Stock Gain/(Loss) and NRV

⁽²⁾ Extra Items from the provision of contingent liabilities from lawsuit and deferred income tax items

Chart 1: Sales revenue and Adjusted EBITDA breakdown by business unit comparison of FY2022 vs. FY2021 (million THB)



Operating Performance by Business Unit

Methyl Ester (Biodiesel) Business Unit

Table 2: Product and Feedstock Prices

Average Price	FY2021	FY2022	% YoY
Methyl Ester (B100) (Baht/litre) ⁽¹⁾	41.00	46.38	13%
Methyl Ester (B100) (Baht/kg) ⁽²⁾	47.43	53.61	13%
Crude Palm Oil (CPO) (Baht/kg) ⁽³⁾	37.99	43.59	15%
EPPO P2F (Baht/kg) ⁽⁴⁾	3.11	3.39	9%
Biodiesel Mandate	January 1, 2020 – October 10, 2021		: B7/B10/B20
	October 11 – 31, 2021		: B6
	November 1 – 30, 2021		: B7/B10/B20
	December 1, 2021 – February 4, 2022		: B7
	February 5 – October 9, 2022		: B5
	October 10, 2022 – March 31, 2023		: B7

Remarks:

⁽¹⁾ Reference Price of EPPO

⁽²⁾ Conversion ratio: 0.865 Tons = 1,000 Liters

⁽³⁾ Reference Price of DIT

⁽⁴⁾ Market ME Price - Mixed Feedstock and MeOH price according to EPPO's B100 formula

For the overview of methyl ester market in FY2022, an average of crude palm oil price (CPO-DIT) was at 43.59 Baht/kg. increased from FY2021 by 5.60 Baht/kg. or 15% due to the higher of crude oil prices which pressured the replacement oil price to be high as well, the tight supply of vegetable oil in the United States because soybean oil, which can be used in biodiesel production, caused the soybean oil price to rise. This put upward pressure on palm oil prices, which can be used as substitutes raw materials. In addition, the Indonesian government has announced an adjusted proportion of domestic CPO and palm olein sale volumes to 30% from 20% in 1Q2022 and a ban on exports in 2Q2022, following Domestic Market Obligation (DMO) policy. Due to the war between Russia and Ukraine, which is a major exporter of sunflower oil in the world, continued pressure caused the supply of vegetable oil in the world market to decline. The CPO export volume in FY2022 increased to 1,094,547 tons from 602,826 tons in FY2021, or 82%, resulting in domestic CPO prices adjusting in line with global prices.

On the methyl ester demand side in FY2022, it has slightly decreased from the previous year, stood at 1,197,193 tons, dropped by 250,838 tons or 17%. Although the overall diesel consumption in Thailand has increased due to the relaxation of travel control measures arising from the improved COVID-19 pandemic situation. But, due to the government policy for the adjustment of biodiesel mandatory in high speed diesel fuel to be only B5 from February 5 until October 9, 2022 and up to be B7 From October 10, 2022 to March 31, 2023 to mitigate the impact on people's cost of living from the energy price crisis, this directly reduced the overall methyl ester consumption in the country significantly.

The adjustment of biodiesel mandatory in high-speed diesel fuel, which are as follows:

4Q2021		4Q2022	
Period	Mandatory	Period	Mandatory
October 1 – 10, 2021	B7/B10/B20	February 5 – October 9, 2022	B5
October 11 – 31, 2021	B6	October 10, 2022 – March 31, 2023	B7
November 1 – 30, 2021	B7/B10/B20		
December 1, 2021 – February 4, 2022	B7		

For the supply side of the methyl ester market in FY2022, it improved due to the expansion of production capacity from the existing and new entering manufacturers by 300,000 tons per year, resulting in higher competition in the market. The overall average utilization rate of the industry in FY2022 has decreased to approximately 35% – 40%.

The methyl ester price in FY2022 rose to 43.59 Baht/kg., increased by 5.60 Baht/kg., or 15% compared to FY2021 in line with the domestic CPO price despite of the restructuring of the methyl ester price formula by the Energy Policy and Planning Office (EPPO), Ministry of Energy with effective from October 3, 2022 onwards.

The restructuring of the methyl ester (B100) price formula details as follows:

$$\text{Restructuring of B100 price formula} = \frac{(B100_{CPO} \times Q_{CPO}) + (B100_{ST} \times Q_{ST})}{Q_{Total}}$$

Methyl ester (B100) price formula (2010 – October 2, 2022)				Methyl ester (B100) price formula Revised (October 3, 2022 onwards)			
Total production cost				Total production cost			
B100 (CPO)	= 0.94 CPO	+ 0.1 MeOH	+ 3.82	B100 (CPO)	= 0.94 CPO	+ 0.1 MeOH	+ 3.74
B100 (RPO)	= 0.93 RPO	+ 0.1 MeOH	+ 2.69	B100 (ST)	= 0.86 ST	+ 0.09 MeOH	+ 3.53
B100 (ST)	= 0.86 ST	+ 0.09 MeOH	+ 2.69				

Remarks:

- Crude Palm Oil (CPO) which CPO price announced by the Department of Internal Trade (DIT)
- Refined Palm Oil (RPO) or Refined Bleached Deodorized Palm Oil (RBDPO) which RPO price is CPO price plus 3 Baht.
- Palm Stearin (ST)
- $B100_{CPO}$: Methyl ester (B100) price (Baht/litre) which produced from CPO
- $B100_{ST}$: Methyl ester (B100) price (Baht/litre) which produced from ST
- Q_{CPO} : Methyl ester (B100) volume which produced from CPO and RPO by monthly (litre/day) announced by the Department of Internal Trade (DIT)
- Q_{ST} : Methyl ester (B100) volume which produced from ST by monthly (litre/day) announced by the Department of Internal Trade (DIT)
- Q_{Total} : Total Methyl ester (B100) volume (litre/day)

Ref: Energy Policy and Planning Office (EPPO), Ministry of Energy

The restructuring of the methyl ester (B100) price formula (new cost plus). The calculation price from RPO has been cancelled, which is the highest B100 price formula. Therefore, when calculating the B100 price according to the restructuring formula, As a result, the overall of B100 price will decrease, although there is an increase in the proportion of total production cost in the formula for calculating B100 price which produced from CPO and ST.

Table 3: Keys Operating Performance of ME Business Unit

Methyl Ester Business	FY2021	FY2022	% YoY
Utilization (%)	64%	57%	-7%
Sales Volume (ton)	323,462	293,466	-9%
Sales Volume (million litre) ⁽¹⁾	374	339	-9%
Sales Revenue (million baht)	15,308	16,370	7%
EBITDA (million baht)	739	235	-68%
EBITDA margin (%)	4.8%	1.4%	-3.4%
Stock Gain/(Loss) & NRV (million baht)	90	(145)	-261%
Adjusted EBITDA (million baht) ⁽²⁾	649	380	-41%
Adjusted EBITDA Margin (%)	4.2%	2.3%	-1.9%

Remarks:

⁽¹⁾ Conversion ratio: 0.865 Tons = 1,000 Liters

⁽²⁾ Adjusted EBITDA refers to EBITDA excluding impact of Stock Gain/(Loss) and NRV.

In FY2022, the Company posted methyl ester business sales revenue of THB 16,370 million, an increase of THB 1,062 million or 7% from FY2021, owing primarily to a 13% increase of methyl ester selling price following upward CPO price, which was in line with global price due to the higher export volume of CPO in Thailand according to the market situation as above mentioned. While methyl ester sales volume decreased by 9% in comparison with last year, this was due to the government policy for the adjustment of biodiesel mandatory in high speed diesel fuel to be only B5 from February 5 until October 9, 2022 and up to be B7 From October 10, 2022 to March 31, 2023, to mitigate the impact on people's cost of living from the energy price crisis, directly reduced the overall methyl ester consumption in the country. However, the Company recorded higher refined glycerine sales revenue due to the increase in selling price and sales volume of refined glycerine.

Following the considerably volatility of CPO prices in FY2022, the Company posted Stock Loss & NRV of THB 145 million. In FY2022, the Company recorded EBITDA of THB 235 million, decreased from the same period of prior year by 68%. When deducting the effect of Stock Loss & NRV as aforementioned, the Company reported Adjusted EBITDA of THB 380 million, a decrease of THB 269 million or 41% from FY2021 and Adjusted EBITDA Margin was at 2.3%

Fatty Alcohols (FA) Business Unit

Table 4: Products and Feedstock's prices

Average Price (USD per ton)	FY2021	FY2022	% YoY
Fatty Alcohols ⁽¹⁾			
- Short Chain	2,434	4,248	75%
- Mid Cut	2,021	2,112	5%
- Long Chain	1,631	2,657	63%
Average Fatty Alcohols ⁽²⁾	1,937	2,419	25%
Crude Palm Kernel Oil (CPKO) ⁽³⁾	1,362	1,562	15%
Market P2F of Fatty Alcohols	275	514	87%

Remarks:

⁽¹⁾ Reference Price of ICIS

⁽²⁾ Average price of fatty alcohols with production proportion: Short Chain 7% Mid Cut 64% and Long Chain 29%

⁽³⁾ Reference Price of Malaysian Palm Oil Board (MPOB)

The overall average CPKO-MPOB price for FY2022 was 1,562 USD/ton, up 200 USD/ton or 15% from FY2021, In 1H2022, the CPKO price increased due to the decline in production capacity due to labor shortage in Malaysia and the Domestic Market Obligation (DMO) measurement of Indonesia to limit palm oil exports (including fatty alcohols and glycerine), while the demand has increased due to the economic recovery. The COVID-19 pandemic situation has improved in 2H2022, causing CPKO production to increase. At the same time, many buyers are concerned about the global economic recession along with maintaining the COVID-19 measurement and COVID-19 pandemic situation in China had not yet improved, causing Malaysia's exports to decline and the CPKO stock in the international market to increase to a high level of 250,000 tons, causing CPKO price to decline in 2H2022, resulting in a relatively high price compared to the previous year.

On the demand side, natural fatty alcohols in FY2022 tend to be stable compared to the previous year. Despite the fact that the new strain of COVID-19 "Omicron" (B.1.1.529) has spread rapidly and is causing concern in many countries, the COVID-19 pandemic situation in 2H2022 has recovered, and the cancellation of the country's lockdown measurement in both European and American buyers, as well as the Asian region coupled with tight supply in the market, has caused buyers to begin returning to the market. However, overall market demand is also vulnerable to other negative factors such as the volatility of raw material price, the uncertain situation of the geopolitical conflict between China and Taiwan, Russian-Ukrainian war, which could be prolonged and result in global economic recession, inflation, USD currency appreciation and high transportation costs. As a result, these factors pressures compel buyers to exercise greater caution when making purchases.

The overall supply of the fatty alcohols was tighter in FY2022, mainly from the Domestic Market Obligation (DMO) policy, which was announced by the Indonesian government for the extension of enforcement measures to cover products produced from palm oil (including fatty alcohols and glycerine). As a result, exporters are required to sell fatty alcohols at least 20% to the domestic market between February 15 and March 9, 2022 and up to 30% between March 10 and 17, 2022, resulting in less volume entering the market and more procedures for obtaining export permission. As a result, the delivery of goods to the destination country was delayed. In addition, some manufacturers in United States, Indonesia and Malaysia shutdown plant, causing the overall market capacity to shrink.

The average price of natural fatty alcohols has risen compared to the same period last year. The Mid Cut fatty alcohols prices rose to 2,112 USD/ton, an increase of 91 USD/ton or 5%, as well as the Long Chain fatty alcohols price, which rose to 2,657 USD/ton, an increase of 1,026 USD/ton or 63% and the Short Chain fatty alcohols price increased to 4,248 USD/ton, an increase of 1,814 USD/ton or 75% due to higher raw material prices and tight supply.

Table 5: Keys Operating Performance of FA Business Unit

Fatty Alcohols Business	FY2021	FY2022	% YoY
Utilization (%)	81%	96%	15%
Sales Volume (Ton)	86,213	97,413	13%
Revenue from Sales (million baht)	5,615	8,714	55%
EBITDA (million baht)	785	1,497	91%
EBITDA margin (%)	14.0%	17.2%	3.2%
Stock Gain/(Loss) & NRV	313	(248)	-179%
Adjusted EBITDA (million baht) ⁽¹⁾	472	1,745	270%
Adjusted EBITDA Margin (%)	8.4%	20.0%	11.6%

Remarks:

⁽¹⁾ Adjusted EBITDA refers to EBITDA excluding impact of Stock Gain/(Loss) and NRV

For the FY2022, fatty alcohols business recorded sales revenue of THB 8,714 million, increased by THB 3,099 million or 55% from FY2021, owing to a 25% increase of average of fatty alcohols price, which was consistent with an average crude palm kernel oil (CPKO) prices due to tight supply from the labor shortages in Malaysia and the Domestic Market Obligation (DMO) measurement of Indonesia to limit palm oil exports (including fatty alcohols and glycerine). The demand for natural fatty alcohols tends to be stable owing to the recovered COVID-19 pandemic situation and the cancellation of the country's lockdown measurement in both European and American buyers and Asian region, coupled with tight supply in the market, causing buyers to start returning to the market, as aforementioned in the market situation.

In the performance of FY2022, the Company recorded EBITDA of THB 1,497 million, increased from FY2021 by 91%. When deducting impact from Stock Loss & NRV of THB 248 million, Adjusted EBITDA was recorded at THB 1,745 million, increased by 270% and Adjusted EBITDA Margin was at 20%.

4.2 Financial Statement

Statements of Profit or Loss

STATEMENTS OF PROFIT OR LOSS FOR THE YEAR ENDED DECEMBER 31

	2020		2021		2022	
	(Million Baht)	%	(Million Baht)	%	(Million Baht)	%
Revenues from sales	18,202.5	100.0	20,923.4	100.0	25,084.0	100.0
Cost of sales	(16,860.0)	(92.6)	(19,378.7)	(92.6)	(23,119.8)	(92.2)
Gross profit	1,342.5	7.4	1,544.6	7.4	1,964.3	7.8
Interest income and dividend income	19.1	0.1	6.4	0.0	11.7	0.0
Other income	40.2	0.2	65.5	0.3	68.8	0.3
Selling and distribution expenses	(346.7)	(1.9)	(337.8)	(1.6)	(404.0)	(1.6)
Administrative expenses	(481.4)	(2.6)	(456.1)	(2.2)	(500.4)	(2.0)
Provision of contingent liabilities from lawsuit	-	-	(443.6)	(2.1)	-	-
Loss from impairment of investment	(9.5)	(0.1)	-	-	-	-
Net foreign exchange gain (loss)	8.9	0.0	73.5	0.4	79.6	0.3
Net derivatives gain (loss)	8.4	0.0	(68.1)	(0.3)	(128.3)	(0.5)
Finance costs	(69.0)	(0.4)	(49.5)	(0.2)	(49.5)	(0.2)
Share of loss of investments in an associate and joint ventures	62.5	0.3	86.4	0.4	47.1	0.2
Profit before income tax income (expense)	575.0	3.2	421.4	2.0	1,089.3	4.3
Income tax income (expense)	(14.9)	(0.1)	(91.2)	(0.4)	(136.0)	(0.5)
PROFIT FOR THE YEAR	560.1	3.1	330.2	1.6	953.3	3.8
PROFIT ATTRIBUTABLE TO:						
Owners of the parent	560.1	3.1	330.2	1.6	953.3	3.8
PROFIT FOR THE YEAR	560.1	3.1	330.2	1.6	953.3	3.8
BASIC EARNINGS PER SHARE (BAHT)	0.55		0.32		0.93	

Statements of Financial Position

STATEMENTS OF FINANCIAL POSITION AS AT DECEMBER 31

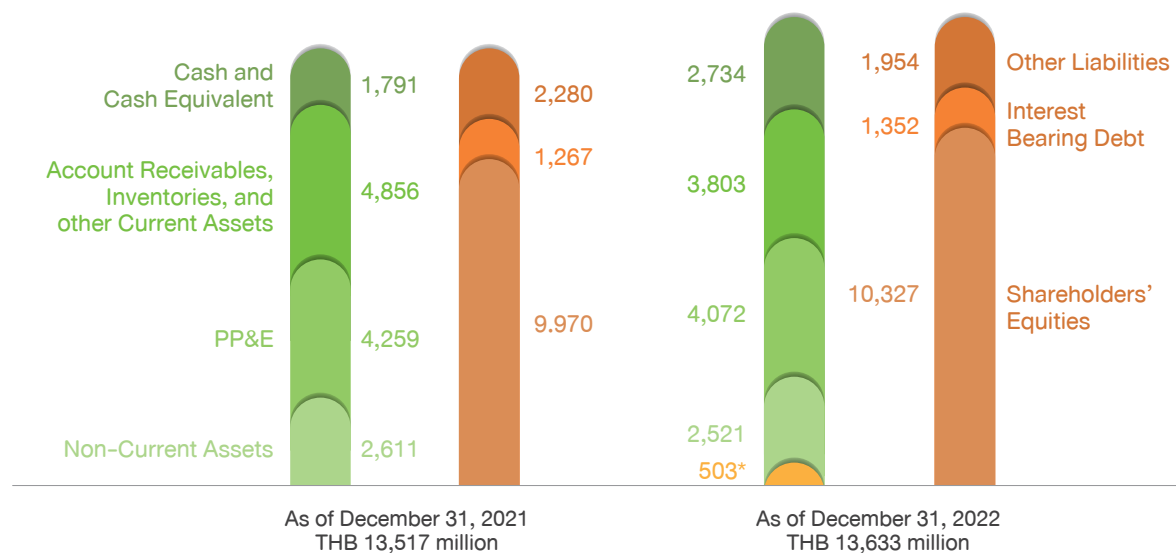
	2020		2021		2022	
	(Million Baht)	%	(Million Baht)	%	(Million Baht)	%
ASSETS						
CURRENT ASSETS						
Cash and cash equivalents	1,742.5	13.2	1,511.0	11.2	1,383.6	10.1
Temporary investments	400.0	3.0	280.0	2.07	1,350.0	9.90
Current investments in financial assets	1,637.0	12.4	2,381.4	17.6	1,759.1	12.9
Trade receivables	286.5	2.2	306.3	2.3	263.0	1.9
Other receivables	25.5	0.2	108.1	0.8	99.4	0.7
Value-added tax receivable	2,002.7	15.1	2,024.1	15.0	1,656.9	12.2
Inventories	32.9	0.2	35.8	0.3	24.6	0.2
Other current assets	6,127.2	46.3	6,646.7	49.2	6,536.5	47.9
NON-CURRENT ASSETS						
Investments in joint ventures	1,623.0	12.3	1,880.7	13.9	1,882.4	13.8
Investments in an associate	-	-	-	-	-	-
Plant and equipment	4,576.5	34.6	4,258.8	31.5	4,072.1	29.9
Right-of-use assets	589.1	4.4	473.6	3.5	385.2	2.8
Intangible assets	68.7	0.5	66.8	0.5	75.6	0.6
Deferred tax assets	228.3	1.7	181.0	1.3	168.6	1.2
Deposits with financial institutions used as collateral	-	-	-	-	503.3	3.7
Other non-current assets	26.4	0.2	8.8	0.1	9.1	0.1
Total Non-current Assets	7,112.0	53.7	6,869.8	50.8	7,096.2	52.1
TOTAL ASSETS	13,239.2	100.0	13,516.5	100.0	13,632.7	100.0

STATEMENTS OF FINANCIAL POSITION
AS AT DECEMBER 31

	2020		2021		2022	
	(Million Baht)	%	(Million Baht)	%	(Million Baht)	%
LIABILITIES AND SHAREHOLDERS' EQUITY						
CURRENT LIABILITIES						
Trade payables	813.7	6.1	1,226.4	9.1	862.4	6.3
Other payables	262.5	2.0	398.3	2.9	367.5	2.7
Payables to contractors	111.0	0.8	61.2	0.5	40.8	0.3
Current portion of long-term borrowings from financial institutions	565.8	4.3	764.0	5.7	85.5	0.6
Current portion of lease liabilities	133.4	1.0	120.4	0.9	48.4	0.4
Accrued corporate income tax	-	-	29.8	0.2	120.6	0.9
Provision for short-term liabilities	-	-	443.6	3.3	443.6	3.3
Total Current Liabilities	1,886.4	14.2	3,043.6	22.6	1,968.8	14.4
NON-CURRENT LIABILITIES						
Long-term borrowings from financial institutions	764.0	5.8	-	-	859.2	6.3
Lease liabilities	482.8	3.6	382.0	2.8	359.0	2.6
Deferred tax liabilities	112.9	0.9	120.5	0.9	118.8	0.9
Provision for employee benefits	-	-	-	-	-	-
Other non-current liabilities	1,359.7	10.3	502.5	3.7	1,337.0	9.8
Total Non-current Liabilities	3,246.1	24.5	3,546.1	26.2	3,305.9	24.2
SHAREHOLDERS' EQUITY						
SHARE CAPITAL						
Authorized share capital	9,724.8	73.5	9,724.8	71.9	9,724.8	71.3
Issued and paid-up share capital	9,724.8	73.5	9,724.8	71.9	9,724.8	71.3
Share premium	89.2	0.7	89.2	0.7	89.2	0.7
Difference arising from business combination under common control	(4.1)	(0.0)	(4.1)	(0.0)	(4.1)	(0.0)
RETAINED EARNINGS (DEFICIT)						
Appropriated						
Legal reserve	49.8	0.4	61.0	0.5	98.7	0.7
Unappropriated (Accumulated deficit)	133.4	1.0	99.4	0.7	418.2	3.1
TOTAL SHAREHOLDERS' EQUITY	9,993.1	75.5	9,970.4	73.8	10,326.9	75.8
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	13,239.2	100.0	13,516.5	100.0	13,632.7	100.0

Statement of Financial Position

Chart 2: Consolidated Financial Position as of December 31, 2021 and as of December 31, 2022



Remarks:

* Restricted Deposits

Assets

As of December 31, 2022, the Company had total assets of THB 13,633 million, an increase of THB 116 million compared to December 31, 2021 in which key changes are described as follow;

1. Current assets decreased by THB 110 million mainly from;
 - 1.1 An increase in cash and cash equivalent THB 943 million
 - 1.2 Accounts receivable and other accounts receivables decreased by THB 666 million caused by the decreasing of selling price of methyl ester and fatty alcohols compared to end of 2021.
 - 1.3 Inventory decreased by THB 367 million owing to the decline in the selling price of methyl ester and fatty alcohols, resulting in relation to decrease in inventory.
2. Non-current assets increased by THB 226 million mainly from;
 - 2.1 An increase in restricted deposits THB 503 million regarding the lawsuit order at the creditor's request under the civil case. The details are disclosed in the notes to the financial statements.
 - 2.2 PP&E decreased by THB 187 million mainly due to depreciation expenses incurred in the period.
 - 2.3 The right of use (ROU) asset decreased by THB 88 million.

Liabilities

As of December 31, 2022, the Company had total liabilities of THB 3,306 million, a decrease of THB 241 million compared to December 31, 2021, mainly attributed to

1. Accounts payable decreased by THB 364 million mainly from the decreasing of raw material prices.
2. Long-term loans from financial institutions increased by THB 181 million.
3. Lease liabilities decreased by THB 96 million.
4. Corporate tax payable increased by THB 91 million.

Shareholders' equity

As of December 31, 2022, the Company had total shareholders' equity of THB 10,327 million, an increase of THB 357 million compared to December 31, 2021. This was the net profit of THB 953 million for the year 2022, other comprehensive income of THB 17 million and dividend payment to shareholders of THB 614 million (divided into dividends for the year 2021 of THB 358 million and interim dividends in September of THB 256 million).

Credit Policy

As for the credit policy, the Company has the credit policy which performed by the standard regulations with considering the appropriate credit lines and credit terms to customers and suppliers. The policy was taking into consideration risks of the Company, business liquidities and credit terms to customers. In addition, the payment terms to suppliers must be in the standard level of market.

Furthermore, the Company usually reviews credit lines and credit terms to customers and suppliers in concurrence with the Company's risk policy.

Statements of Cash Flows

STATEMENTS OF CASH FLOWS AS AT DECEMBER 31

Total Cash Flows	2020	2021	2022
(Million Baht)			
Cash Flow			
Net cash received (used in) operating activities	391.7	1,115.4	1,746.8
Net cash received (used in) investing activities	(152.3)	(267.9)	(1,291.7)
Net cash received (used in) financing activities	(806.8)	(1,083.5)	(568.9)
Effect of exchange rate changes on balances held in foreign currencies	(0.9)	4.5	(13.8)
Net increase (decrease) in cash and cash equivalents	(568.3)	(231.5)	(127.5)
Cash and cash equivalents as at 1 January	2,310.8	1,742.5	1,511.0
Cash and cash equivalents as at 31 December	1,742.5	1,511.0	1,383.6

Remarks:

Ending cash and cash equivalents as at 31 December 2022 had not included current investment in financial assets of THB 1,350 million and restricted deposits THB 503 million.

As for statement of cash flows of FY2022, the Company had cash received from operating activities of THB 1,747 million which comprised of cash from the net profit of THB 953 million, the adjustment for non-cash items, a decrease in account receivables and inventories. Including a decrease in account payables, a decrease in other account payables and an increase in restricted deposits.

The Company had cash used in investing activities of THB 1,292 million, primarily due to cash spending for an increase in the investments in current financial assets of THB 1,070 million, cash spending for purchase of buildings and equipment of THB 271 million, cash spending for the investment in joint ventures (GKBI) of THB 54 million and cash receiving from dividend of THB 102 million.

The Company had cash used in financial activities of THB 569 million mainly due to dividend payment of THB 614 million, cash spending for lease liabilities of THB 100 million and interest paid of THB 38 million while had cash receiving from financial institutions of THB 183 million.

As the activities above, the Company had a decrease in cash and cash equivalents in the amount of THB 127 million which had cash and cash equivalents as of January 1, 2022 in the amount of THB 1,511 million. As a result, as of December 31, 2022 the Company had cash and cash equivalents of THB 1,384 million (excluding investments in current financial assets of THB 1,350 million and restricted deposits THB 503 million).

4.3 Key Financial Ratio

FOR THE YEAR ENDED DECEMBER 31

	2020	2021	2022
Liquidity Ratio			
Current Ratio (x)	3.2	2.2	3.3
Quick Ratio (x)	2.0	1.4	2.4
Cash Ratio (x)	0.2	0.5	0.7
Receivables Turnover Ratio (x)	11.9	10.4	12.1
Average Recievable Collection Period (Day)	30.7	35.1	30.1
Inventory Turnover (x)	21.1	22.1	31.3
Average Inventory Processing Period (Day)	17.3	16.5	11.7
Payables Turnover Ratio (x)	19.1	19.0	22.1
Average Payable Period (Day)	19.1	19.2	16.5
Cash Conversion Cycle (Day)	28.9	32.4	25.3
Profitability Ratio			
Gross Profit Margin (%)	7.4	7.4	7.8
Operating Profit Margin (%)	3.5	2.3	4.2
Other Income to Total Income Ratio (%)	0.3	0.3	0.3
Operating Cash Flow to Operating Profit Ratio (%)	60.8	236.9	164.8
Net Profit Margin (%)	3.1	1.6	3.8
Return on Equity (%)	5.7	3.3	9.4
Efficiency Ratio			
Return on Asset (%)	4.3	2.5	7.0
Return on Fixed Asset (%)	22.1	18.6	33.2
Total Asset Turnover (x)	1.4	1.6	1.9
Financial Policy Ratio			
Debt to Equity (x)	0.3	0.4	0.3
Interest Coverage Ratio (x)	6.7	23.8	37.0
Cash Basis (x)	0.7	1.9	1.7
Dividend Payout Ratio (%)	36.6	108.5	64.4
Per Share Data			
Earning per Share Ratio (Baht)	0.55	0.32	0.93
Book Value per Share Ratio (Baht)	9.8	9.7	10.1

GGC and Sustainable Business

To foster confidence in sustainable business growth, GGC has pursued its sustainability vision that aligns with the United Nations Sustainable Development Goals (SDGs) and the BCG Model element of public policy, which seeks to grow the values of domestic agricultural produce as a pattern for economic development in parallel with domestic sustainable management.

GGC is therefore committed to evolving its marketing caliber and, even more so, achieving value addition for sustainability with due regard for the economic, social, and environmental aspects of holistic economic development (BCG).

1. **Bioeconomy:** This development focuses on business growth concerning agricultural feedstock. GGC's plan is to drive the bioeconomy through the Nakhonsawan Biocomplex Phase 1 and Phase 2 to hone its competitiveness in biofuels, biochemicals, and bioplastics. A byproduct is the evolution of domestic suppliers' caliber in both economic and social aspects—notably fair treatment of suppliers and labor in the supply chain—through sustainable supply chain management, namely the supplier selection and registration process, supplier assessment, feedstock management, and logistics and warehouse management. These activities must align with the United Nations' sustainability policy and SDGs to achieve our internationally sustainable Company goal. This year GGC collaborated with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Thailand Oil Palm Smallholder Academy (TOPSA)—in conducting a training program that promotes small farmers' standard certification for sustainable palm oil production, known as RSPO (Roundtable on Sustainable Palm Oil)—to upgrade these farmers' livelihoods and serve as another channel for adding value to oil palm.
2. **Circular Economy:** This development focuses on conscientious consumption of resources, efficient management of waste, reduction of waste volumes, and systematic management of water consumption—all of which form part of our efforts to cut greenhouse gases.
3. **Green Economy:** This development focuses on improvement of production and product development through the following activities. First, investment in operations and production efficiency improvement, leading to reduced greenhouse gas emissions. Second, product portfolio management from upstream, whereby calculation is made of greenhouse gas emissions with the application of life cycle assessment. And third, application of the 3Rs (reduce, reuse, and recycle). These moves lead to low-carbon products. Finally, we select emerging technology for storing and offsetting carbon not reduced by our processes.

GGC strives to achieve the Net Zero goal by 2050 and become an internationally progressive and accepted Company for dealing with climate change by 2027, for this is part of our response to comprehensive national development and represents establishment of cooperation and multiplication of the mindset that is to be passed on to all sectors to achieve our common goals.

Market and Business Outlook in 2023

Methyl Ester Market Outlook

For the methyl ester demand in 2023, the Company anticipates that it tends to improve from the previous year to increase by 27% from approximately 1.30 million tons/year in 2022, mainly from the government's policy to maintain the proportion of biodiesel mandate to be B7 as main grade until March 31, 2023. It is also expected to increase the proportion of biodiesel mandate in high-speed diesel from B7 to 3 types namely B7, B10 and B20 from April 1, 2023 onwards after the CPO price level adjusted near to normal level. In addition, people are starting to resume their normal lives due to the easing of the COVID-19 pandemic situation, and tourism tends to recover from both domestic and international tourists. Therefore, the Company anticipates that the overall demand of methyl ester in 2023 will tend to increase.

In terms of the overall supply of the methyl ester market in 2023, it will remain stable because there is no expansion of the production capacity from the existing manufacturers and no entry of new manufacturers. The Company anticipates that the average utilization rate of the industry will increase to 50% - 55%.

For the methyl ester price in 2023, the Company anticipates that it tends to drop in 2022, which is depreciating in line with the trend of domestic CPO prices and also from the restructuring of the methyl ester price formula by the Energy Policy and Planning Office (EPPO), Ministry of Energy as described above

Fatty Alcohols Market Outlook

For the natural fatty alcohols demand in 2023, the Company anticipates that it will remain stable to slightly improve from 2022 due to the unravelling of the COVID-19 pandemic situation and the lifting of lockdown measures in buyers' countries such as in Europe, America and Asian region, causing the buyers return to the market, especially the Chinese market, which is the main buyer. As a result, the overall demand has improved. Although the global economic situation tends to be in recession due to the factors such as interest rate, inflation and USD currency appreciation, this has caused the purchasing power in the market to decrease, including the uncertainty of the potentially protracted war between Russia and Ukraine. As a result, overall market demand has not recovered as much as it should.

For the overall supply of natural fatty alcohols in 2023, the Company anticipates that it tends to improve compared to the previous year, when many major manufacturers' had production process problems, causing temporary reduction in production during April and August 2022. In addition, the Indonesian government implemented the Domestic Market Obligation (DMO) policy in February 2022, which requires exporters to sell at least 20% of fatty alcohols to the domestic market before exporting, causing the markets' aggregate supply to contracted significantly. Meanwhile, Indonesia has no plans to resume Domestic Market Obligation (DMO) measures for Oleochemical products in 2023.

In terms of fatty alcohols price in 2023, the Company anticipates that it is likely to drop in 2022 in line with the trend of CPKO price, including the increasing of the competition in the market due to improved supply.

Refined Glycerine Market Outlook

For the demand of refined glycerine in 2023, the Company anticipates that it will be stable to slightly improve compared to the previous year. Although the COVID-19 pandemic situation has eased and the demand for detergents and hygiene products continues to increase, including the cancellation of the country's lockdown measures, especially in China, who is main buyer, causing the demand has improved. However, as the forecast of global economic situation tends toward recession due to interest rates, inflation and USD currency appreciation, these may affect purchasing power in the market, including given the uncertainty situation of the potentially protracted war between Russia and Ukraine. These factors may pressure buyers to be more cautious in their purchases as mentioned above.

For the overall supply of refined glycerine market in 2023, the Company anticipates that it is likely to improve. As major fatty alcohols producers in the market resume normal production, including the alternative energy policy of each country, it tends to increase the proportion of biodiesel mandate in 2023 especially in Southeast Asia. For example, the proportion of biodiesel mandate to be B7 B10 and B20 in Thailand and the proportion of biodiesel mandate to be B35 from B30 in Indonesia including testing the possibility of using B40 resulting in the overall supply of refined glycerine in the market tend to increase.

In terms of an average price of refined glycerine in 2023, the Company anticipates that it is likely to drop in 2022 following CPO price which is expected to weaken and the increasing of the competition in the market due to an increase supply.

Ethanol Market Outlook

For the ethanol demand in 2023, the Company anticipates that it is likely to improve 16% from the previous year approximately 1.12 million tons/year, owing to people starting to resume their normal lives due to the easing of the COVID-19 pandemic situation, as well as a recovery of tourism from both domestic and international tourists. It is expected that the overall ethanol demand in 2023 will tend to increase.

On the supply side of the ethanol market in 2023, the Company anticipates that there will be an increase in the production capacity expansion from the existing manufacturers, an increase of 159,000 million tons/year, or 9% nearly matching the increase in ethanol demand. It is expected that an average utilization rate in the industry will remain at 60%.

In terms of ethanol price in 2023, the Company anticipates that it likely to decline in 2022, which is in line with the raw material prices for ethanol production from sugar cane, molasses and cassava chips, which are expected to decline to normal level. As a result, the cost of production and the overall average ethanol market price tend to decrease.

5. General information and other key information

5.1 General information and other key information

Company name	: Global Green Chemicals Plc
Ticker symbol	: GGC
Website	: www.ggcplc.com
Company registration number	: 0107559000044
Registered capital	: As of December 31, 2022, Baht 9,724,833,650 (made up of 1,023,666,700 shares at Baht 9.50 per share)
Company registration date	: July 28, 2005
Public Company listing date	: February 18, 2016
First trading date on SET	: May 2, 2017
Core businesses	: Methyl ester products : Fatty alcohol products : Services and others
Personnel headcount	: 278 as of December 31, 2022

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5.2 Litigation

As of December 31, 2022, GGC and subsidiaries were involved in the following ongoing litigation potentially significantly affecting their business operations as detailed below.

1. Asia Capital Group Plc

On August 20, 2018, Asia Capital Group Plc sued Thai Bio Innovation Co., Ltd. (formerly Anatta Green Co., Ltd.), as the first defendant and GGC as the second defendant in the Civil Court, accusing GGC of breaching an agreement in a letter consenting to claim transfer. The first defendant allegedly transferred to the plaintiff the right to receive payment for crude palm oil and palm kernel oil, so the plaintiff suffered Baht 324.65 million in damages along with 15% interest per year from the litigation date until the complete amount has been repaid. GGC's view was that it was not guilty and provided testimony to contest the case.

Later, on June 10, 2020, the Civil Court ruled that GGC must reimburse the plaintiff a sum of Baht 289.56 million together with 15% interest per year beginning from the date of default. On January 20, 2022, the Appeal Court gave a verdict in agreement with the lower court. Nevertheless, GGC disagreed with the verdict of the Appeal Court and on March 9, 2023, exercised its right to petition the Supreme Court's deliberation. The Supreme Court was considering whether to accept the petition.

2. Thai Bio Innovation Co., Ltd. (1)

On April 8, 2020, Thai Bio Invention Co., Ltd., sued GGC in the Civil Court for default over an agreement on the trading of crude palm oil and palm kernel oil, thus harming the plaintiff's interests worth Baht 595.10 million together with 7.5% interest per year. GGC viewed, however, that since it was not obliged to plead guilty as charged, it would provide testimony to contest the case in court. The litigation was now under the witness interrogation stage of the lower court.

3. Thai Bio Innovation Co., Ltd. (2)

On June 24, 2020, Thai Bio Innovation Co., Ltd., as a plaintiff, filed a lawsuit in the Civil Court against GGC as the first defendant, along with two other companies. It was claimed that the defendants were in default and in breach of a contract regarding the purchase and sale of crude palm oil and crude palm kernel oil, thus causing damage to the plaintiff in the amount of Baht 109.42 million with 7.5% percent interest per year. GGC believes that since it was not obliged to plead guilty as charged, it would provide testimony to contest the case in court. The litigation was now under the witness interrogation stage of the lower court.

4. Thai Bio Innovation Co., Ltd. (3)

On September 3, 2020, Thai Bio Innovation Co., Ltd., as a plaintiff, filed a lawsuit in the Civil Court against a Company as the first defendant and GGC as the second defendant. It was claimed that the defendants were in default and in breach of a contract regarding the purchase and sale of crude palm kernel oil, thus causing damage to the plaintiff in the amount of Baht 364.71 million with 7.5% percent interest per year. GGC believes that since it was not obliged to plead guilty as charged, it would provide testimony to contest the case in court. The litigation was under the consideration of the lower court.

5. Global Inter Co., Ltd.

On June 18, 2021, Global Inter Co., Ltd., sued GGC in the Civil Court, accusing GGC of defaulting and breaching the contract for using storage tanks for products and demanding compensation worth Baht 449.77 million along with 7.5% percent interest per year. GGC believes that since it was not obliged to plead guilty as charged, it would provide testimony to contest the case in court. Then on March 21, 2022, the Civil Court dismissed the case, since this would be a repetition of the deliberation process, as the case dealt with the same issue as the one that GGC sued Global Inter Co., Ltd. Nevertheless, in July 2022 both sides exercised their rights to appeal the court's decision. The litigation was under the consideration of the Appeal Court.

6. Criminal case

GGC filed a complaint about its former executives and related business partners and parties to the investigating officer, Economic Crime Depression Division (ECD), Royal Thai Police, in the third quarter of 2018. The investigating officer has partly completed the compilation of evidence and witnesses and concurred with the litigation. The investigation record has been submitted to the prosecuting officer, who has now formally sued the accused in three cases in the Criminal Court.

Chapter 2

Corporate Governance



The Board of Directors



Mr. Kongkrapan Intarajang

Chairman



Prof. Dr. Kumchai Jongjakapun

Chairman of Independent Directors /
Chairman of Audit Committee

Mrs. Kannika Ngamsopee

Independent Director /
Chairman of Risk Management Committee /
Director to Audit Committee



ACM Songtam Chokkanapitag

Independent Director /
Chairman of Nomination
and Remuneration Committee

Pol. Gen. Suchart Theerasawat

Independent Director /
Chairman of Corporate Governance
and Sustainable Development Committee



Mr. Jarun Wiwatjesadawut

Independent Director /
Director to Risk Management Committee



Mr. Thanwa Laohasiriwong

Independent Director /
Director to Corporate Governance
and Sustainable Development Committee /
Director to Audit Committee



Lt.Gen. Titawat Satiantip

Independent Director /
Director to Nomination and Remuneration Committee /
Director to Corporate Governance
and Sustainable Development Committee



Mr. Varit Namwong

Director /
Director to Nomination and Remuneration Committee /
Director to Risk Management Committee



Mr. Thanakorn Manoonpol

Director



Mr. Kridsada Prasertsuko

Director /
Director to Risk Management Committee /
Managing Director

Executives



Mr. Kridsada Prasertsuko
Managing Director



Mr. Kumpol Chaikitkosi
Deputy Managing Director,
Operational Excellence



Mr. Piya Suri
Deputy Managing Director,
Commercial Excellence /
Acting Vice President, Sales and Marketing - Biochemicals



**Miss Wanlapa
Sophiskhaunkhant**
Vice President, Corporate Finance
and Accounting



**Mrs. Kunakorn
Witthayapaisarn**
Vice President, Internal Audit



Mrs. Boodsada Seema
Vice President, Corporate Affairs
and Corporate Secretary



Mr. Jakrit Rungsimanop
Vice President, Corporate Strategy



Mr. Jiruss Rianchaiwanich
Vice President, Human Resource
and Corporate Support



Mr. Sutthisarn Khongaphirak
Vice President, Corporate Legal



Mr. Ekaphong Govitgoongrai
Vice President, Supply Planning
and Feedstock Sourcing



Mr. Satit Vaewvichit
Vice President,
Business and Product Development



Mr. Kavin Kaewkong
Vice President,
Sales and Marketing – Biofuels



Mr. Thodsaphorn Phienchob
Vice President, Operations



Miss Chompunuch Liamprawat
Vice President, Process Technology



Mr. Phromphron Isarankura Na Ayutthaya
Vice President,
Engineering and Maintenance



Mr. Dumrong Putiput

Vice President,
Reporting to Managing Director
Secondment as Managing Director,
GGC KTIS Bioindustrial Company Limited



Mr. Krit Treenutchakorn

Vice President,
Reporting to Managing Director
Secondment as Managing Director,
Thai Ethoxylate Company Limited



Mr. Chanasiri Vanit

Vice President, Reporting to
the Deputy Managing Director,
Operational Excellence



Mr. Suchet Deemangmee

Vice President,
Reporting to Managing Director

Corporate Governance

6. Corporate Governance Policy

The Company, under the supervision of the Board of Directors (“the Board”), takes very seriously business operations with sustainability and compliance with the Business Code of Conduct of GGC Group, Best Practices for Directors of Listed Companies, applicable rules, regulations, and guidelines of the Stock Exchange of Thailand (SET) and the Securities and Exchange Commission (SEC), and is determined to elevate its Corporate Governance (CG) to international standards. GGC is committed to making GGC Group an efficient organization in business operations with corporate governance, management excellence, responsibility, ethics, fairness, transparency, and accountability. GGC also intends to create maximum benefits for all shareholders, taking into account all relevant stakeholders to foster mutual trust and sustainable growth. To this end, the Board has tasked the Corporate Governance and Sustainable Development Committee to supervise such execution to ensure alignment with GGC’s strategic directions and guidelines. The Board also regularly monitors and assesses the efficiency of the implementation under the corporate governance Principles through the committee’s performance reports.

6.1 Overview of CG policy and Guidelines

The Board of Directors plays a key role in determining the Company’s visions, strategies, policies and key work plans as well as providing a performance tracking system and effective risk management under the principles of corporate governance to strengthen the management system to be transparent and fair to all stakeholders, as well as gaining public investors’ trust, to contribute to the increasing value of the Company’s shares while taking into account the benefits, rights, and equality of all shareholders and stakeholders.

The Board has defined a CG policy for the directors, management, and employees within GGC group to adhere to in performing their work and in line with local and international practices such as SEC’s CG Code and Dow Jones Sustainability Indexes (DJSI) for continuous CG development while taking into account the equal rights of all stakeholders.

6.1.1 Policy and Guidelines Related to the Board of Directors

(1) Board of Directors

The Board of Directors constitutes the core of corporate governance. The management of GGC’s business operations, as stipulated by laws, rests with the Board, and business conduct must be under the law, GGC’s objectives, and Articles of Association, as well as the resolutions of the shareholders’ meeting. The Board is appointed by the shareholders at their Annual General Meeting (AGM). All directors are fully qualified and do not have prohibited characteristics stipulated by laws and applicable rules and regulations. GGC has defined a policy of diversity of the Board and considers it part of its nomination and selection process to ensure that the composition of the Board is suitable, diverse, and consistent with GGC’s Corporate Governance and Business Code of Conduct Handbook (CG Handbook). Consideration of the candidates is based on their credentials, knowledge, abilities, and experience in a variety of fields that are beneficial to GGC (Board Skills Matrix) such as engineering, industry, agriculture and natural resources, economics

and finance, business administration, accounting, law, internal audit, corporate governance, social and environmental responsibility, sustainability development, and information technology, including gender diversity, regardless of race, nationality, color, ethnicity, or religion in order to combine diverse knowledge, abilities and perspectives essential to the Company's business strategy.

At present, the Board consists of 11 directors, of whom one is a Executive director and 10 are non-executive directors, and 7 are independent directors. Each director has the roles, duties, and responsibility based on laws, rules, and GGC's Articles of Association, resolutions of the shareholders' meeting, and the corporate governance principles. The roles, duties, and responsibility of the Board have been clearly defined. The Chairman is responsible for ensuring that the functioning of the Board is efficient and independent of the management. The details are in the report under the topic entitled "The Board of Directors".

(2) Subcommittees

To ensure the prudent and efficient screening of significant operations under Corporate Governance, the Board has established 4 subcommittees: the Audit Committee, Nomination and Remuneration Committee, Corporate Governance and Sustainable Development Committee, and Risk Management Committee. Each of these subcommittees has been assigned the duty to peruse and screen specific important implementation. The Board has clearly defined in the charter of each subcommittee the qualifications, terms of office, and scopes of duties and responsibility of the subcommittees. All members of the subcommittees are knowledgeable, with suitable and sufficient experience to perform their duties assigned by the Board. The subcommittees regularly report their performance to the Board and disclose reports on their performance during the year to the regulatory agencies, shareholders, and the public in GGC'S 56-1 One report annually. The details of names, duties, responsibility, and number of meetings appear in the report entitled "Subcommittees."

(3) Nomination and Appointment of Directors, Independent Directors, and Chief Executives

The nomination and appointment of GGC's directors is undertaken through the consideration process of the Nomination and Remuneration Committee and the Board. The Nomination and Remuneration Committee considers the nomination of suitable candidates as directors with sufficient background information for decision-making under GGC's nomination and appointment criteria. The Board Skills Matrix is used, taking into account the candidates' full qualifications, with no prohibited characteristics stipulated by laws and applicable regulations, independence, absence of conflicts of interest, as well as Board diversity, namely the proportion of gender directors (gender diversity), independent directors, racial and nationality diversity, skill diversity covering knowledge, abilities, expertise, and experience as well as specific qualifications that are useful and consistent with GGC's business strategy, regardless of gender, race, nationality, color, ethnicity, or religion. The committee is to ensure that the composition of the Board is diverse, appropriate, and consistent with the policy on variety for appointment at the shareholders' meeting under GGC's Articles of Association. Directors must perform their duties with responsibility and care (Duty of Care) and loyalty and honesty (Duty of Loyalty). New directors replacing those who have resigned before the end of their terms and the Managing Director were appointed by GGC's Board Meetings as stated in the Articles of Association with systematic and transparent selection and nomination criteria and process as follows:

Nomination and appointment of directors to replace those due to retire by rotation: GGC allowed shareholders to nominate candidates with appropriate qualifications as directors three months before every Annual General Meeting of Shareholders (AGM). The Nomination and Remuneration Committee is responsible for the selection and nomination of qualified candidates as defined in the selection and nomination criteria for submission to the Board Meeting for approval and then to the AGM for appointment. The resolution on the appointment of the directors must receive a majority votes of shareholders attending the meeting and exercising their voting rights. The shareholders shall vote for each individual director. For the reappointment of directors, performance of the previous years and time devotion and engagement in activities of each director will be presented to support the consideration.

Nomination and appointment of directors to fill vacancies caused by reasons other than expiration of term of office: The Nomination and Remuneration Committee is responsible for the selection and nomination of qualified candidates as defined in the selection and nomination criteria for submission to the Board Meeting for consideration and appointment as directors to fill the vacancies, except where the remaining term of the previous director is less than two months. The acting director must secure at least three-quarters of the votes of the remaining directors. The term of the appointed replacement will be identical to the remaining term of the predecessor.

Nomination of directors as members of the subcommittees: The Nomination and Remuneration Committee is responsible for the selection and nomination of directors whose qualifications meet the selection criteria and subcommittee charter for submission to the Board Meeting for consideration and appointment as directors to the subcommittees for a three-year term of office. The resolution for the appointment of directors to the subcommittees must receive the majority votes, and directors may be reappointed by the Board Meeting. If the director position is vacant by reasons other than retiring by rotation, the elected director can stay in office only for the remaining term of the predecessor.

Consideration of the qualifications of Independent Directors: GGC has defined the qualifications of independent directors in the CG Handbook and published them on the Company website. Those qualifications are more stringent than those under the notifications of SEC's Capital Market Supervisory Board, that is, their shareholding ratios which must not be over 0.5% of all the voting shares of the parent company, subsidiaries and associated companies, major shareholders, or persons having controlling power over the companies, including shareholding of persons related to independent directors. The term of office of the independent directors shall not be more than nine consecutive years from May 2, 2020 the first day of SET trading onward (excluding the previous term of office of former independent directors or from the date of first appointed as independent directors, or both), as specified in the Charter of Independent Directors and disclosed on the Company website. The details of the Independent Director Charter are shown in "Attachment 5: Corporate Governance Policy and Guidelines and Business code of conduct in full form".

Nomination and Appointment of the Managing Director: If the position of Managing Director becomes vacant, the Nomination and Remuneration Committee is responsible for the selection and nomination of the new Managing Director by considering from the list of the Company's directors who have the skills, experiences, professions, and specific qualifications that are necessary and appropriate for the Company's business operations according to the Board Skills Matrix, namely knowledge, ability in business management and experience in related fields and possess leadership qualities as well as experience in being a leader of an organization, and taking into account potential conflicts of interest with GGC Group for submission to the Board meeting for approval and appointment.

Details of the implementation of the selection, development and assessment of the Board and subcommittees during this year appear in the report entitled “Nomination, Development, and Assessment of the Board of Directors’ Performance”.

(4) Board Meetings

The Board determines the meeting plan in advance every year. It schedules monthly meetings in advance so that directors can plan their schedules without affecting their full-time jobs. Additional meetings may also be scheduled as appropriate and necessary. Directors will receive a meeting invitation, draft meeting minutes, and meeting agendas and relevant information at least seven days before the meeting, which are sent by GGC via the D-Join (Digital Join Application) system to all directors for convenience, speed, less use of paper, with a data security system. In 2022, the Board held 14 planned meetings.

The Chairman of the Board presides over these meetings and accords all directors the opportunity to participate and express their opinions freely. The number of directors in attendance must not be less than two-thirds of the Board to constitute a quorum, which will be maintained until the resolutions are reached by a majority of the votes. One director carries one vote. If the number of votes is equal, the Chairman will cast the decisive vote. The Board highly values the management of conflicts of interest among stakeholders with prudence, fairness, and transparency through full disclosure of information on such matters. If a director has a stake and interest in the matter under consideration, he/she will not be allowed to take part in the decision-making on that issue.

At the end of the meeting, the Corporate Secretary is responsible for preparing the minutes of the meeting for submission to the Board for consideration within 14 days for approval at the next meeting and for the Chairman’s signature to certify the correctness. The approved minutes of the meeting together with supporting documents for various meeting agenda items will be systematically stored electronically under the levels of GGC’s confidentiality to facilitate search and reference. Moreover, to comply with corporate governance, the Board has scheduled meetings of the independent directors to exchange views and review their roles and performance on an annual basis, as well as the meetings of the non-executive directors to share opinions and guidelines for managing GGC’s business operation. In 2022 there were 1 meeting of the independent directors (on June 29, 2022) and another non-executive director meeting (on December 14, 2022). The minutes of the meetings were also submitted to the Board.

(5) Remuneration of Directors and Executives

Directors

The Board has prescribed the policy of remuneration to GGC’s directors fairly and reasonably under corporate governance. The Nomination and Remuneration Committee is responsible for reviewing the appropriateness and consistency with the Company’s performance and comparing the current economic situations of related businesses, the obligations and responsibility of the Board, the criteria approved by the shareholders’ meeting, the dedication of time, the annual performance assessment of the Board, as well as the patterns and rates of remuneration of directors of other peer listed companies. The remuneration paid to directors must be approved by the shareholders’ meeting. It is divided into monthly remuneration and meeting allowance for attendance on each subcommittee, details as shown in the report entitled “Meeting Attendance and Remuneration of Each Director”.

Executives

GGC evaluates Executives performance annually, based on KPIs, including financial performance, implementation of long-term strategic objectives, management performance, corporate performance, comparison of practices with other peer SET-listed companies, and in proportion to the duties, responsibility, management development, and the overall economic conditions. The remuneration of the Executives is appropriately determined under clear, transparent, fair, and reasonable criteria, considering the duties, responsibility, and performance. The Nomination and Remuneration Committee will determine the remuneration of the Managing Director and submit it to the Board for approval. The Managing Director is entitled to other remuneration and benefits as the Chief Executive in addition to those received as a director. The details appear in the report under the topic entitled “Development of Directors, Executive and Corporate Secretary”.

(6) Development of Directors and Executive Directors

The Board determines the development policy for Directors and Executive directors to enhance/ develop their knowledge, understanding, and skills, both in the nature of the Company’s business and other courses that are beneficial to their continued performance of duties by defining the models and methods of such development from the orientation, reception of news, information, and knowledge essential to the performance of duties, including internal and external training held for GGC’s newly appointed and current directors, management appointed as directors of GGC Group and those involved in the Company’s corporate governance system, namely the secretaries to the subcommittees, the Corporate Secretary, and personnel responsible for investor relations. The details appear under the schedule of development and training of directors.

(7) Board Performance Assessment

The Board conducts its annual self-assessment, entire board assessment, and cross-assessment (peer assessment) as the framework to inspect the performance of the Board and consider and review work performance, problems, and obstacles during the past year. It is an opportunity to consider the dedication of time to perform the duties as well as improving the relationship between the Board and Executive. The Board may consider commissioning external consultants to assist in setting guidelines and proposing recommendations to assess the Board’s performance as necessary and appropriate.

Furthermore, all subcommittees conduct the annual self-assessment and the entire subcommittee assessment. The result of the annual performance assessment of the Board and the subcommittees will be submitted to the Board meeting to provide useful suggestions for the improvement and development of the subcommittees’ performance, establish a benchmark which will be methodically used to compare the performance, and disclose it in the “56-1 One Report”. The Nomination and Remuneration Committee will use it as part of their decisions on the annual remuneration of directors, in addition to GGC’s performance. The detail appears in the report entitled “Nomination, Development, and Assessment of the Board of Directors’ Performance.”

(8) Supervision of the Company's and Subsidiaries' Operations

The Company operates the oleochemical business and expands its investments through its own company and through GGC Group, namely subsidiaries, joint ventures, and indirect joint venture. The Board gave consent to establish supervision guidelines to ensure that the operational direction and management are consistent with the organization's business framework and long-term strategy. Reviews are conducted on the operations of GGC Group according to the Way of Conduct as mutual agreement between the Chief Executives and related parties of GGC Group and teams in operating according to the Way of Conduct to achieve the objectives set. The details appear in the report titled "Supervision of Subsidiaries and Joint Ventures"

6.1.2 Policies and Guidelines Related to Shareholders and Stakeholders

The Board defines the Corporate Governance Policy to ensure that GGC's directors, management, and employees adhere to the guidelines as follows:

- (1) Adhere to international guidelines and be determined to continuously develop corporate governance under international standards, namely taking into account the rights of shareholders, equitable treatment of shareholders, importance of the role of stakeholders, information disclosure and transparency, and the responsibility of the Board.
- (2) All Directors, Executives, and employees are committed to applying the key code of Corporate Governance, namely "Creation of Long-Term Value, Responsibility, Equitable Treatment, Accountability, Transparency, and Ethics (C R E A T E)" as guidelines, as well as strictly performing the duties under applicable laws and regulations in all countries where it invests.
- (3) The Board set up a management structure with relations between the Board, Executives, and shareholders based on fairness. It also plays a key role in defining the vision, strategies, policies and plans with a system to track/measure the performance, effective risk management, independence, and responsibility for the outcomes of the performance of their duties under corporate governance. The Board and Executives will assume leadership in ethics in compliance with GGC's Corporate Governance Policy and Business Code of Conduct as well as promotion of the corporate governance culture. The Board and Executives will also take care of stakeholders, encourage business practices and operation taking into account the principles of human rights, consumer rights, and fair use of labor as well as providing a system of monitoring, assessment, and review to ensure all employees' complete and sustainable adherence and compliance with the Corporate Governance Policy.

GGC provides a structure and process of relationship between the Board, Executives, employees, and shareholders to enhance their competitiveness, leading to the organization's sustainable growth and adding long-term value to the shareholders, taking into account other stakeholders and adhering to the key principles of corporate governance.

Key Principles of Corporate Governance (C R E A T E)

1. A vision to create long-term value added to the organization (Creation of Long-Term Value)
2. Responsibility for performing duties with sufficient capacity, efficiency, and dedication (Responsibility)
3. Equitable and fair treatment of stakeholders (Equitable Treatment)

4. Accountability for one's own decisions/actions, together with the ability to provide the accompanying clarification and explanation (Accountability)
5. Transparency of operation which is accountable, accurate, and complete, with timely disclosure of information to relevant parties and equally through appropriate channels (Transparency)
6. Morals and ethics in the conduct of business (Ethics).

Equitable Treatment of Shareholders

GGC treats all shareholders, major, minor, Thai or foreign, equally as summarized below:

- GGC recognizes the importance of all shareholders and has defined fair and equitable supervision guidelines to protect the fundamental rights of shareholders to foster trust and confidence in investing with GGC with continued provision of appropriate returns.
- Minor shareholders can express their opinions and suggestions or file complaints to the Board of Directors, Chairman of the Corporate Governance and Sustainable Development Committee and the Corporate Secretary at the Company website under the menu "Corporate Governance", or e-mail at corporategovernance@ggcplc.com. The Chairman of the Corporate Governance and Sustainable Development Committee will screen and consider the matters received and see that they are properly handled, including providing a channel for investors to request information or express opinions via e-mail ir@ggcplc.com. Investors Relations is responsible for providing the information to the investors.

Consideration of Stakeholder Roles

The Company values the rights of all stakeholders by compiling principles pertaining to the rights and impacts on stakeholders. It has formulated good practices in writing and posted them on the Company's website. GGC also provides a channel for stakeholders to express their opinions. The policies and guidelines for all stakeholders can be summarized as follows:

- (1) **Shareholders:** GGC respects the fundamental rights of shareholders and treats all shareholders equally to foster maximum satisfaction for shareholders, such as the right to attend the annual general meeting, the right to vote, the right to nominate candidates for directorship and to express opinions and suggestions. GGC also provides a channel to contact shareholders through www.ggcplc.com and email ir@ggcplc.com
- (2) **Customers:** GGC is devoted to customers in terms of their satisfaction and confidence in the quality products and services, and consistently upgrades standards through a system to dispose of customers' Voice systematically to develop products and services to meet customers' diverse requirements, and to create continued sales opportunities.
- (3) **Suppliers/ Business Partners:** GGC has established a procurement policy that focuses on efficient, fair and transparent operations, which are accountable and in compliance with applicable laws, while taking into account safety, occupational health and social and environmental responsibility for sustainability and maximum benefit of stakeholders. GGC also focuses on responsibility to its suppliers by setting strategies for managing suppliers, ranging from the process of selecting potential suppliers, consistent with the Supplier Code of Conduct, assessment of suppliers' performance, relationship management, including the development of suppliers' potential. Moreover, the Company has informed suppliers

to be aware of the Corporate Governance and Business Code of Conduct to stress the intention on anti-corruption of all forms, and seek cooperation on GGC's No-Gift Policy.

- (4) **Business Competitors:** GGC has established a policy to treat business competitors under international principles within the framework of the laws on trade competition and adherence to the rules on fair competition. It included this in its Business Code of Conduct to promote fair, transparent and non-discriminatory competition. GGC does not take undue advantage by seeking confidential information of business competitors, nor does it degrade the reputation of business competitors with malicious accusations.
- (5) **Creditors:** GGC treats trade creditors with equality and fairness by strictly complying with the terms and conditions agreed with creditors. For institutional creditors, GGC provides equal opportunity to offer their financial services. The Company treats all creditors equally and manages loan agreements fairly with independency in decision-making based on righteousness, without dishonest demanding, receiving, or paying of any benefit in dealing with institutional creditors. Information about GGC's business are disclosed regularly.
- (6) **Public Sector:** GGC has defined guidelines for best practices for the treatment of the public sector to avoid negative consequences from any inappropriate action and included it in GGC's CG Handbook. Moreover, the Company is committed to conducting the business in strict compliance with applicable laws and relevant rules and regulations. It is also committed to lawfully obtaining permits or licenses from applicable government agencies in a transparent manner, and committed to providing correct and accurate information disclosed as required.
- (7) **Employees:** GGC takes responsibility of its employees under the Code of Corporate Governance and Business Code of Conduct through creating a good work experience for every employee during all their working periods. The Company encourages employees to take a variety of learning experiences to be applied in performing their duties and has established a self-learning management system via digital systems.
- (8) **Society, Community and Environment:** GGC conducts its business with responsibility to the community, society and environment through a series of activities and projects as well as continued participation with stakeholders. CSR projects have been implemented to create shared values. The Company has prepared an Integrated Sustainability Report (ISR), an international framework of sustainability reporting which covers economy, society and the environment and matters with a significant impact on the Company. Details appear in "Integrated Sustainability Report 2022".

Compensation for Violation of Rights

The Company maintains guidelines for the protection of rights of stakeholders who are affected by the violation of their rights by GGC's business. Compensation of an amount no lower than that required by law will be considered.

Prevention of the Use of Inside Information

GGC has established a policy to ensure equitability and fairness to relevant stakeholders, including all shareholders. The information or news that is material to changes in securities prices, which has not disclosed to the public, is considered inside information for business operations and is considered GGC Group's confidential information. If disclosed, it could affect GGC Group, especially its stock value, as well as its image. Therefore, Directors, Executives, and all employees of GGC Group must keep it confidential. They must not use the inside information obtained from executing their duties to inform others or to use it to seek their own gain from unlawful securities trading or to cause GGC Group's loss of benefits, whether directly or indirectly. Thus, GGC has formulated the following guidelines:

1. The Board and Executives, as defined by the SEC, are required to report changes in the Company's securities holdings to the Corporate Secretary at least one day in advance of the transaction under corporate governance and report them to the SEC via the electronics system within three business days from the date of purchase or transfer of such securities, under the rules prescribed by the SEC, to allow the Corporate Secretary to prepare the summary report and submit it to the Board meeting and disclose it in the Form 56-1 One Report.
2. The Board monitors the use of inside information monthly. The Corporate Secretary reports to the Board the changes in shareholding of Directors and Executives. The Company discloses such information at the beginning of the year and at year-end as well as changes during the year.
3. The Board notifies Directors and Executives of a blackout period policy, at least 30 days in advance of the disclosure of quarterly financial statements or 45 days for annual financial statements, or disclosure of other information which may affect GGC's share price offered to the public. They are to refrain from trading GGC's securities at least 24 hours after public disclosure.
4. All employees and related parties are prohibited from using inside information for their own benefit in trading or persuading others to buy or sell or offer to buy or sell GGC's shares, either in person or through a broker while still in possession of GGC Group's information which has not been disclosed to the public, including provision of such inside information to other persons for the benefit of trading GGC's shares. SET considers this action speculative trading or creating an undue advantage.
5. The Board informs Directors, Executives and employees regularly on the policy and rules concerning inside information to ensure their awareness and compliance, as well as defining clear disciplinary actions for violators.

Anti-Corruption

The Board values anti-corruption practices by declaring in writing an anti-corruption policy on February 14, 2018. The policy has been regularly reviewed and revised, consistent with current applicable laws and regulations, as well as Corporate Governance guidelines of local regulatory agencies, and international standards to support and raise awareness of all personnel in countering all forms of corruption. GGC has prepared guidelines for its No-Gift Policy that prohibit its employees and personnel from demanding, receiving or giving gifts to persons or companies which might lead to fraud or corruption. GGC has joined the Thai Private Sector Collective Action against Corruption (CAC) since 2017. Its membership was renewed for the first time on March 31, 2021. The next renewal will be due on March 30, 2024. Details of the operation appears in the report entitled "Monitoring to ensure compliance with Corporate Governance policies and practices".

Prevention of Conflicts of Interest

The Board devises a policy and guidelines for consideration of transactions that involve or may involve conflicts of interest and included it in the Corporate Governance and Business Code of Conduct for Directors, Executives and employees to adhere to and prudently comply with the rules on connected transactions to ensure that these transactions are not in violation with SEC's and SET's rules. The Board and executives, as defined by the SEC, are required to report their interests or those of their related persons to the Company, and they have prepared a manual on engaging in connected transactions and relayed principles on connected transactions to related units of GGC and GGC Group. In addition, information on the transactions were compiled and stored in databases for related internal units for searching and using as guidelines for considering GGC's transactions to avoid misconduct.

At every Board meeting, if some agenda might involve conflicts of interest, each director with such conflict must not take part in the decision to consider engagement in the transaction. The Chairman will request the cooperation of GGC's Directors to follow the policy in considering items that may involve conflicts of interest by allowing them to notify the meeting and abstaining from voting or giving viewpoints, or leaving the meeting altogether during the relevant agenda. The Chairman also supervises the accurate and complete disclosure of information on such transactions.

In addition, GGC has established measures to prevent conflicts of interest by requiring Directors, Executives, and all employees to report conflicts of interest annually, or when such transaction occurs, which must be immediately reported to GGC by using the conflict of interest report form (for directors) or by the conflict-of-interest reporting system via the intranet (for Executives and employees) for acknowledgment by their supervisors for consideration and further action.

6.2 Business Code of Conduct

The Corporate Governance and Business Code of Conduct (CG Handbook)

The Board of Directors has approved the preparation of a Corporate Governance and Business Code of Conduct Handbook (CG Handbook), which consists of the Corporate Governance structure and rules consistent with the corporate governance policy and the Business Code of Conduct, which consists of principles and best practices in conducting business with ethics and integrity, such as respect of laws and regulations, anti-corruption, responsibility to stakeholders, human rights principles, including best practices in other matters, which specify a scope of standard behavior within the ethics, integrity and honesty framework. The Board hopes that Directors and Executives will take the lead in instructing and promoting understanding of their personnel to perform strictly in compliance with the Business Code of Conduct. GGC has distributed the handbook to the Directors, Executives, and employees for their acknowledgment, understanding, and signature as a commitment to adhere to such principles in their work. The CG Handbook is also distributed to its subsidiaries and affiliates and made available on www.ggcplc.com under "Corporate Governance" for easy access by shareholders, investors, and interested parties. In addition, GGC, through the Managing Director, has circulated letters to its business partners, customers and suppliers to affix their signatures to acknowledge their intention and together operate the business in a uniform direction. Details appear in the attachment to the report entitled "GGC's CG Policy and Guidelines and Business Code of Conduct".

The Board has established a process to review the appropriateness of the Handbook annually to ensure consistency with current rules and practices of local regulatory and assessment agencies and international standards. In 2022 GGC revised the Handbook to be more up to date and consistent with GGC's strategies and operations as well as other rules and criteria such as the Dow Jones Sustainability Indices (DJSI), Electronics Transaction Act B.E. 2544 (2001), Emergency Decree on Electronic Meetings, B.E. 2563 (2020), Personal Data Protection Act B.E. 2562 (2019), including GGC's rules and Articles of Association, which have been revised to be consistent with the Company's business operations.

6.2.1 Corporate Compliance

GGC recognizes that compliance with the laws or applicable standards will lead to sustainable development. Therefore, it takes seriously operations under the laws and relevant rules, both domestic and international. GGC has taken several actions as follows:

1. GGC's regulations are improved to ensure more comprehensiveness such as the definitions of confidentiality levels, security of GGC's information and documents, requirements for the safeguarding of essential documents, and a manual of delegated authorities (MODA) in line with the evolving organizational structure.
2. The Corporate Governance Policy is communicated and disseminated to ensure all employees' concrete and effective compliance with laws, rules, and regulations via email, training, and publications.
3. The "GGC Way of Conduct" is established for legal and compliance work to determine the guidelines of legal and compliance work for GGC Group. It is communicated to the Group for acknowledgment.

6.2.2 Communication of Good Corporate Governance

In 2022 GGC established a Corporate Governance Roadmap that enhances knowledge and understanding to contribute to the implementation of such policy and CG Handbook with guidelines for communicating to Directors, Executives, and all employees through activities. The vision was established to create long-term value added to the organization (Creation of Long-Term Value), responsibility for performing duties (Responsibility), equitable and fair treatment to all stakeholders (Equitable Treatment), accountability for decision-making and explanation of the action (Accountability), transparency, accountability, and accurate, complete, and timely disclosure of information through appropriate channels equally (Transparency), and ethics and the Business Code of Conduct (Ethics) for all employees' acknowledgment from the first day of work to adhere to and comply with, by consistently instilling and reminding through training, seminars, and various activities:

1. A compulsory training course on the GGC CG E-Learning system was held for management and employees to provide their signatures for acknowledgment, and a survey was conducted to gauge the understanding of Corporate Governance and Business Code of Conduct.
2. Every orientation session for directors, management, and new employees was required to include "Corporate Governance and Business Code of Conduct" as a main topic.

3. Communication and distribution of the Corporate Governance and Business Code of Conduct Handbook to all Directors, Executives, and employees, including business partners and customers, who were required to sign on the acknowledgment and conformity form, consenting to adopt the CG principles, policy, and ethics in their operations.
4. Communication with employees after communicating with executives at the Management Committee meeting on CG best practices via email, GGC CG News, and LINE application on the average of twice a month to serve as easy access and convenient communication channels.
5. Communication and promotion of understanding of the Business Code of Conduct through GGC's Microsoft Stream and Green System to increase channels of access and provide more convenience for employees.
6. Communication and promotion of understanding of anti-corruption under the topic of the roles of Executives and employees in anti-corruption as lectured by the Private Sector Coalition of Collective Action against Corruption (CAC), as well as communication with GGC's employees and business partners on GGC's No-Gift Policy.
7. Assessment of compliance with criteria defined by external supervisory authorities such as the SEC, SET, Thai Institute of Directors Association (IOD), and Thai Investors Association (TIA) to measure the efficiency of the implementation under Corporate Governance and to elevate GGC's CG practices to international standards.
8. A GRC Health Check survey was conducted to assess perception and understanding before organizing integrated training for Executives and employees to measure the levels of their basic knowledge of corporate governance in line with risk management and compliance processes. It would help drive the organization to develop its corporate governance as well as the efficiency of work planning, monitoring, and assessment of performance within the framework of sufficient internal control to completely achieve the objectives, goals and strategies, defined by GGC. Under the survey, most employees had remarkable understanding of internal control, anti-corruption, and communication of corporate governance, including rules, regulations, and requirements. GGC would use the feedback to further improve and relay the principles of GRC to employees later.

6.3 Significant Changes and Developments in the Policies, Practices, and Corporate Governance System in 2022

6.3.1 Setting the Goals, Strategies, and Organizational Culture

- A strategy was defined and a target set to reduce 20% greenhouse gas (GHG) emissions by 2030 and to net zero by 2050, as well as a strategy for sustainability, along with environmental, social and governance (ESG) balance, in line with corporate governance and local and international standards, such as Sustainable Development Goals (SDGs) or Dow Jones Sustainability Indices (DJSI)
- The strategy with a focus on current personnel development to enhance knowledge, abilities, and skills under the organization's direction, organization restructuring, strong corporate culture, as well as more efficient GRC and internal control.

6.3.2 Strengthening Board Effectiveness

- The guidelines and process for the nomination and appointment of Directors were improved, covering related rules and criteria, as stipulated in the Corporate Governance and Business Code of Conduct Handbook, as well as in accordance with the performance of the Nomination and Remuneration Committee.
- Review of the Charters of the subcommittees. In 2022 the Charters of the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Development Committee and the Risk Management Committee were revised for consistency with the standards of the regulatory agencies and best practices in the CG Handbook as well as performance of duties as assigned by the Board.
- The performance assessment contents and format for both the Board and the subcommittees was improved and made available online to increase the efficiency of data storage and processing as well as less use of paper.

6.3.3 Improvement of GGC's Policies, Regulations, and Guidelines

- The contents and guidelines in the Corporate Governance and Business Code of Conduct Handbook were updated in line with GGC's strategy and operations, including closing additional gaps under the assessment criteria of corporate governance, both domestically and internationally.
- Reviewed and promulgated the IT Security Policy, consistent with application laws, IT security standard (ISO/IEC 27001) and operational framework of international standards, and defined guidelines to raise awareness, including definition of preventive measures to protect threats arising from IT misconduct.
- Prepared and promulgated the policy on the use of electronic signatures (E-Signatures) as the framework for overseeing electronics transactions, both within and outside the organization which Executives and employees should know, as well as the rules for GGC's E-Signatures.
- Reviewed and improved requirements for confidentiality classification levels and safeguarding of GGC's important data and document security, consistent with applicable laws and criteria on data governance, in particular, classification and security of personnel data.

6.3.4 Supervision of GGC Group

GGC prepared the GGC Way of Conduct under the GC Way of Conduct 2020 by following the hierarchical governance framework, based on the Apply & Explain principle, to establish a standard of consistent operations across the Group. The Group was urged to consider establishing individual Ways of Conduct. The GGC Way of Conduct was regularly conveyed to its subsidiaries.

6.3.5 Company's Responsibility to Stakeholders

Suppliers

- Prepare guidelines for efficient, fair and transparent management of suppliers' risks, ranging from the selection and registration process, monitoring and checking, and assessment of suppliers' performance annually following the ESG Criteria.

- Verify and assess qualifications of new suppliers using the Vendor Questionnaire. Assessment criteria covers Technical, Quality Assessment and Quality Control (QA/QC), Safety, Occupational Health and Environment (SHE), and Finance. Suppliers who have passed the assessment will be registered and included on the vendor list (Approved Vendor List: AVL)
- Enhance good relations with suppliers through the annual Supplier Conference in conjunction with GC. The conference provides a platform for suppliers to express their opinions, provide recommendations for joint development of guidelines for business operation, strengthen competitiveness, and efficiently support supply chain management.

Community and Society

- Implemented a project for sustainable oil palm and palm oil production in an environmentally friendly manner. GGC and GIZ, an ally in the palm oil refinery business and a palm oil planter group in southern Thailand, have entered into a memorandum of cooperation under the project to promote, support and develop the quality of life of minor palm planters (smallholders) and to prepare them to achieve Roundtable on Sustainable Palm Oil (RSPO) by 2023.
- Implemented a project “YOU Turn Starts with U” in conjunction with GC Group. Employees were invited to participate in garbage sorting to ease the problem of plastic waste, with a core target in reducing greenhouse gas emissions and impacts on global warming. The plastic waste collected will be sent to the Recycle Waste Management and Administration Center, Wat Chak Luk Ya community, for appropriate management in processing, value addition, and income generation for the community.

Shareholders

- GGC held the 2022 Annual General Meeting of Shareholders via electronic platform (E-AGM) in compliance with the law on electronic meetings, and notifications and measures of relevant agencies, taking into consideration respect of the fundamental rights of shareholders and equitable treatment of shareholders.

Employees

- GGC improved work guidelines, defined employees’ policy, rights and welfare consistent with the new work mode, and the improved work environment, such as special temporary living allowance for employees to alleviate impacts of the current economic situation. Also, defined a Work from Home model to enhance employees’ experience in working in diverse environments with efficiency as well as in balancing the work life with private life.

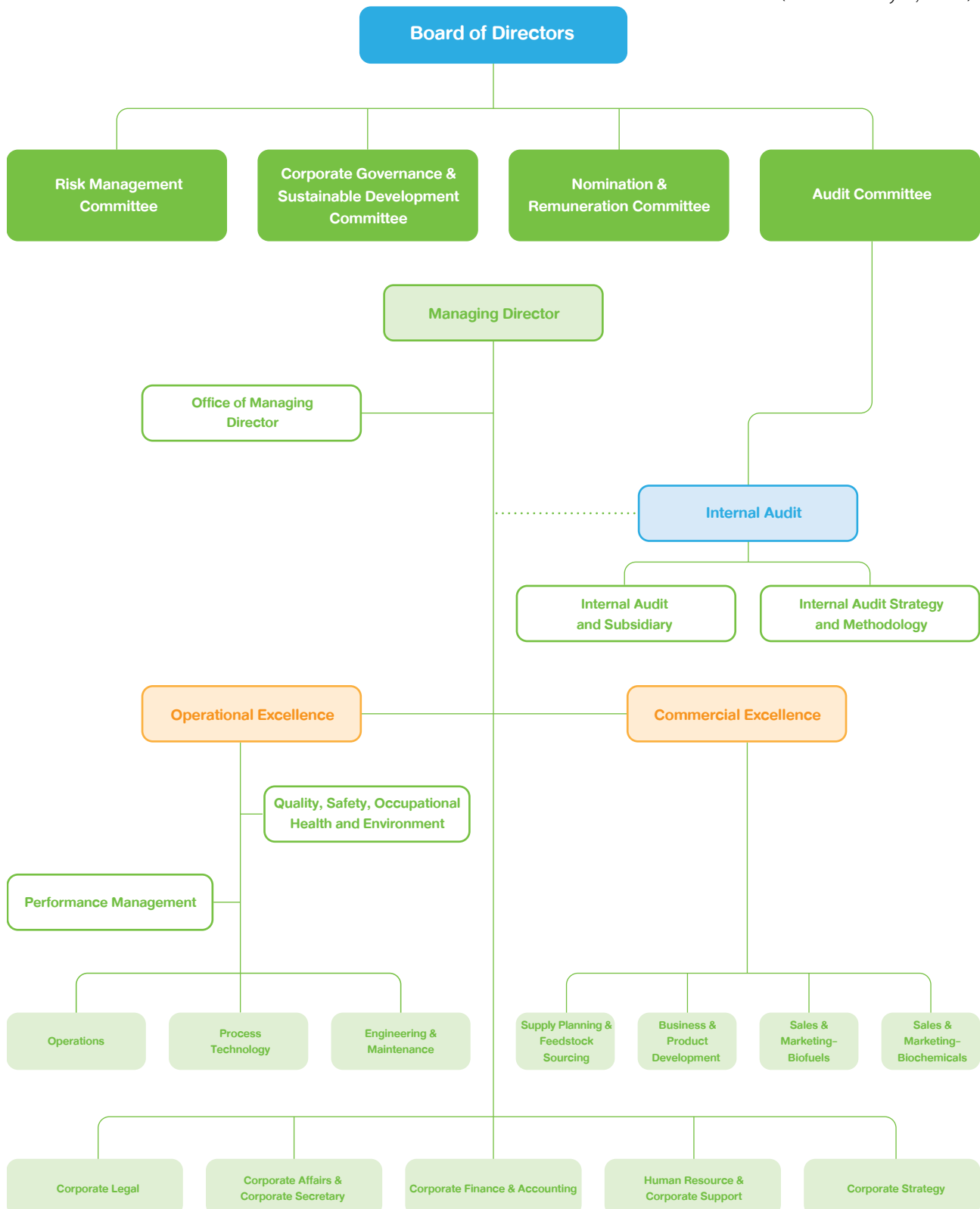
6.3.6 Risk and Control Self – Assessment (RCSA)

- An external independent assessor was acquired as consultant to employees to review the risk and control self-assessment process (Risk Assessment in-Process level, RCSA) throughout the organization to conduct risk analysis and determine internal control to upgrade GGC’s internal control, enabling GGC to flexibly achieve its objectives. The assessment comprises 16 processes: First Phase: Core Business Processes (6) and Second Phase: Support & Management Processes (10) to prepare work process documents from the process start to end, as well as assessment of potential risks in work processes, resulting in efficient performance and adequate internal control with greater linkage in each process.

7. Governance Structure and Key Information about the Board of Directors, Sub-Committees, Executives, Employees, etc.

7.1 Governance Structure

(As of January 1, 2023)



7.2 The Board of Directors

As of January 1, 2023, the Board of Directors was detailed below:

Chairman	Position	Date of Appointment*
1. Mr. Kongkrapan Intarajang	Chairman	November 6, 2019
2. Prof. Dr. Kumchai Jongjakapun	Chairman of Independent Directors / Chairman of Audit Committee	February 17, 2016
3. Mrs. Kannika Ngamsopee	Independent Director / Chairman of Risk Management Committee / Director to Audit Committee	February 17, 2016
4. ACM Songtam Chokkanapitag	Independent Director / Chairman of Nomination and Remuneration Committee	February 17, 2016
5. Pol. Gen. Suchart Theerasawat	Independent Director / Chairman of Corporate Governance and Sustainable Development Committee	December 23, 2020
6. Mr. Jarun Wiwatjesadawut	Independent Director / Director to Risk Management Committee	April 2, 2021
7. Mr. Thanwa Laohasiriwong ⁽¹⁾	Independent Director / Director to Corporate Governance and Sustainable Development Committee / Director to Audit Committee	April 1, 2022
8. Lt. Gen. Titawat Satiantip	Independent Director / Director to Nomination and Remuneration Committee / Director to Corporate Governance and Sustainable Development Committee	September 11, 2019
9. Mr. Varit Namwong	Independent Director / Director to Nomination and Remuneration Committee / Director to Risk Management Committee	January 19, 2022
10. Mr. Thanakorn Manoonpol ⁽²⁾	Director	June 15, 2022
11. Mr. Kridsada Prasertsuko ⁽³⁾	Director / Director to Risk Management Committee	January 1, 2023

Remarks:

⁽¹⁾ Mr. Thanwa Laohasiriwong, at the 2022 AGM on April 1, 2022, was appointed as Director, replacing Mr. Suphit Suwagul, who completed his term, and at Board Meeting No. 5/2022 on April 27, 2022, was appointed as a Director to Corporate Governance and Sustainable Development Committee, replacing Mr. Suphit Suwagul, with effect from April 27, 2022, and at Board Meeting No. 7/2022 on June 15, 2022 was appointed as a Director to Audit Committee, replacing Mr. Sarawut Benjakul who resigned, with effect from June 15, 2022.

⁽²⁾ Mr. Thanakorn Manoonpol, at Board Meeting No. 7/2022 on June 15, 2022, was appointed as a Director, replacing Mr. Sarawut Benjakul, who resigned, with effect from June 15, 2022.

⁽³⁾ Mr. Kridsada Prasertsuko, at Board Meeting No.13/2022 on November 8, 2022, was appointed as a Director and Director to Risk Management Committee, replacing Mr. Piroj Samutthanant, who resigned, with effect from January 1, 2023.

Changes in Directors in 2022

Directors who completed the term during the year

Name	Position	Time in Office
1. Mr. Suphit Suwagul	Independent Director / Director to Corporate Governance and Sustainable Development Committee	Jan. 1, 2018 – Apr. 1, 2022

Directors who resigned during the year

Name	Position	Time in Office
1. Mr. Sarawut Benjakul	Independent Director / Director to Audit Committee	Apr. 2, 2021 – Apr. 24, 2022
2. Mr. Piroj Samutthanant	Director / Director to Risk Management Committee	May 1, 2021 – Dec. 30, 2022

The current Board consists of 11 Directors, 10 of whom are Non-Executive Directors, and 7 are Independent Directors. The Chairman of the Board is not an Independent Director but is independent of management in compliance with the best practices of the CG Code and is not involved in the Company's day-to-day operations. The Chairman of the Board and the Managing Director are not the same person and have different roles and duties. The roles and duties of the Chairman of the Board and the Managing Director appear in "Scopes of Authority of the Chairman and Managing Director".

The contact address of the Directors and Executives is 555/1 Energy Complex Building A, 4th Floor, Vibhavadi Rangsit Road, Chatuchak District, Bangkok 10900.

Securities held in the name of Directors, their spouses or cohabiting partners and minor children as of January 1, 2023

Security Holder*	Shareholding (No. of shares)		Change during the year (No. of shares)
	As of January 1, 2022	As of December 31, 2022	
1. Mr. Kongkrapan Intarajang	- None-	- None-	No Change
2. Prof. Dr. Kumchai Jongjakapun	15,000 (Spouse)	15,000 (Spouse)	No Change
3. Mrs. Kannika Ngamsopee	20,000 (Spouse)	20,000 (Spouse)	No Change
4. ACM Songtam Chokkanapitag	- None-	- None-	No Change
5. Pol. Gen. Suchart Theerasawat	- None-	- None-	No Change
6. Mr. Jarun Wiwatjesadawut	- None-	- None-	No Change
7. Mr. Thanwa Laohasiriwong ⁽¹⁾	N/A	- None-	N/A
8. Lt. Gen. Titawat Satiantip	- None-	- None-	No Change
9. Mr. Varit Namwong ⁽²⁾	N/A	- None-	N/A
10. Mr. Thanakorn Manoonpol ⁽³⁾	N/A	- None-	N/A
11. Mr. Piroj Samutthanant ⁽⁴⁾	- None-	N/A	N/A

Security Holder*	Shareholding (No. of shares)		Change during the year (No. of shares)
	As of January 1, 2022	As of December 31, 2022	

Directors who completed terms in 2022 (as of each director's last day of work)

1. Mr. Suphit Suwagul ⁽¹⁾	- None -	- None - (March 9, 2022)	No Change
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Directors who resigned in 2022 (as of each director's last day of work)

1. Mr. Sarawut Benjakul ⁽³⁾	- None -	- None - (April 20, 2022)	No Change
2. Mr. Piroj Samutthanant ⁽⁴⁾	- None -	- None - (December 7, 2022)	No Change

Remarks: In compliance with SEC's notification No. TorChor 17/2551 on Determination of Definitions in Notifications relating to the Issuance and Offer for Sale of Securities, Clause 2 (16)

* Including shares held by the Directors' spouses or cohabiting partners and minor children

⁽¹⁾ Mr. Thanwa Laohasiriwong, at the 2022 AGM on April 1, 2022, was appointed as a Director, replacing Mr. Suphit Suwagul, who completed his term.

⁽²⁾ Mr. Varit Namwong, at Board Meeting No.1/2022 on January 19, 2022, was appointed as a Director, replacing Mr. Patiparn Sukorndhaman, who resigned, with effect from January 19, 2022.

⁽³⁾ Mr. Thanakorn Manoonpol, at Board Meeting No.7/2022 on June 15, 2022, was appointed as a Director, replacing Mr. Sarawut Benjakul, who resigned, with effect from June 15, 2022.

⁽⁴⁾ Mr. Kridsada Prasertsuko, at Board Meeting No. 13/2022 on November 8, 2022, was appointed as a Director, replacing Mr. Piroj Samutthanant, who resigned, with effect from January 1, 2023.

7.2.1 Authorized Signatory

GGC's duly authorized signatories, according to GGC's Articles of Association and Certificate of Incorporation at the Department of Business Development, Ministry of Commerce, dated January 4, 2023, are two of the three directors, namely Mr. Kongkrapan Intarajang, Mr. Varit Namwong and Mr. Kridsada Prasertsuko, jointly signing with the company seal affixed.

7.2.2 Composition of the Board

Under GGC's Articles of Association and CG Handbook, the Board of Directors consists of no fewer than 5 but no more than 11 directors, appointed and dismissed by the shareholders' meeting, each for a three-year term. One-third and at least three of them must be independent directors, and at least half of the entire Board must reside in the Kingdom of Thailand. In addition, all directors must possess required qualifications and no prohibited characteristics stipulated by law, and must not be older than 70 years old. The Board shall nominate one director as Chairman and may appoint a vice chairman as appropriate.

The composition and qualifications of the Board are in line with the GGC's Articles of Association, Corporate Governance principles and Business Code of Conduct and applicable laws without gender or other discrimination. The Board must consist of directors with diverse knowledge, expertise and experience which are useful in GGC's operations. Members of the Board should not hold more than five directorships in listed companies and not more than three state enterprises or companies which have state enterprise(s) as shareholder(s) according to the resolution of the Cabinet. The current Board of Directors comprises 11 members, an appropriate number which suits the size and overall business of GGC:

- (1) 10 Non-Executive Directors (or 90.91% of the entire Board)
- (2) 1 Executive Director (the Managing Director)
- (3) 7 Independent Directors (or 63.63% of the entire Board, which exceeds half of the Board).
- (4) 1 female Director (or 9.09% of the entire Board).

7.2.3 Authority, Duties, and Responsibilities of the Board

The Board takes a proactive role in carrying out its duties in decision-making or in defining corporate directions and compliance to ensure efficiency of CG monitoring and GGC's best interests as follows:

1. Perform its duties and ensure that GGC's operations are conducted in strict compliance with laws, GGC's objectives and Articles of Association, and resolutions of shareholders' meetings in adherence to SET's Corporate Governance of Listed Companies
2. Dedicate their time and value the defining of GGC's vision, mission, directions and strategies. The meeting attendance of each director should not be less than 75% of the total meetings scheduled in advance for each year, excluding the meetings called after setting the year's schedule. The Board should freely express their views and seek information which will be useful for defining GGC's directions
3. Review and approve important policies and strategies, including the Company's objectives, major plans and financial objectives and goals, promote innovation and technology and apply them to the Company's operations, ensure that Executives conducts business in line with the defined direction and strategy on an annual basis, and that executives effectively drives the defined vision, direction and strategy into practice, and is able to promptly respond to changing situations

4. Define a policy on corporate governance and business code of conduct which shall consist of principles and good practices for Directors, Executives and employees, with an aim for raising awareness among them in performing the duties with responsibility and in strict compliance with these practices as well as GGC's rules and regulations, taking into account equitable treatment for all stakeholders
5. Delegate approving authority, besides those already made under the Articles of Association, to the Managing Director, for example, authority to approve the investment budget, implementation of projects of GGC and GGC Group, and the entry into contract of significance, including the authority to appoint directors to replace those retired during the year, appoint directors to the subcommittees, designate authorized signatories, set the date of the Annual General Meeting of Shareholders and interim dividend payment
6. Ensure that GGC commands an effective and reliable accounting system, financial reporting and auditing, and effective and efficient internal control and internal audit assessment process
7. Consider potential risk and define comprehensive risk management guidelines and ensure that Executives is equipped with efficient risk management system or process, and seek business opportunities from such risk, and institute adequate and efficient internal control system
8. Oversee and supervise issues regarding potential conflicts of interest and related-party transactions with emphasis on key transactions to ensure the best interests of shareholders and stakeholders
9. Ensure suitable communicating channels with each group of shareholders and stakeholders, and oversee information disclosure to ensure its accuracy, clarity, transparency, reliability and of high standard
10. Assess and review the performance of the Board and the Managing Director regularly
11. Ensure a suitable compensation system or mechanism for Chief Executives which correspond to their performance, to induce short-term and long-term motivation
12. Express leadership and be a role model of corporate governance in line with GGC's CG policy
13. Ensure that the assessment on compliance with corporate governance policy is carried out at least once a year
14. Ensure that a recruitment system is in place and that GGC has qualified personnel to fill important positions appropriately under the transparent and fair procedures. Appointment of GGC's Executives from Vice President who report direct to Managing Director upward requires majority votes from the Board
15. Report the Company his or her vested interests as well as those of related persons related to the management of GGC or GGC Group
16. Attend every meeting of the Board and of the Meeting of Shareholders, or if, under any circumstance, attendance is impossible, the Chairman of the Board must be notified
17. Emphasis on conducting business in a social and environmentally responsible manner, promote the sustainable well-being of society, starting from improving and elevating the livelihood of people in the communities surrounding GGC's facilities for sustainable co-existence,
18. Support implementation of anti-corruption of all forms for sustainable growth and prosperity.

In addition, the businesses of the Board that require approval from shareholders' meetings are as follows:

- Engagement in a related transaction, or acquisition or sale of major assets of GGC as stipulated by the laws and SEC;
- Selling or transferring GGC's business, either in its entirety or partially, to another party;
- Acquiring or accepting the transfer of another party's business;
- The drawing up, amendment, or revocation of contracts related to a full or partial lease of GGC's business, the appointment of a proxy to act on behalf of GGC, or the merging of the business with another party to share profits;
- Addition to or amendment of the Memorandum of Association or Articles of Association;
- Increasing or decreasing GGC's authorized capital.
- Debenture issuance offered to the public;
- Company dissolution or a merger with another company;
- Announcement on dividend payment; and
- Other matters which are required to have the approval of the shareholders' meeting as defined under the laws and GGC's Articles of Association.

7.2.4 Appointment and Removal of Directors

The appointment, dismissal and removal of directors are defined in GGC's Articles of Association which can be summarized as follows:

(a) Appointment of Directors

1. Shareholders at a shareholders' meeting shall elect director(s) through majority voting according to the following rules and procedures:
 - (1) Each shareholder shall have one vote per share held;
 - (2) In the event that the number of candidates for the election does not exceed the number of vacant positions, shareholders shall vote on these eligible candidates. Each shareholder exercises all votes applicable under (1) in electing one or more persons as directors, provided that no vote is divisible.
 - (3) In the event that the number of candidates exceeds the number of vacant positions, the meeting then can elect directors individually. In the voting, shareholders with voting rights will cast all of their votes applicable under (1) to one candidate or more persons as directors, provided that no vote is divisible. The candidates with the most votes are to be appointed directors up to the number open at the meeting. If more candidates receive equal votes than the number of directors required, the Chairman of the meeting must cast a deciding vote.
2. The Board of Directors shall elect one director to be the chairman of the company. The decision of the meeting shall be made by a majority of votes. of the number of directors attending the meeting. If the votes are equal, the Chairman of the meeting must cast a deciding vote.

3. In the event a director's position is vacant due to other reasons besides term completion, the Board may elect a qualified person without the prohibited characteristics under the laws to fill the vacancy at the next Board' meeting, except if the remaining term of the previous director is less than two months. The elected director can stay in office only for the remaining term of the predecessor. The acting director must secure at least three-quarters of the votes by the remaining directors.
4. In the event of failure to achieve quorum due to the Board's composition, the remaining directors will perform their duties on behalf of the Board only in calling a Shareholders' Meeting to appoint directors to fill all the vacancies within one month from the date the number of directors become insufficient to constitute a quorum. The elected director can stay in office only for the remaining term of the predecessor.

(b) Dismissal or Removal of Directors

1. In every Annual General Meeting (AGM), one-third of the directors must retire. If this number is not a multiple of three, then the number nearest to one-third applies.

The directors to retire during the first and second year after the Company was registered are on a voluntary basis. If the number of directors to be retired still exceeds the positions, then the retiring directors are to be drawn by lots. For subsequent years, those with the longest terms must retire. The retired directors can be re-elected.

2. Other than term completion, a director may retire upon death, resignation, lack of qualifications, possession of prohibited characteristics specified under the laws, resolution of the shareholders' meeting or court order.
3. Any director who wishes to resign from directorship must tender his or her resignation to GGC. Such resignation will take effect from the date the resignation letter reaches GGC, and he or she may notify the Registrar of his/her resignation.
4. In voting to remove any director from directorship before the completion of his term, a three-quarter (3/4) vote of eligible shareholders present at the meeting is required. The number of shares represented by the three-quarter votes of at least half of the total number of shares represented by the eligible shareholders present at the meeting is also required.

7.2.5 Independent Directors

According to GGC's Corporate Governance and Business Code of Conduct Handbook, at least one-third and no fewer than three directors on the entire Board must be independent directors and each director may serve up to nine consecutive years from May 2, 2017 (excluding the previous term of the former independent directors or from the date of first appointment as independent director, or both). The re-appointment of independent directors will be considered based on the necessity and appropriateness. The independent directors must possess knowledge as well as competency, and be legally independent as specified in SEC's notification.

The independent directors must be able to express their own points of view freely at the meetings, regularly attend the meetings and have access to financial and other business data to support their independent views to protect interests of those involved and prevent potential conflicts of interest

between GGC and chief executives, directors, major shareholders or other companies which has the same group of directors, executives or major shareholders. Furthermore, independent directors shall self-verify their independence upon their appointment and report such information, as well as any change to it, to the Company annually to be disclosed in GGC's 56-1 One Report.

Thus, GGC's independent directors must command the qualifications under SEC's regulations as follows:

1. Must not hold more than 0.5% of the voting shares of GGC, its parent company, subsidiary, associated company, major shareholder, or controlling person of GGC, including the shares held by persons related to the independent director.
2. Must not be or have been an executive director, an employee, a member of staff, salaried consultant, or controlling person of GGC, its parent company, subsidiary, associated company, sister company, major shareholder, or controlling person, unless such status has ceased for at least two years. However, the prohibited roles do not include cases where the independent director used to be a government official or an adviser in government agencies that are major shareholders or controlling persons of GGC.
3. Must not be a related family member or by legal registration as the father, mother, spouse, sibling, or offspring, or spouse of the offspring of any other director, executive, major shareholder, controlling person, or any person who is to be nominated as a director, executive, or controlling person of the GGC or its subsidiary.
4. Must not have or have had any business relationship with GGC, its parent company, subsidiary, associated company, major shareholder, or controlling person in the manner that may obstruct the exercise of independent judgment of the director, and must not be or have been a key shareholder or controlling persons of a person with business relationship with GGC, its parent company, subsidiary, associated company, major shareholder, or controlling persons, unless such status has ceased for at least two years.

The mentioned "business relationship" shall include conducting ordinary business transactions, offering or taking on leases of any immovable properties, conducting transactions relating to assets or services, or granting or accepting any financial support by way of offering or taking on loans, guarantees, asset-based collaterals, including other similar actions, which result in the Company or the counterparty being indebted to the other party in the amount of 3% or more of the net tangible assets of the Company or Baht 20 million or more, whichever is lesser, based on the calculation of the related transaction value under the notification of the Securities and Exchange Commission (SEC), where the consideration of such indebtedness shall include any indebtedness taking place during a period of one year before the commencement date of the business relationship with such person.

5. Must not be or have been the auditor of GGC, its parent company, subsidiary, associated company, major shareholder, or controlling persons, must not be a key shareholder (holding more than 10% of the voting shares of GGC, including the shares held by persons related to the independent director), or controlling persons or a partner of an auditing firm of which the auditor is attached to GGC, its parent company, subsidiary, associated company, major shareholder, or controlling persons, unless such status has ceased for at least two years.

6. Must not be or have been a provider of any professional services, including providing legal services or financial services with service fees of more than Baht 2 million a year from GGC, its parent company, subsidiary, associated company, major shareholder, or controlling person, and must not be a key shareholder, a controlling person, or a partner of such professional services provider, unless such status has ceased for at least two years.
7. Must not be a director appointed to represent GGC, a major shareholder, or a shareholder connected to a major shareholder.
8. Must not engage or involve in a business of the same nature as and in significant competition with the business of GGC or its subsidiaries, and must not be a key partner in a partnership, an executive director, an employee, a staff member, or salaried consultant, or hold more than 1% of the voting shares of a company that engages in the business of the same nature as and in significant competition with GGC or its subsidiaries.
9. Must not have any other characteristics that may hinder expression of independent views on GGC's operations.

After being appointed as an independent director, such independent director may be assigned by the Board to make a decision on the business operations of the Company, its parent company, subsidiary, associated company, sister company, major shareholder or controlling person, provided that such decision shall be a collective decision and such independent director shall not be regarded as an executive director.

GGC's current Board comprises 7 independent directors, more than one-third of the entire Board and more than stipulated by laws and exceeds half of the entire Board. In addition, independent directors have prepared "Charter of the Independent Directors" to ensure clear and concrete performance of independent directors in line with GGC's CG principles and to gain shareholders' and stakeholders' trust. The charter must be reviewed annually. The performance of independent directors is as follows:

- Consider and provide recommendations and opinions to the Board of Directors on significant matters that should be implemented and are beneficial to the Company, shareholders and stakeholders.
- Promote compliance with GGC's comprehensive anti-corruption measures.
- Promote GGC's business conduct in a socially and environmentally responsible manner.
- Independent directors can seek advice from an external independent consultant if necessary, at the expense of the Company.
- Review to ensure GGC's compliance with the rules and regulations of relevant listed company regulatory agencies in relation to independent directors, and review the definition of an independent director to ensure that it is appropriate and complete according to the law.
- Review the appropriateness of the Independent Directors' Charter annually, and present to the Board of Directors for approval for any proposed amendments.
- Perform any other task assigned by the Board of Directors, which must not affect the independent performance of duties.

Details of the Charter of the Independent Directors appear in “Attachment 5: Corporate Governance Policy and Guidelines and Business Code of Conduct in full form”

7.2.6 Scope of Authority of the Chairman

It is the duty of the Chairman of the Board to support management’s business execution. While he is not an independent director, he plays no part in day-to-day business management. The Chairman oversees the Board’s efficiency and independence from management, defining meeting agenda in collaboration with the Managing Director in line with the Board’s responsibility, and efficiently presiding over the Board and shareholders’ meetings, and encourages all directors to participate in these meetings. The Chairman plays a key role in encouraging directors to abide by their scope of authority and legal responsibility, GGC’s Corporate Governance and Business Code of Conduct, along with responsibility for shareholders and related stakeholders.

7.2.7 Authority and Duties of the Managing Director

The Board appointed Mr. Piroj Samutthanant as Managing Director with effect from May 1, 2021, and appointed Mr. Kridsada Prasertsuko as Managing Director, replacing Mr. Piroj Samutthanant who resigned, with effect from January 1, 2023. Duties and responsibilities of the Managing Director, as defined by the Board and as the chief executives, are to manage the Company under the policy, business plans and budget approved by the Board. The Managing Director performs under GGC’s objectives and Articles of Association, the resolutions of the Board, and GGC’s regulations. Authority and duties of the Managing Director assigned by the Board is based on GGC’s four regulations approved by the Board:

- (1) Regulation on finance, accounting and budget;
- (2) Regulation on supplies;
- (3) Regulation on HR management; and
- (4) Regulation on marketing, procurement and product distributing and services.

7.3 Subcommittees

In compliance with the Corporate Governance principles, the Board, at Meeting No. 1/2016 held on February 26, 2016, approved the establishment of two subcommittees, namely the Audit Committee and the Nomination and Remuneration Committee, and at Meeting No. 1/2017 on January 13, 2017, approved the establishment of two more subcommittees, namely the Corporate Governance and Sustainable Development Committee and the Risk Management Committee, with a three-year term, or a term ended upon termination of GGC’s directorship status, or resignation or removal. Directors appointed to the Subcommittees who have completed their terms may be re-elected by the Board.

All member of the subcommittees possess the required diverse knowledge and expertise to perform their duties in screening key specific implementation as assigned. The qualifications, term of office and scope of duties and responsibilities are prudently and effectively defined in the charter of each subcommittee. Performance of the subcommittees will be regularly presented to the Board meetings for acknowledgement and the performance of the past year will be reported to the shareholders’ meeting in the 56-1 One Report. The names of the directors and the role, duties and responsibilities of each subcommittee are as follows:

7.3.1 Audit Committee

Name	Position	Date of Appointment
1. Prof. Dr. Kumchai Jongjakapun	Chairman of Audit Committee	January 1, 2018
2. Mrs. Kannika Ngamsopee ⁽¹⁾	Director to Audit Committee	February 26, 2016
3. Mr. Thanwa Laohasiriwong ⁽²⁾	Director to Audit Committee	June 15, 2022

Remarks :

⁽¹⁾ Mrs. Kannika Ngamsopee possesses adequate knowledge and experiences in finance and accounting to review the creditability of financial statements.

⁽²⁾ Mr. Thanwa Laohasiriwong, at Board Meeting No.7/2022 on June 15, 2022 was appointed as a Director to Audit Committee, replacing Mr. Sarawut Benjakul, who resigned. Mr. Sarawut Benjakul served as of a Director to Audit Committee from April 28, 2021 to April 24 2022.

Mrs. Kunakorn Witthayapaisarn, Vice President, Internal Audit, acts as Secretary to the Audit Committee.

The Audit Committee consists of at least three Independent Directors, with a three-year term of office, or term ending upon termination of GGC's directorship status, or resignation or removal.

GGC's Audit Committee comprises all Independent Directors who are knowledgeable with diverse experience to support their performing duties with great efficiency, such as in law, finance and accounting, IT technology and business management. Mrs. Kannika Ngamsopee, a Director to Audit Committee, has vast and adequate knowledge and experience to perform the auditing on the reliability of GGC's financial statements. The composition and qualifications of the Audit Committee comply with SEC's and SET's notifications. Furthermore, members of the Audit Committee regularly enhance their knowledge about their duties. The Chairman of the Audit Committee is not a member of any subcommittees.

The Board approved the Charter of the Audit Committee, which specified the composition, qualifications, terms of office, the scope of authority and responsibilities, based on CG principles, as a framework to ensure performance in compliance with laws and related regulations, and included it in the CG Handbook and disclosed on the Company's website. The Charter will be reviewed annually.

The Audit Committee performed its duties with dependence as assigned by the Board and under the Audit Committee Charter to ensure accuracy and reliability of GGC's financial reports of financial reporting standards and as required by the laws and relevant regulations, with adequate disclosure of information beneficial to the users. The Audit Committee also considered, selected, nominated and determined remuneration for auditors who are reliable, experienced and independent, audit the internal control of the organization under the auditing project and internal auditing plans designed based on each different risk, and reviewed the procedures and progress of corporate risk management. In addition, the Audit Committee monitored complaint procedures to ensure its efficiency and effectiveness, and enhance efficiency of GGC's CG compliance process, an important role of the Committee under its scope of duties and responsibilities and in compliance with CG principles to foster confidence of all stakeholders. The committee provided opinions on the entry into related transactions or transactions of potential conflicts of interest, if needed, in compliance with the law, SET's notifications and related regulatory agencies,

to ensure that they are reasonable and for the utmost benefits of the Company, and with complete information disclosure. The committee also ensured that GGC has appropriate independent and effective internal control system in place and the internal control unit follows the International Standards for the Professional Practice of Internal Audit.

In 2022, the Audit Committee, in performing its duties within the scope of duties and responsibilities stated in the Charter of the Audit Committee and as assigned by the Board, held 10 meetings in total, planned as well as special ones to consider urgent matters, including one special meeting with the auditor and one with the Managing Director, and prepared the Report of the Audit Committee to submit to the Board regularly as well as the report of the Audit Committee to be published in the Company's 56-1 One Report.

Details of the performance of the Audit Committee for 2022 are as shown in "Attachment 6: Sub-committee Reports". Details of the the Charter of the Audit Committee are as shown in "Attachment 5: Corporate Governance Policy and Guidelines and Business Code of Conduct in full form".

7.3.2 Nomination and Remuneration Committee

Name	Position	Date of Appointment
1. ACM Songtam Chokkanapitag	Chairman of Nomination and Remuneration Committee (Independent Director)	February 26, 2016
2. Lt. Gen. Titawat Satiantip	Director to Nomination and Remuneration Committee (Independent Director)	September 11, 2019
3. Mr. Varit Namwong	Director to Nomination and Remuneration Committee	January 19, 2022

Mrs. Boodsada Seema, Vice President, Corporate Affairs and Corporate Secretary, acts as Secretary to the Nomination and Remuneration Committee.

The Nomination and Remuneration Committee consists of at least three Directors and at least half of them must be Independent Directors. The Chairman must also be an Independent Director. Members have a three-year term of office, or term ending upon termination of GGC's directorship status, or resignation or removal.

The Nomination and Remuneration Committee is responsible for nominating qualified candidates as Directors to the Board and the subcommittees, including the recruitment of the Managing Director, in accordance with the systematic and transparent selection criteria and process. The Nomination and Remuneration Committee also reviews the guidelines for the determination of remuneration for the Directors and the Managing Director, taking into consideration GGC's current economic situation and related businesses and the Board's duties and responsibilities. The Nomination and Remuneration Committee, in the recruitment and nomination of Directors, will consider the candidates' experience, profession, variety of skills and specific qualifications essential to GGC's business under the Board Skills Matrix to ensure balance of technical knowledge for the utmost benefit of the Company. Moreover, the Nomination and Remuneration Committee also plays a part in defining assessment indices and assesses the performance of the Managing Director as well as reviewing the Board Skills Matrix as appropriate, based on the Directors' Pool of recognized organizations before submitting it to the Board and/or the Annual General Meeting of Shareholders for approval and further appointment.

The Board has approved the Charter of the Nomination and Remuneration Committee, which outlines the composition, qualifications, term of office and scope of authority and responsibilities in accordance with the Corporate Governance principles, and disclosed it in the CG Handbook and on the Company's website. The charter must be reviewed annually.

In 2022, in performing its duties under the Charter and as assigned by the Board, the Nomination and Remuneration Committee held a total of 9 meetings and submitted the reports on its performance to the Board quarterly and summary reports to the shareholders in the annual 56-1 One Report.

Details of the performance of the Nomination and Remuneration Committee for 2022 are as shown in "Attachment 6: Sub-committee Reports". Details of the Charter of the Nomination and Remuneration Committee are as shown in "Attachment 5: Corporate Governance Policy and Guidelines and Business Code of Conduct in full form".

7.3.3 Corporate Governance and Sustainable Development Committee

Name	Position	Date of Appointment
1. Pol. Gen. Suchart Theerasawat	Chairman of Corporate Governance and Sustainable Development Committee (Independent Director)	April 28, 2021
2. Lt. Gen. Titawat Satiantip	Director to Corporate Governance and Sustainable Development Committee (Independent Director)	September 11, 2019
3. Mr. Thanwa Laohasiriwong ⁽¹⁾	Director to Corporate Governance and Sustainable Development Committee (Independent Director)	April 27, 2022

Remarks:

⁽¹⁾ Mr. Thanwa Laohasiriwong, at Board Meeting No. 5/2022 on April 27, 2022, was appointed as a Director to Corporate Governance and Sustainable Development Committee, replacing Mr. Suphit Suwagul, who has completed his term at the 2022 AGM on April 1, 2022. Mr. Suphit Suwagul had served as a Director to Corporate Governance and Sustainable Development Committee from January 1, 2018 to April 1, 2022.

Mrs. Boodsada Seema, Vice President, Corporate Affairs and Corporate Secretary, acts as Secretary to the Corporate Governance and Sustainable Development Committee.

The Corporate Governance and Sustainable Development Committee consists of at least three Directors and at least one of them as well as the Chairman must be an Independent Director. The current members are all Independent Directors, with a three-year term of office, or term ending upon termination of GGC's directorship status or resignation or removal.

The Corporate Governance and Sustainable Development Committee performed its duties as assigned by the Board in defining guidelines, providing recommendations on policy and procedures in relation to the code of conduct and business ethics, in line with corporate governance principles before submitting the report to the Board and management. The Corporate Governance and Sustainable Development Committee also monitored CG implementation, provided consultation, conducted assessment and reviewed related policies and procedures to be in compliance with corporate governance principles and in line with those of SEC, SET and leading organizations to ensure that the Company's CG is up to international standards.

In 2022, the Corporate Governance and Sustainable Development Committee held 6 meetings in total in carrying out their tasks as stated in the Charter and as assigned by the Board and reported progress of the implementation under the CG policy to the Board and Management quarterly, and submitted a summary report to the shareholders in the Company's annual 56-1 One Report.

In addition, the Corporate Governance and Sustainable Development Committee also followed up on the progress of the improvement of operational guidelines to suit the current situation as follows:

- Approved the CG implementation plan, and ensured its compliance with the laws, relevant rules and regulations and the sustainable development work plan and followed up the progress regularly.
- Provided recommendations in relation to the treatment and responsibility toward each group of stakeholders, namely the shareholders, customers, suppliers, business partners and competitors, creditors, public sector, employees, communities, society and environment, and acknowledged the Company's performance and formulation of guidelines/measures to mitigate impacts from Covid-19 pandemic on its group of stakeholders to survive the crisis.
- Offered opinions and suggestions for GGC's CG certification and awards for implementation under CG principles, such as the Corporate Governance Report of Thai Listed Companies (CGR) and AGM Checklist.
- Provide suggestions for improving and updating the 2022 Corporate Governance and Business Code of Conduct consistent with GGC Group and with international standards.

The Corporate Governance and Sustainable Development Committee regularly submitted the reports on the progress the development to the Board for further advice and recommendations to take better care of stakeholders.

Details of the performance of the Corporate Governance and Sustainable Development Committee for 2022 are as shown under “Attachment 6: Sub-committee Reports”. Details of the Charter of the Corporate Governance and Sustainable Development Committee are as shown in “Attachment 5: Corporate Governance Policy and Guidelines and Business Code of Conduct in full form”.

7.3.4 Risk Management Committee

Name	Position	Date of Appointment
1. Mrs. Kannika Ngamsopee	Chairperson of Risk Management Committee (Independent Director)	January 13, 2020
2. Mr. Jarun Wiwatjesadawut	Director to Risk Management Committee (Independent Director)	April 28, 2021
3. Mr. Varit Namwong ⁽¹⁾	Director to Risk Management Committee	January 19, 2022
4. Mr. Piroj Samutthanant ⁽²⁾	Director to Risk Management Committee (Executive Director)	May 1, 2021

Remarks:

⁽¹⁾ Mr. Varit Namwong, at Board Meeting No. 1/2022 on January 19, 2022, was appointed as a Director to Risk Management Committee, replacing Mr. Patiparn Sukorndhaman, who resigned. Mr. Patiparn Sukorndhaman served as a Director to Risk Management Committee from November 6, 2019 – December 31, 2021,

⁽²⁾ Mr. Kridsada Prasertsuko, at Board Meeting No. 13/2022 on November 8, 2022, was appointed as a Director to Risk Management Committee, replacing Mr. Piroj Samutthanant, who resigned, with effect from January 1, 2023

The Risk Management Committee consists of at least three Directors, and at least one of them must be an Independent Director. Member of the Risk Management Committee has a three-year term of office, or term ending upon termination of GGC’s directorship status or resignation or removal.

The Risk Management Committee defines and reviews the policy, risk appetite and the scope of risk management to be applied as an operational framework for the corporate’s risk management process to ensure that GGC’s business is moving in the same direction and in line with the Company’s business strategy and goals in the short term and the long term, with emphasis on the early warning signs and assessment of risk mitigation measures for emerging risks, as well as to ensure that risks are identified and prioritized through the assessment of risk impact and risk likelihood, and pursuit of business opportunities during the crisis. The Risk Management Committee defines appropriate risk management methods and guidelines that can effectively mitigate risk impacts, monitors and evaluate the effectiveness of risk

management, provides comments and suggestions on potential risks to investment projects, manages joint venture companies and business partners as well as contracts or agenda that are legally binding or with material impact on the business operations and reputation of the Company, promotes the development and improvement of the internal control adequacy assessment at the unit level, and ensures that the GGC's business conduct complies with the law and the operations are of international standard.

In 2022, the Risk Management Committee, in performing their duties under the scope of responsibilities as stipulated in its Charter and as assigned by the Board, held a total of 9 meetings and submitted its performance report to the Board quarterly, and summary reports to the shareholders in the Company's annual 56-1 One Report.

Details of the performance of the the Risk Management Committee for 2022 are as shown under "Attachment 6: Sub-committees Reports". Details of the Charter of the Risk Management Committee are as shown in "Attachment 5: Corporate Governance Policy and Guidelines and Business Code of Conduct in full form".

7.4 Executives

To manage GGC with efficiency and in compliance with the Company's policies and directions mandated by the Board, the Management Committee (MC), consisting of executives ranking at the level of Vice President or higher, under the Managing Director's supervision, has been set up and to report to the Managing Director, who is GGC's chief executive with the authority and duty to manage the Company in line with the policy, business plans and budgets approved by the Board.

The Management Committee defines the Company's business direction and guidelines in line with its strategy and policy set by the Board. The Managing Director considers, screens and offers opinions and suggestions in relation to GGC's policy, operational guidelines, corporate development to support business growth, on matters which might cause substantial change to the operation of the organization such as business expansion, joint investment, and project implementation. The Management Committee also comments and screens agenda of the meetings and relevant information before submitting it to the Board meeting, as well as matters on compliance with laws, rules and regulations of relevant regulatory organizations as well GGC's rules, and regulations and legal actions, to ensure that GGC's business operations complies with CG principles and international standards.

The Management Committee holds at least three meetings a month. In 2022, it held a total of 50 meetings with the Vice President of Corporate Affairs and Corporate Secretary serving as its Secretary, taking the minutes and maintaining reports of the meetings.

7.4.1 Executives

The List of GGC's executives under SEC's notification on the Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities, and GGC's organizational structure as of January 1, 2023 are as detailed below.

Name	Position
1. Mr. Kridsada Prasertsuko ⁽¹⁾	Managing Director
2. Mr. Kampol Chaikitkosi	Deputy Managing Director, Operational Excellence
3. Mr. Piya Suri ⁽²⁾	Deputy Managing Director, Commercial Excellence / Acting Vice President, Sale and Marketing-Biochemicals
4. Mrs. Kunakorn Witthayapaisarn ⁽³⁾	Vice President, Internal Audit
5. Mrs. Boodsada Seema	Vice President, Corporate Affairs and Corporate Secretary
6. Ms. Wanlapa Sophiskhaunkhant	Vice President, Corporate Finance and Accounting
7. Mr. Jakrit Rungsimanop	Vice President, Corporate Strategy
8. Mr. Jiruss Rianchaiwanich ⁽⁴⁾	Vice President, Human Resource and Corporate Support
9. Mr. Sutthisarn Khongaphirak ⁽⁵⁾	Vice President, Corporate Legal
10. Mr. Thodsaphorn Phienchob	Vice President, Operations
11. Ms. Chompunuch Liamprawat	Vice President, Process Technology
12. Mr. Phromphron Isarankura Na Ayutthaya ⁽⁶⁾	Vice President, Engineering and Maintenance
13. Mr. Chanasiri Vanit	Vice President, Reporting to Deputy Managing Director, Operational Excellence
14. Mr. Ekaphong Govitgoonkrai	Vice President, Supply Planning and Feedstock Sourcing
15. Mr. Satit Vaewichit ⁽⁷⁾	Vice President, Business and Product Development
16. Mr. Kavin Kaewkong ⁽⁸⁾	Vice President, Sales and Marketing-Biofuels
17. Mr. Krit Treenutchakorn ⁽⁹⁾	Vice President, Reporting to Managing Director
18. Mr. Dumrong Putitup	Vice President, Reporting to Managing Director
19. Mr. Suchet Deemungmee ⁽¹⁰⁾	Vice President, Reporting to Managing Director

Remarks :

⁽¹⁾ Mr. Kridsada Prasertsuko was appointed as Managing Director, replacing Mr. Piroj Samutthanant, who resigned, with effect from January 1, 2023.

⁽²⁾ Mr. Piya Suri was appointed as Deputy Managing Director, Commercial Excellence, replacing Mr. Warophat Kimchuwanit, who reassumed his position at PTT Global Chemical Plc, with effect from October 1, 2022, and as Acting Vice President, Sales and Marketing-Biochemicals, with effect from January 1, 2023.

⁽³⁾ Mrs. Kunakorn Witthayapaisarn, Vice President, Internal Audit, attended the Management Committee meeting to provide useful views and recommendations and to acknowledge the progress of operations, and will refrain from making approval voting for implementation which might affect her independence.

⁽⁴⁾ Mr. Jiruss Rianchaiwanich was appointed as Vice President, Reporting to Managing Director, with effect from October 16, 2022, and as Vice President, Human Resource and Corporate Support, replacing Mr. Sansern Sujitjorn, who retired, with effect from January 1, 2023.

⁽⁵⁾ Mr. Sutthisarn Khongaphirak was appointed as Vice President, Corporate Legal, with effect from January 1, 2023.

⁽⁶⁾ Mr. Phromphron Isarankura Na Ayutthaya was appointed as Vice President, Engineering and Maintenance, replacing Mr. Suriyawut Rawdkrajab, who resigned, with effect from August 16, 2022.

⁽⁷⁾ Mr. Satit Vaewichit was appointed as Vice President, Business and Product Development, with effect from April 16, 2022.

⁽⁸⁾ Mr. Kavin Kaewkong was appointed as Vice President, Marketing and Sale (Biofuel Products), with effect from January 1, 2023.

⁽⁹⁾ Mr. Krit Treenutchakorn was appointed as Vice President, Reporting to the Managing Director (Seconded as Managing Director to Thai Ethoxylate Company Limited), with effect from October 1, 2022.

⁽¹⁰⁾ Mr. Suchet Deemungmee, Vice President, Sale and Marketing, was transferred to the position of Vice President, Reporting to Managing Director (Seconded to Thai Ethoxylate Company Limited, with effect from September 1, 2022).

Change in 2022

Name	Position
1. Mr. Piroj Samutthanant ⁽¹⁾	Managing Director
2. Mr. Warophat Kimchuwanit ⁽²⁾	Deputy Managing Director, Commercial Excellence
3. Mr. Sansern Sujitjorn ⁽³⁾	Vice President, Human Resource and Corporate Support
4. Mr. Suriyawut Rawdkrajab ⁽⁴⁾	Vice President, Engineering and Maintenance
5. Mr. Sayan Saesue ⁽⁵⁾	Vice President, Project Management

Remarks :

⁽¹⁾ Mr. Piroj Samutthanant resigned from the position of Managing Director with effect from December 31, 2022.

⁽²⁾ Mr. Warophat Kimchuwanit, Deputy Managing Director, Commercial Excellence, reassumed his position at PTT Global Chemical Plc with effect from October 1, 2022. .

⁽³⁾ Mr. Sansern Sujitjorn retired from the position of Vice President, Human Resource and Corporate Support, with effect from January 1, 2023.

⁽⁴⁾ Mr. Suriyawut Rawdkrajab resigned from the position of Vice President, Engineering and Maintenance, with effect from June 1, 2022.

⁽⁵⁾ Mr. Sayan Saesue resigned from the position of Vice President, Project Management, with effect from June 1, 2022.

Secondment

Name	Position
1. Mr. Dumrong Putiput ⁽¹⁾	Vice President, Reporting to Managing Director
2. Mr. Krit Treenutchakorn ⁽²⁾	Vice President, Reporting to Managing Director
3. Mr. Chanasiri Vanit ⁽³⁾	Vice President, Reporting to Deputy Managing Director, Operational Excellence
4. Mr. Suchet Deemungmee ⁽⁴⁾	Vice President, Reporting to Managing Director

Remarks:

⁽¹⁾ Full-time seconded as Managing Director at GGC KTIS Bioindustrial Co., Ltd (GKBI), with effect from October 1, 2020.

⁽²⁾ Full-time seconded as Managing Director at Thai Ethoxylate Co., Ltd. (TEX), with effect from October 1, 2022.

⁽³⁾ Full-time seconded at GGC KTIS Bioindustrial Co., Ltd (GKBI), with effect from February 1, 2023.

⁽⁴⁾ Full-time seconded at Thai Ethoxylate Co., Ltd. (TEX), with effect from September 1, 2022.

7.4.2 Remuneration of Directors and Management Policy

GGC conducts performance assessment of its executives annually based on KPIs, financial performance, performance in compliance with long-term strategic objectives, operational results, GGC's performance, comparison of practices with other peer listed companies, and in line with duties, responsibilities and management development and economic situations.

7.4.3 Management and Executive Remuneration

The remuneration of the Managing Director has been appropriately determined under clear, transparent, fair and reasonable criteria, taking into consideration responsibility and performance. The Nomination and Remuneration Committee will consider the remuneration and propose to the Board for consideration. The Managing Director will receive remuneration and other benefit as the Chief Executive of the Company aside from those received as a director.

Remuneration for Executives under SEC's definitions for 2022, in the table below.

Item	Remuneration for 2022 (Baht)	
	Managing Director	Executives under SEC's Definitions (Managing Director not included)
Monthly Remuneration	7,003,657.00	67,432,699.43
Bonus	3,737,532.50	32,747,649.43
Provident Fund	633,388.91	4,950,228.09
Total	11,374,578.41	105,130,576.95

Remarks:

(1) Mr. Piroj Samutthanant, for his service as Managing Director from January 1, 2022 to December 30, 2022.

(2) Executives under SEC's Definitions (Managing Director not included): 20 executives (including change in Executives in 2022)

Remuneration for Directorship at Subsidiaries and Joint Companies (As of December 31, 2022)

GGC's directors serve at subsidiaries and joint ventures to ensure that the businesses are operated under the Company's policies

Name	Position	Total Remuneration (Baht)
Thai Fatty Alcohols Company Limited (TFA) ⁽¹⁾		
Mr. Warophat Kimchuwanit ⁽²⁾	Chairman	None
Mr. Jakrit Rungsimanop	Director	None
Ms. Wanlapa Sophiskhaunkhant	Director / Managing Director	None
GGC Biochemicals Company Limited (GGC Bio)		
Mr. Piroj Samutthanant ⁽³⁾	Chairman	None
Mr. Jakrit Rungsimanop	Director	None
Mr. Piya Suri ⁽⁴⁾	Director / Managing Director	None
Thai Ethoxylate Company Limited (TEX)		
Mr. Piroj Samutthanant ⁽⁵⁾	Director	270,000
Mr. Krit Treenutchakorn ⁽⁶⁾	Director / Managing Director	90,000
Mr. Piya Suri	Director	360,000
GGC KTIS Bioindustrial Company Limited (GKBI)		
Mr. Piroj Samutthanant ⁽⁷⁾	Director	60,000
Mr. Kumpol Chaikitkosi	Director	60,000
Mr. Dumrong Putiput	Director / Managing Director	60,000
Thai Eastern Top Seeds Oil Co., Ltd. (TETSO) ⁽⁸⁾		
Mr. Kumpol Chaikitkosi	Director	None
Mr. Ekaphong Govitgoongrai	Director	None

Remarks: Total remuneration is subject to withholding tax.

⁽¹⁾ Board of Directors' Meeting of Thai Fatty Alcohols Co., Ltd. No. 2/2022 on April 27, 2022 approved the transfer of TFA's entire business to Global Green Chemicals Plc. The transfer was completed on October 1, 2022. The Extraordinary General Meeting of Shareholders of Thai Fatty Alcohols Company Limited No. 2/2022 of October 25, 2022, passed a special resolution approving the dissolution of the company with effect from October 31, 2022.

⁽²⁾ Mr. Warophat Kimchuwanit resigned as a director and Chairman of the Board of Directors of Thai Fatty Alcohols Company Limited with effect from September 30, 2022.

⁽³⁾ Mr. Piroj Samutthanant resigned from the position of Managing Director and Chairman of the Board of directors of GGC Biochemicals Co., Ltd. with effect from December 30, 2022. The meeting of the Board of Directors of GGC Biochemicals Co., Ltd. No. 1/2023 of January 9, 2023 passed a resolution appointing Mr. Kridsada Prasertsuko as Managing Director, replacing Mr. Piroj Samutthanant, who resigned.

⁽⁴⁾ Mr. Piya Suri, at the meeting of the Board of Directors of GGC Biochemical Co., Ltd. No. 4/2023 (Special Meeting) of October 4, 2022, was appointed as Director and Managing Director, replacing Mr. Warophat Kimchuwanit, who resigned.

⁽⁵⁾ Mr. Piroj Samutthanant resigned as a director of GGC Thai Ethoxylate Company Co., Ltd. with effect from September 30, 2022.

⁽⁶⁾ Mr. Krit Treenutchakorn, at the meeting of the Board of Directors of Thai Ethoxylate Limited No. 5/2022 on September 30, 2022, was appointed as director, replacing Mr. Piroj Samutthanant, who resigned, with effect from October 1, 2022. Mr. Piroj Samutthanant's remuneration for his service during his directorship from January 1 to September 29, 2022 totaled Baht 270,000.

⁽⁷⁾ Mr. Piroj Samutthanant resigned as a director of GGC KTIS Bioindustrial Co., Ltd. with effect from December 30, 2022. Mr. Kridsada Prasertsuko, at the meeting of the Board of Directors of GGC KTIS Bioindustrial Co., Ltd. No. 3/2023 on January 9, 2023, was appointed as director, replacing Mr. Piroj Samutthanant, who resigned.

⁽⁸⁾ Board of Directors' Meeting of Global Green Chemicals Plc No. 13/2021 of December 15, 2021 passed a resolution approving the sale of all shares of Thai Eastern Top Seeds Oil Co., Ltd. to Eastern Palm Oil Co., Ltd. The sale was completed on January 13, 2022.

Securities held in the name of executives, their spouses or cohabiting partners, and minor children as of December 31, 2022

Securiy Holder*	Shareholding (No. of shares)		Change during the year (No. of shares)
	As of January 1, 2022	As of December 31, 2022	
1. Mr. Piroj Samutthanant ⁽¹⁾	- None -	N/A	N/A
2. Mr. Kumpol Chaikitkosi	- None -	- None -	No Change
3. Mr. Piya Suri ⁽²⁾	N/A	- None -	N/A
4. Mrs. Boodsada Seema	- None -	- None -	No Change
5. Ms. Wanlapa Sophiskaunkhant	- None -	- None -	No Change
6. Mr. Jakrit Rungsimanop	- None -	- None -	No Change
7. Mr. Sansern Sujitjorn ⁽³⁾	- None -	- None -	Change
8. Mr. Thodsaphorn Phienchob	- None -	- None -	No Change
9. Ms. Chompunuch Liamprawat	- None -	- None -	No Change
10. Mr. Phromphron Isarankura Na Ayutthaya ⁽⁴⁾	N/A	2,000	N/A
11. Mr. Chanasiri Vanit	3,000	3,000	No Change
12. Mr. Ekaphong Govitgoongrai	- None -	- None -	No Change
13. Mr. Satit Vaewichit ⁽⁵⁾	N/A	- None -	N/A
14. Mr. Krit Treenutchakorn ⁽⁶⁾	N/A	- None -	N/A
15. Mr. Dumrong Putiput ⁽⁷⁾	- None -	- None -	No Change
16. Mr. Suchet Deemangmee ⁽⁸⁾	- None -	- None -	No Change
17. Mr. Jiruss Rianchaiwanich	N/A	- None -	N/A

Securiy Holder*	Shareholding (No. of shares)		Change during the year (Number of shares)
	As of January 1, 2022	As of the last day of work	
Directors who resigned in 2022 (as of each director's last day of work)			
1. Mr. Piroj Samutthananon ⁽¹⁾	- None -	- None - (December 30, 2022)	No Change
2. Mr. Warophat Kimchuwanit ⁽²⁾	- None -	- None - (September 30, 2022)	No Change
3. Mr. Suriyawut Rawdkrajab ⁽⁴⁾	- None -	- None - (May 30, 2022)	No Change
4. Mr. Sayan Saesue	- None -	- None - (May 30, 2022)	No Change

Remarks: In compliance with SEC's notification No. TorChor 17/2551 on Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities, Clause 2 (16)

* Including shares held by Directors' spouses, cohabiting partners, and minor children

⁽¹⁾ Mr. Kridsada Prasertsuko was appointed as Managing Director, replacing Mr. Piroj Samutthanant with effect from January 1, 2023.

⁽²⁾ Mr. Piya Suri was appointed as Deputy Managing Director, Commercial Excellence, replacing Mr. Warophat Kimchuwanit, who reassumed his position at PTT Global Chemical Plc., with effect from October 1, 2023.

⁽³⁾ Mr. Jiruss Rianchaiwanich was appointed as Vice President, Reporting to Managing Director, with effect from October 16, 2022, and as Vice President, Human Resource and Corporate Support, replacing Mr. Sansern Sujitjorn, who retired, with effect from January 1, 2023.

⁽⁴⁾ Mr. Phromphron Isarankura Na Ayutthaya was appointed as Vice President, Engineering and Maintenance, replacing Mr. Suriyawut Rawdkrajab, with effect from August 16, 2022.

⁽⁵⁾ Mr. Satit Vaewichit was appointed as Vice President, Business and Product Development with effect from April 16, 2022.

⁽⁶⁾ Mr. Krit Treenutchakorn was assigned as a full-time secondee to TEX with effect from October 1, 2022

⁽⁷⁾ Mr. Dumrong Putiput was assigned as a full-time secondee to GKBI, with effect from October 1, 2020.

⁽⁸⁾ Mr. Suchet Deemangmee, Vice President, Sale and Marketing, was assigned as a full-time secondee to TEX with effect from September 1, 2022.

7.5 Personnel

7.5.1 Human Resource Management and Development Policy

In 2022, GGC prepared to develop its human resources in various aspects, such as organization structure, taskforce planning, and commitment to strive to become a learning organization with a friendly work environment that also promotes teamwork, fair treatment and safety, and a happy workplace. The Company values skill development, knowledge transfer and competency of the employees. The Company listens to the employees' opinions and concerns fairly and equally while cultivating a corporate culture of GGC, believing that employees are valuable assets and are the key contribution to corporate success and sustainable growth.

Organization structure to support the Company's long-term business strategy focuses on strengthening the Company's potential to be a leader in the business of environmentally sustainable chemical products with the following actions:

- Remodeled the organization structure in support of the business based on types of products, for example, biofuel and biochemicals/ bioplastics, for greater clarification in defining employees' roles and responsibilities, as well as upgrading and applying operational technology to improve business processes, reduce redundant ones and more accuracy of information.
- Reviewed the work of key positions to ensure consistency with GGC's rapid business growth and international standards. A study on the remuneration structure was conducted to make it more competitive and to retain talented employees.
- The Company has established a Work From Home policy and welfare arrangements that suit the new work model.
- Promoted diverse experiences of employees in working with efficiency under different situations and in balancing work and private life. To this end, GGC set a policy on working in a residence outside the normal workplace as a guideline for employees when they have to work from home, either full-time work from home or alternative work from home and office. Currently, as many as one-third of the employees work at the office. The office sizes have also been improved and reduced by about 30% in line with the high number of employees working from home.
- Medical welfare for lawful parents of GGC's single employees, which account for about 42% of the workforce, has been increased and can be reimbursed as actually paid without age limits.
- A special temporary living allowance has been approved to alleviate the difficulties of employees from the current economic situation.

GGC has a plan to increase the capacity as well as competitiveness for business growth and brace for sudden changes in the future. To meet the Company's objectives, chief executives play a crucial role in encouraging personnel to develop their skills, exchange knowledge and work as a team. To forge unity, the Company has supported technology and tools for human resource development to address the rapidly growing demand and implement corporate strategy more effectively.

Employee Development: GGC develops the potential of its manpower and equips them with proper knowledge and skills for their improved performance. To this end, the Company has formulated a systematic human resource development plan, defined the competency of employees for each position with expectations of the performance outcomes at each level. GGC has also defined a learning model, the “70-20-10”, which is, learning via work, by assignment, by coaching and advice from supervisors and from external trainings. Each employee’s potential assessment was conducted annually in order that employees with developed potential can present their achievements and be promoted to higher position.

GGC takes action to prepare and to educate itself, including equipping its personnel with appropriate skills, knowledge and ability to be ready for the retirement of Executives and employees or early retirement of Executives before reaching the age of 60. Succession planning was prepared for key positions to ensure continuation of management succession, as well as a development plan for each individual employee. Potential successors for key positions will be selected for leadership development programs and job rotation to prepare them for higher positions, including assignment of key projects, knowledge and experience exchange with the Thai Listed Companies Association (TLCA), and the intensive Executive Management Development Program for in-depth knowledge from actual business case studies. In addition, GGC also values development of leadership of executives from all levels, promotes new experiences for high-potential employees so that their team can achieve their operational goals, and on 4 Core Behaviors, such as a training course on Build Leader for Change for junior executives to develop negotiation skills (influence), time management, and creation of a good meeting atmosphere and efficiency, and training for better understanding of 4 Core Behaviors.

To foster morale and engagement among employees, the Company has created a two-way communication channel for Executives to send their messages, including information on the Company’s business direction, and held activities such as MD Townhall and MD meets DM quarterly, where opinions from employees can be received by their executives. GGC also promoted employee well-being as well as their work-life balance.

In 2022, GGC thus held a training course to educate its Executives aiming for them to promote work-life balance in their units with an emphasis on effective meetings and delegation of decision-making authority. After the training, many departments shortened the meeting time. However, the company is still committed to maintaining working conditions for a Happy Workplace.

Enhancement of internal speakers: GGC develops employees who are knowledgeable and with proper work expertise to be able to transfer their knowledge to the next generation of employees, and established a Learning Management System as GGC’s sustainable source of knowledge.

7.5.2 Number of Employees

As of December 31, 2022, GGC had 278 employees in total, including four full-time employees from GC, and 152 of them work at manufacturing sites. None of the Company's employees is a member of labor unions. GGC has never faced a strike or business interruption due to labor disputes since its inception. This incident reflected the company has a healthy relationship with employees. The headcount of GGC employees appears in the table below. (As of December 31, 2022)

Business Unit	Number of Employees
Reporting to the Managing Director	5
Corporate Strategy	10
Corporate Finance and Accounting	15
Corporate Affairs and Corporate Secretary	14
Internal Audit	6
Human Resource and Corporate Support	14
Supply Planning and Feedstock Sourcing	15
Operational Excellence	2
Process Technology	16
Operations	108
Engineering and Maintenance	35
Quality, Safety, Occupational Health and Environment	8
Commercial Excellence	1
Product Marketing and Sale	19
Business and Product Development	10
Total	278
Seconded at GGC Subsidiaries/Joint / Indirect Joint Ventures (Secondment)	5

7.5.3 Employees' Remuneration

a) Monetary Remuneration

Monetary remuneration for GGC's employees and contract employees for 2022 comprised salary, bonus, wages and welfare, which amounted to about THB 378 million. The Company has defined a policy on employees' remuneration which reflects the Company's performance in the short term and long term and applied the Balanced Scorecard in the performance assessment. Annual salary rises of employees are based on the assessment of each individual performance and at levels which can compete with peer companies in the same industry.

b) Other Remuneration

GGC, in compliance with Thailand's labor laws, contributes to the social security fund for employees and provides retirement benefits, and other benefits such as training, accident and life insurance. These remuneration and benefits for 2022 totaled about THB 59 million.

c) Provident Fund

GGC, in collaboration with PTT Global Chemical Plc (GC)'s 15 joint ventures, established provident funds for its employees. Contributions are made monthly by the employees at the minimum rate of 2 percent but not exceeding 15 percent of their base salaries and the Group contributes at the minimum rate of 5 percent but not exceeding 15 percent of the employees' base salaries. GGC's contributions to the provident fund at the end of 2022 totaled about THB 16 million.

The ratio of GGC's employees joining the fund is 92%. GGC's Provident Fund Committee is responsible for the nomination of the Fund Manager, who must perform his duties in compliance with the Investment Governance Code. His past performance (Investment Performance) will be also taking into consideration.

Employees' Remuneration Paid in 2022

Item	Remuneration in 2022 (Baht)
Salary, bonus, wages, and other welfares	378,695,979.15
Other compensations e. g. social security, employee training, health insurance	20,686,650.04
Retirement benefits	12,626,554.94
Other long-term benefits	2,433,649.80
Contributions to provident fund	16,629,711.82
Total	431,072,545.75

Employees' mean and median annual remuneration, and ratio of the mean and median annual remuneration of the Managing Director and the employees for 2022

Item	Mean Annual Remuneration	Median Annual Remuneration
Mean/median annual remuneration of all employees (Managing Director not included)	1.22	1,264,321.10
Ratio of the mean/median annual remuneration of the employees and the Managing Director	1.21	1,297,742.58

Directorships in Subsidiaries/ Joint Ventures / Related Companies of the Company's Directors/ Executives

Directorships in Subsidiaries/ Joint Ventures / Related Companies of the Company's Directors/ Executives

Name – Surname	Subsidiaries			Joint Ventures	Indirect Joint Ventures	Related Companies									
	GGC	TFA**	GGC Bio	TEX	GKBI	PTT	GC	GPSC	GCM	GCP	GC Inter	GC BV	GCI	HMC	PTTAC
1. Mr. Kongkrapan Intarajang	●					●	● ●	●			●	●			
2. Mr. Varit Namwong	●						●		●	●			●	●	●
3. Mr. Piroj Samutthanant	● ●		●	●	●		●								
4. Mr. Kridsada Prasertsuko	● ●		●		●		●								
5. Mr. Kumpol Chaikitkosi	●				●										
6. Mr. Piya Suri	●		●	●											
7. Mr. Warophat Kimchuanit	●	●	●												
8. Ms. Wanlapa Sophiskhaunkhant	●	●													
9. Mr. Jakrit Rungsimanop	●	●	●												
10. Mr. Krit Treenutchakorn	●			● ●											
11. Mr. Dumrong Putiput	●				● ●										

Remarks :

* Information on directorships in subsidiaries/ joint ventures/related companies of GGC's directors/executives for No. 1-2, 4-6 and 8-11 was as of January 9, 2023. Information on directorships in subsidiaries/ joint ventures /related companies of GGC's directors/executives for No. 3 was as of September 29, 2022. Mr. Piroj Samutthanant was a director of Global Green Chemicals Plc until December 30, 2022, a director of GGC Biochemical Company Limited until December 29, 2022, a director of Thai Ethoxylate Company Limited until September 29, 2022, a director of GGC KTIS Bio Industrial Company Limited until December 29, 2022, and an executive of PTT Global Chemical Plc until December 31, 2022. Information on directorships in subsidiaries/ joint ventures /related companies of GGC's directors/executives for No. 7 was as of September 29, 2022.

** Board of Directors' Meeting of Thai Fatty Alcohols Co., Ltd. No. 2/2022 on April 27, 2022 passed a resolution approving the entire business transfer to Global Green Chemicals Plc. The business transfer was completed on October 1, 2022, and the Extraordinary General Meeting of Shareholders of Thai Fatty Alcohols Company Limited No. 2/2022 on October 25, 2022 passed a special resolution approving the dissolution of Thai Fatty Alcohols Limited with effect from October 31, 2022.

Subsidiaries

TFA = Thai Fatty Alcohols Co., Ltd.
GGC Bio = GGC Biochemicals Co., Ltd.

Joint Ventures

TEX = Thai Ethoxylate Co., Ltd.

Indirect Joint Ventures

GKBI = GGC KTIS Bioindustrial Co., Ltd.

Related Companies

PTT = PTT Plc
GC = PTT Global Chemical Plc
GPSC = Global Power Synergy Plc
GCM = GC Marketing Solution Co., Ltd.
GCP = GC Polyols Co., Ltd.

GC Inter = PTTGC International Private Limited
GC BV = PTTGC International (Netherlands) B.V.
GCI = GC International Corporation
HMC = HMC Polymers Co., Ltd.
PTTAC = PTT Asahi Chemicals Co., Ltd.

Remarks:

● = Chairman
● = Director
● = Management

7.6 Other key information

7.6.1 Corporate Secretary

In compliance with Section 89/15 and Section 89/16 of the Securities Exchange of Thailand Act (No.4) B.E. 2551 (2008), Board Meeting No. 8/2021 of August 6, 2021 passed a resolution appointing Ms. Boodsada Seema as Corporate Secretary, to perform the duties as required under the laws in preparing and maintaining key corporate documents such as director registration, notices of the meeting, minutes of the meeting of the Board and of the Annual General Meeting of Shareholders (AGM), annual reports and reports on the vested interests of directors and executives. The Corporate Secretary oversees the arrangements for the Board meetings and of the AGM, and informs the Board and executives about the rules and regulations that they should know. The Corporate Secretary has also attended training courses beneficial for her in performing the duties and participates in other trainings annually. The qualifications of the Corporate Secretary are shown in “Attachment 1: Details about the Board of Directors, Executives, Controlling, Assigned Top Executives of the Finance and Accounting Function, Assigned Personnel Directly in Charge of Accounting Preparation and Company Secretary.”

7.6.2 Head of Compliance

In 2022, GGC assigned Ms. Boodsada Seema, Vice President, Corporate Affairs and Corporate Secretary, to be responsible for the compliance with laws, relevant rules and regulations of GGC’s operations and set up Legal and Compliance, and Corporate Secretary and Governance to promote clear and effective work procedures. GGC has formulated a Compliance Policy and implemented a GGC Compliance Program to ensure that its executives and employees are aware of and recognize the importance of conducting business under the CG principles in compliance with laws, rules and regulations. The policy and program are regularly reviewed and audit by the Corporate Governance and Sustainable Development Committee.

7.6.3 Chief of Internal Audit

The Audit Committee’s Meeting No. 8/2017 on December 21, 2017 appointed Ms. Kunakorn Witthayapaisarn as Vice President, Internal Audit, and as Secretary to the Audit Committee, with effect from January 1, 2018. Ms. Witthayapaisarn, a certified internal auditor, has professional qualifications and extensive experience in internal audit. She also attended training courses on internal audit and corporate governance. Her profile appears in “Attachment 3: Details about the Chief of Internal Audit and Chief of Compliance”

The appointment, dismissal, and transfer of Vice President of Internal Audit must be approved by the Audit Committee as stated in the Charter of the Audit Committee.

7.6.4 Chief of Investors Relations

Ms. Wanlapa Sophiskhaunkhant was appointed Vice President, Finance and Accounting, and Ms. Paveena Owararin, Chief of Investor Relations and Accounting Management, was assigned to oversee Investor Relations. This unit centralizes communication and disclosure of information for shareholders, investors, both institutions and retail, analysts, and related supervisory authorities. It also ensures the quality of the financial reporting process and of important information which might have impact on the prices of GGC's stocks, such as financial statements, presentation of corporate performance, quarterly and annual Management's Discussion and Analysis (MD&A), which show the Company's performance and outlook, including other information disclosed to the public via the SET channel to local and foreign investors alike.

Investor Relations contact channels: Investors or the general public can contact Investor Relations via phone: 0-2558-7345, 0-2558-7395, or email: IR@ggcplc.com, or Company website: www.ggcplc.com.

7.6.5 Accounting Controller

In 2022, GGC appointed Miss Phunnapa Homyen as Division Manager, Accounting and Budgeting, with effect from March 1, 2022 to supervise and control GGC's corporate accounting in compliance with relevant standards, rules and regulations. Her qualifications as Accounting Controller appear under Attachment 1: Details of directors, executives, controlling persons, person tasked with highest responsibility in Accounting and Finance, person assigned to be directly responsible for accounting control, Corporate Secretary and contact representatives for foreign companies. Miss Homyen possesses the qualification and conditions of an accountant as specified in the Notification of the Department of Business Development, Ministry of Commerce.

7.6.6 Audit and Non-Audit Fees

1. Audit Fee

GGC and subsidiaries paid an audit fee amounting to Baht 2,114,300 to KPMG Phoomchai Audit Co., Ltd. for fiscal year 2022. GGC paid Baht 1,300,000, and its subsidiaries paid Baht 814,300.

2. Non-Audit Fee

For fiscal year 2022, GGC paid KPMG Phoomchai Audit Co., Ltd. an amount of Baht 150,000 for BOI consultation.

8. Report on Key Actions under Corporate Governance

8.1 Summary of Board of Directors' Performance in 2022

8.1.1 Nomination, Development and Performance Assessment of the Board

(1) Recruitment and Nomination of Directors of the Board, Subcommittees, and Managing Director

The Nomination and Remuneration Committee, which comprises three directors, two of whom are independent directors, is responsible for the recruitment and nomination of qualified candidates without prohibited characteristics under applicable laws and applicable rules and regulations, along with GGC's Articles of Association, taking into consideration diverse qualifications which professional directors should possess and the structure, size and composition of the Board, variety of desired knowledge, competency, expertise and experience as well as the number of independent and female directors. The committee proposes names to the Board for approval and then to the Shareholders' Meeting for appointment in compliance with the law. Recruitment and nomination of directors fall into:

Recruitment and nomination of directors to replace those due to retire by rotation: The Nomination and Remuneration Committee nominated directors to replace those due to retire by rotation at the 2022 AGM for the Board's and the AGM's approval. To this end, it also allowed shareholders to nominate candidates with complete qualifications three months before the AGM. As no nomination was forthcoming, the Committee nominated Mr. Thanwa Laohasiriwong as director to replace the director who has completed his term, and Mr. Kongkrapan Intarajang and Prof. Dr. Kumchai Jongjakapun as directors for another term. All of them are fully qualified, without prohibited characteristics under the law and applicable criteria, and are knowledgeable, competent, with experience relevant to GGC's business strategies. The Board and the 2022 AGM duly approved the proposal. GGC's Articles of Association concerning shareholders' meeting and voting stipulated that in the voting to appoint directors, the shareholders shall use the ballots prepared to vote for each individual director. Each shareholder shall exercise all votes held in electing each individual candidate nominated for directorship in compliance with good corporate principles.

Recruitment and nomination of directors to fill vacancies incurred by reasons other than expiration of term of office: The Nomination and Remuneration Committee nominated qualified candidates to replace directors who resigned during the year, namely Mr. Thanakorn Manoonpol and Mr. Kridsada Prasertsuko, for the Board's approval. Consideration had been based on their qualifications under applicable laws and criteria, GGC's Articles of Association, CG Code, knowledge, skills, the Board Skill Matrix and SEPO's and IOD's Directors' Pool. The Board approved the proposal.

Nomination of directors as members of the subcommittees: The Nomination and Remuneration Committee nominated directors whose qualifications meet the selection criteria and subcommittee charter for submission to the Board for approval and appointment as directors of the subcommittees, namely the Audit Committee, Corporate Governance and Sustainable Development Committee, Nomination and Remuneration Committee, and Risk Management Committee. The Board approved the proposal.

Nomination and appointment of independent directors: The number of independent directors on the Board is taken into consideration in compliance with SEC's notification. As of December 31, 2022, the Board comprised seven independent directors out of the total 11 directors, which exceeds the number required by SEC. GGC's definitions and qualifications of independent directors are prescribed in its Corporate Governance and Business Code of Conduct (CG Handbook) disclosed on the Company's website. Moreover, it is required that an Independent Directors' Meeting be held once a year. The 2022 meeting was held on June 29, 2022, via the electronics platform. All independent directors, with independency qualifications as required by SET, attended the meeting chaired by Prof. Dr. Kumchai Jongjakapun, Chairman. The meeting provided recommendations on and guidelines for GGC's business operations covering critical issues such as the review of the Charter of Independent Directors. To elaborate, the roles and duties of independent directors were expanded to cover supervision of compliance with full anti-corruption measures, more emphasis on socio-environmental responsibility, provision of guidelines for the development of organization's operation in improving GGC's rules, regulations and requirements for greater efficiency to suit the current competition situation as well as future business trends, improvement and development of whistleblowing-handling, with greater emphasis on the safety of whistleblowers to raise confidence in the efficiency of GGC's whistleblowing handling as well as provision of recommendations to drive GGC to become the leading company of oleochemical products with creative power for sustainable value.

Recruitment of the Managing Director: Under GGC's Articles of Association, the directors elect one among themselves to act as the Managing Director and Secretary to the Board. If the position becomes vacant, the Nomination and Remuneration Committee nominates a qualified candidate who commands necessary and appropriate skills, experience and specific professional qualifications beneficial to and suiting GGC's business operations to the Board for approval. In 2022, the Nomination and Remuneration Committee nominated Mr. Kridsada Prasertsuko as Managing Director, with effect from January 1, 2023.

(2) Development of Directors, Executives and Corporate Secretary

Directors' Development and Training: GGC has set up procedures to support directors' continuing development. In 2022 the development included the following:

New Directors' Orientation: GGC has organized an orientation session for new directors under SET's guidelines, which consists of:

1. A briefing on the corporate governance code, relevant rules and regulations, GGC Group's nature of business, composition of the Board, relevant policies, rules and regulations on directors, vision, strategy, and business goals of GGC and GGC Group as well as their financial status, and other information considered important and necessary for their performance before performing duties at their first Board Meeting.
2. New Directors receive key documents and related handbooks, such as the corporate strategy plan, Articles of Association, Memorandum of Association, annual report, relevant rules and regulations, and the CG Handbook.

Directors' Training: GGC encourages directors to attend training sessions/seminars to enhance their knowledge.

No	Name	DCP	DAP	ACP	BNCP	ELP	RCP	RCL	AACP	FND	BFI	ITG	SFE	CMA	TEA	NDC
1	Mr. Kongkrapan Intarajang	119/2009					21/2009							Class 30	Class 14	Class 60
2	Prof. Dr. Kumchai Jongjakapun	128/2010		38/2012			34/2014							Class 9		Class 50
3	Mrs. Kannika Ngamsopee	21/2002			7/2019			13/2018	36/2020					Class 3		Class 52
4	ACM Songtam Chokkanapitag	227/2016														Class 50
5	Pol. Gen. Suchart Theerasawat	329/2022	184/2021													Class 59
6	Mr. Jarun Wiwatjesadawut	98/2008	9/2004											Class 9	Class 14	Class 26
7	Lt. Gen Titawat Satiantip	285/2019														
8	Mr. Varit Namwong	160/2012	91/2011												Class 10	Class 61
9	Mr. Thanwa Laohasiriwong ⁽¹⁾	43/2004			13/2021	1/2015	45/2019		20/2015	10/2004	2/2017	2/2016	22/2014	Class 30	Class 13	Class 60
10	Mr. Thanakorn Manoonpol ⁽²⁾	324/2022														
11	Mr. Piroj Samutthanant ⁽³⁾	291/2020														
12	Mr. Kridsada Prasertsuko ⁽⁴⁾	269/2019														

Remarks:

⁽¹⁾ Mr. Thanwa Laohasiriwong was appointed as Director with effect from April 1, 2022

⁽²⁾ Mr. Thanakorn Manoonpol was appointed as Director with effect from June 15, 2022

⁽³⁾ Mr. Piroj Samutthanant resigned as Director with effect from December 31, 2022

⁽⁴⁾ Mr. Kridsada Prasertsuko was appointed as Director with effect from January 1, 2023

Courses

DCP = Director Certification Program

DAP = Director Accreditation Program

ACP = Audit Committee Program

BNCP = Board Nomination and Compensation Program

ELP = Ethical Leadership Program

RCP = Role of the Chairman Program

RCL = Risk Management Program for Corporate Leaders

AACP = Advanced Audit Committee Program

FND = Finance for Non-Fiance Directors Program

BFI = Boardroom Success through Financing and Investment

ITG = Driving Company Success with IT Governance

SFE = Successful Formulation & Execution of Strategy

CMA = Capital Market Academy Programs

TEA = Executive Program in Energy Literacy for a Sustainable Future

NDC = National Defence Course

Corporate Secretary's Training

The Corporate Secretary attended training and development programs to enhance her knowledge and competency, which would benefit her in performing the duties to ensure smooth execution of the Board with access to necessary and appropriate information to support the Board's performance in line with the CG Code. The Corporate Secretary, Mrs. Boodsada Seema, attended training courses organized by the Thai Institute of Directors (IOD) such as the Company Secretary Program (CSP), Class 18/2006, Effective Minutes Taking (EMT), Class 3/2006, Board Reporting Program (BRP), Class 11/2013, and Company Secretary Refreshment Training Program (RFP), Class 4/2021. Mrs. Boodsada Seema also participated in training courses organized by the Thai Listed Companies Association (TLCA), which included the Corporate Secretaries Professional Development Program, Class 1/2021, Company Secretary Professional Program 2021 (Advanced Corporate Secretaries Program), and Selection of Directors in Compliance with the CG principles. In 2022, Mrs. Boodsada Seema attended the seminars organized by TLCA, namely "Recruitment and Nomination of Directors" and "Prepare the Company Secretary for the Enforcement of PDPA", and a seminar jointly organized by TLCA and IOD: Company Secretary Forum 2022 "Challenges of Company Secretary in Building Trust". Including, In House Training Program by GC namely, Subsidiary Governance Program and Business and Legal Issues for Directors and Executives. As well as, Executive role in Anti Corruption (In House Program by GGC) narrated by CAC (Collective Action Against Corruption).

(3) Board's Performance Assessment

The CG Code requires that the Board undergo performance assessment. GGC, in compliance, conducts the assessment annually using the Board's Performance Assessment Form. In 2022, all 11 directors holding the office at the time underwent the assessment.

Assessment of the Board's Performance (Entire Board)

The assessment topics comprised 1) Board Policy, 2) Board Performance, 3) Board Structure, Qualifications and Composition, 4) Board Style, 5) Board Meeting, and 6) Board Development. The average score of the Board assessment (entire Board) is 96.75%.

Assessment of Individual Directors' Performance (Self-Assessment)

The assessment topics comprised 1) Directors' Performance, 2) Compliance with Corporate Governance and Business Code of Conduct, 3) Self-Development and Teamwork, 4) Knowledge and Expertise in Specific Fields, and 5) Time Devotion and Meeting Attendance. The average score of individual directors' performance assessment (Self-Assessment) is 96.24%.

Assessment of Individual Directors' Performance (Cross-Assessment)

Assessment topics were 1) Knowledge and Expertise in Specific Fields, Self-Development and Teamwork, 2) Performance, and 3) Time Devotion and Meeting Attendance. The average score of individual directors' performance assessment (Cross-Assessment) is 97.94%.

Subcommittees

GGC's four subcommittees are the Audit Committee, Nomination and Remuneration Committee, Corporate Governance and Sustainable Development Committee and Risk Management Committee. The performance assessment of these committees, both group and individual, was conducted for all. In 2022, each committee reviewed and improved assessment topics and criteria to cover performance in compliance with corporate governance as shown below:

Audit Committee

Group assessment topics were 1) Charter of the Audit Committee, 2) Composition of the Committee, 3) Performance Assessment, 4) Relationship with the Vice President of Internal Audit, External Auditors and Management, 5) Meeting Attendance, 6) Self-development, 7) Reporting to the Board and the Shareholders, and 8) Performance Quality Maintenance. The average score of the Audit Committee is 98.00%

Individual assessment topics were 1) Responsibility for Performing Duties, and 2) Time Devotion and Self-development. The average score of the Audit Committee is 93.67%

Nomination and Remuneration Committee

Group assessment topics were 1) Composition and Qualifications of the Nomination and Remuneration Committee, 2) Performance, 3) Practices, 4) Meeting Attendance, and 5) Reporting and Performance Assessment of the Committee. The average score of the Nomination and Remuneration Committee is 99.33%

Individual assessment topics were 1) Knowledge, Expertise and Teamwork of the Committee, 2) Performance, 3) Practices, and 4) Time Devotion and Meeting Attendance. The average score of the Nomination and Remuneration Committee is 99.44%

Corporate Governance and Sustainable Development Committee

Group assessment topics were 1) Composition and Qualifications of the Corporate Governance and Sustainable Development Committee, 2) Performance, 3) Practices, 4) Meeting Attendance, and 5) Reporting and Performance Assessment of the Committee. The average score of the Corporate Governance and Sustainable Development Committee is 95.81%

Individual assessment topics were 1) Knowledge and Expertise of the Committee, 2) Performance, 3) Practices, 4) Time Devotion, and 5) Meeting Attendance. The average score of the Corporate Governance and Sustainable Development Committee is 92.50%

Risk Management Committee

Group assessment topics were 1) Composition and Qualifications of the Risk Management Committee, 2) Role, Duty and Responsibility, and 3) Meeting Attendance. The average score of the Risk Management Committee is 95.71%

Individual assessment topics were 1) Performance Responsibility, 2) Compliance with CG and Business Code of Conduct, and 3) Time Devotion and Self-development. The average score of the Risk Management Committee is 90.67%

8.1.2 Director's Meeting Attendance and Remuneration

The Board's and Subcommittees' Meetings

In 2022, the Board, Subcommittees, Independent Directors and Non-Executive Directors attended the meetings scheduled in advance each year. Directors who had unexpected engagement and were unable to attend any meeting must submit a leave of absence letter to the Chairman along with reasons and the Chairman would then inform the meeting accordingly before proceeding with the meeting. In the previous year, due to Covid-19, Board Meetings were held via an electronic channel or at GGC's Head Office via Microsoft Teams Meeting in strict compliance with the Emergency Decree on Electronic Meetings B.E. 2563 (2020).

The Board scheduled the dates of meetings in advance each year, usually once a month, to enable the Directors to allocate their time for the meetings without affecting their permanent jobs. Directors who are government officials will be able to take a leave and apply their experience and knowledge to perform another role for the development of the country as Directors of the Company, whose vision is to be a leading company of oleochemical products under the mission of creating sustainable value for all stakeholders in a social and environmentally friendly manner. Additional meetings may also be scheduled as appropriate and necessary. Directors will receive a meeting invitation, draft minutes of the meeting, and meeting agendas and relevant information to support their consideration at least seven days before the meeting. These are sent by GGC via the D-Join (Digital Join Application) system to all directors for convenience, speed, less use of paper, with a data security system. In 2022 the Board held 14 meetings. Directors who had prior important engagement and were unable to attend the meeting submitted a leave of absence letter to the Chairman along with reasons and the Chairman had then informed the meeting before proceeding with the meeting.

The Chairman presided over the meetings by according all Directors the opportunity to participate and express their opinions freely. As a rule, the number of Directors in attendance must not be less than two-thirds of the total number of the Board to constitute a quorum, which will be maintained until the resolutions are reached. The Chairman may designate the directors to participate in the meeting via electronics media and the meeting must be conducted in compliance with the security criteria and standards for meetings via electronics media stipulated by the law and relevant government agencies. The resolutions of the meeting will be reached by a majority of the votes. One Director carries one vote. If the number of votes is equal, the Chairman will cast the decisive vote. The Board highly values management of conflicts of interest among stakeholders with prudence, fairness, and transparency through full disclosure of information on such matters. If a director has a stake and interest in the matter under consideration, he/she will not be allowed to take part in the decision-making on that issue.

At the end of the meeting, the Corporate Secretary is responsible for preparing the minutes of the meeting for submission to the Board for approval at the next meeting, and for the Chairman's signature to certify the accuracy. As a rule, the approved minutes of the meetings together with supporting documents for various meeting agendas will be systematically stored electronically under the levels of GGC's confidentiality to facilitate search and reference.

Moreover, to comply with the Corporate Governance code, the Board has scheduled the meetings of the non-executive directors to share opinions and guidelines for managing GGC's business operations as well as the meetings of Independent Directors to exchange views and review their roles and duties

on an annual basis. In 2022 there were one meeting of the Independent Directors (on June 29, 2022), and one non-executive director meeting (on December 14, 2022). The minutes of the meetings were also submitted to the Board.

In 2022 the meetings of the Board, independent directors, non-executive directors and subcommittees and meeting attendance of each directors are as detailed below.

Name	Meeting in 2022							
	Board	Independent Directors	Non-Executive Directors	Audit Committee	Nomination and Remuneration Committee	Corporate Governance and Sustainable Development Committee	Risk Management Committee	2022 Shareholders Meeting
	14 meetings	1 meeting	1 meeting	10 meetings	9 meetings	6 meetings	9 meetings	1 meeting
1. Mr. Kongkrapan Intarajang	14/14	-	1/1	-	-	-	-	1/1
2. Prof. Dr. Kumchai Jongjakapun	14/14	1/1	1/1	10/10	-	-	-	1/1
3. Mrs. Kannika Ngamsoppee	14/14	1/1	1/1	10/10	-	-	9/9	1/1
4. ACM Songtam Chokkanapitag	14/14	1/1	1/1	-	9/9	-	-	1/1
5. Pol. Gen. Suchart Theerasawat	12/14	1/1	1/1	-	-	5/6	-	1/1
6. Mr. Jarun Wiwatjesadawut	14/14	1/1	1/1	-	-	-	9/9	1/1
7. Mr. Thanwa Laohasiriwong ⁽¹⁾	11/11	1/1	1/1	7/7	-	5/5	-	-
8. Lt. Gen. Titawat Satiantip	14/14	1/1	1/1	-	9/9	6/6	-	1/1
9. Mr. Varit Namwong ⁽²⁾	14/14	-	1/1	-	8/8	-	8/8	1/1
10. Mr. Thanakorn Manoonpol ⁽³⁾	7/7	-	0/1	-	-	-	-	-
11. Mr. Piroj Samutthanant ⁽⁴⁾	14/14	-	-	-	-	-	9/9	1/1
Directors who completed the terms in 2022								
1. Mr. Suphit Suwagul	3/3	-	-	-	-	1/1	-	1/1
Directors who resigned in 2022								
1. Mr. Sarawut Benjakul ⁽⁵⁾	4/4	-	-	2/2	-	-	-	1/1

Remarks:

⁽¹⁾ Mr. Thanwa Laohasiriwong was appointed as Director, replacing Mr. Suphit Suwagul, who had completed his term, with effect from April 1, 2022. He attended his first Board Meeting, Meeting No. 4/2022, on April 1, 2022. Mr. Laohasiriwong was also appointed as a Director to Corporate Governance and Sustainable Development Committee, replacing Mr. Suphit Suwagul, who had completed his term, with effect from April 27, 2022, and attended his first meeting of the Corporate Governance and Sustainable Development Committee, Meeting No. 2/2022, on June 29, 2022, and as a Director to Audit Committee, replacing Mr. Sarawut Benjakul, who resigned, with effect from June 15, 2022. He attended his first meeting of the Audit Committee, Meeting No. 4/2022, on June 27, 2022.

⁽²⁾ Mr. Varit Namwong was appointed as a Director to Nomination and Remuneration Committee and as a Director to Risk Management Committee, replacing Mr. Patiparn Sukorndhaman, who had resigned, with effect from January 19, 2022. He attended his first meeting of the committee, Meeting No. 2/2022, on February 9, 2022, and his first meeting of the Risk Management Committee, Meeting No. 2/2022, on February 10, 2022.

⁽³⁾ Mr. Thanakorn Manoonpol was appointed as a director, replacing Mr. Sarawut Benjakul, who resigned, with effect from June 15, 2022. He attended his first Board Meeting, Meeting No. 8/2022, on July 20, 2022.

⁽⁴⁾ Mr. Piroj Samutthanant resigned as Director and Director to Risk Management Committee with effect from December 31, 2022.

⁽⁵⁾ Mr. Sarawut Benjakul resigned as Director and Director to Audit Committee with effect from April 25, 2022.

Directors' Remuneration

GGC has a fair and appropriate policy on remuneration of the directors of the Board and the subcommittees for 2022, which is in line with the CG Code. The Nomination and Remuneration Committee is responsible for the review and determination of the remuneration, taking into account GGC's performance and financial status, and comparison with the economic situations of related businesses, including responsibilities of the Board and the subcommittees, and remuneration of directors of peer companies.

Directors' remuneration must have the approval of the Shareholders' Meeting. The 2022 Annual General Meeting of Shareholders of April 1, 2022 approved the proposed remuneration for directors of the Board and the subcommittees for 2022, and the bonuses for 2021 performance as follows:

(a) The Board and Subcommittees' Remuneration

Board / Subcommittee	Rate
1. Board	Monthly Allowance - Chairman 37,500 Baht/Month - Director 30,000 Baht/Month/Person
2. Subcommittees - Audit Committee - Nomination and Remuneration Committee - Corporate Governance and Sustainable Development Committee - Risk Management Committee	Meeting Allowance (only those in attendance) - Chairman 25,000 Baht/Meeting - Director 20,000 Baht/Meeting/Person
3. Other remuneration	-None -

(b) Bonus

If the Company pays out dividends for a given year, the Board shall receive a bonus payment of 0.5% of the net profit but not over Baht 10 million per year. The bonus portion is based on the term of each director. The Chairman of the Board shall receive an amount which is 25% higher than other directors under the principles approved at the 2022 AGM on April 1, 2022. The bonuses for the entire Board for 2021 performance paid in 2022 totaled THB 1,651,096.

(c) Director's Remuneration in 2022

Name	Monthly Allowance (Baht)	Meeting Allowance (Baht)				Bonus for 2021 performance paid in 2022 (Baht)*
		Audit Committee	Nomination and Remuneration Committee	Corporate Governance & Sustainable Development Committee	Risk Management Committee	
1. Mr. Kongkrapan Intarajang	450,000.00					183,500
2. Prof. Dr. Kumchai Jongjakapan	360,000.00	250,000.00				146,800
3. Mrs. Kannika Ngamsopee	360,000.00	200,000.00			225,000.00	146,800
4. ACM Songtam Chokkanapitag	360,000.00		225,000.00			146,800
5. Pol. Gen. Suchart Theerasawat	360,000.00			125,000.00		146,800
6. Mr. Jarun Wiwatjesadawut	360,000.00				180,000.00	109,798
7. Mr. Thanwa Laohasiriwong ⁽¹⁾	270,000.00	140,000.00		100,000.00		
8. Lt. Gen. Titawat Satiantip	360,000.00		180,000.00	120,000.00		146,800
9. Mr. Varit Namwong ⁽²⁾	342,580.65		160,000.00		160,000.00	
10. Mr. Thanakorn Manoonpol ⁽³⁾	196,000.00					
11. Mr. Piroj Samutthanant ⁽⁴⁾	360,000.00				180,000.00	98,537
Total	3,778,580.65	590,000.00	565,000.00	345,000.00	745,000.00	1,125,835
Directors who completed the terms in 2022 and received remuneration in 2022 ⁽⁴⁾						
1. Mr. Suphit Suwagul	90,000.00			20,000.00		146,800
Total	90,000.00			20,000.00		146,800
Directors who resigned in 2022 and received remuneration in 2022 ⁽⁵⁾						
1. Mr. Sarawut Benjakul	114,000.00	40,000.00				109,798
Total	114,000.00	40,000.00				109,798

Remarks:

* The bonuses for 2021 performance paid in 2022 to directors were based on the term of each Director in 2021 but not exceeding Baht 10 million.

⁽¹⁾ Mr. Thanwa Laohasiriwong was appointed as Director with effect from April 1, 2022, and received his remuneration from April 2022 onward. He was also appointed as Director to Audit Committee and of the Corporate Governance and Sustainable Development Committee with effect from April 15, 2022, and received his remuneration for attending the meetings (his first Audit Committee Meeting, Meeting No. 4/2022 of June 27, 2022, and his first Corporate Governance and Sustainable Development Committee Meeting, Meeting No. 2/2022 of June 29, 2022).

⁽²⁾ Mr. Varit Namwong was appointed as Director, a Director to Nomination and Remuneration Committee and Director to Risk Management Committee with effect from January 19, 2022. Remuneration for his service from January 19 - 31, 2022 and paid in February 2022 totaled Baht 10,714.28. Mr. Namwong received his remuneration for attending the meetings (his first Nomination and Remuneration Committee Meeting, Meeting No. 2/2022 of February 9, 2022, his first Risk Management Committee Meeting, Meeting No. 2/2022 of February 10, 2022).

⁽³⁾ Mr. Thanakorn Manoonpol was appointed as Director with effect from June 15, 2022, and received his monthly allowance from June 2022 onward.

⁽⁴⁾ Mr. Piroj Samutthanant resigned as Director and Director to Risk Management Committee with effect from December 31, 2022.

⁽⁵⁾ Mr. Sarawut Benjakul resigned as Director and Director to Audit Committee with effect from April 25, 2022.

(e) Remuneration of Directors Seconded to GGC's Affiliates and Joint Ventures/ indirect Joint Ventures

GGC's directors are seconded to its affiliates and joint ventures / indirect joint-venture companies as a director to oversee their operations and ensure alignment with GGC Group's business policy.

Name	Position	Total Remuneration (Baht)
GGC Biochemicals Company Limited (GGC Bio) (wholly owned by GGC)		
Mr. Piroj Samutthanant ⁽¹⁾	Chairman	None
Thai Ethoxylate Company Limited (GGC holds 50% interest)		
Mr. Piroj Samutthanant ⁽²⁾	Director	270,000
GGC KTIS Bioindustrial Company Limited (GGC holds 50% interest)		
Mr. Piroj Samutthanant ⁽³⁾	Director	60,000

Remarks: Total remuneration is subject to withholding tax.

⁽¹⁾ Mr. Piroj Samutthanant resigned as director of GGC Biochemicals Company Limited with effect from December 30, 2022, and the Board of GGC Biochemicals Company Limited, Meeting No. 1/2023 of January 9, 2023 appointed Mr. Kridsada Prasertsuko as director, replacing Mr. Samutthanant, who resigned.

⁽²⁾ Mr. Piroj Samutthanant resigned as director of Thai Ethoxylate Company Limited with effect from September 30, 2022, and the Board of Thai Ethoxylate Company Limited No. 5/2022 of September 30, 2023 appointed Mr. Krit Treenutchakorn as director, replacing Mr. Samutthanant, who had resigned, with effect from October 1, 2022. Remuneration for Mr. Samutthanant's service from January 1 to September 29, 2022 totaled Baht 270,000.

⁽³⁾ Mr. Piroj Samutthanant resigned as director of GGC KTIS Bioindustrial Company Limited with effect from December 30, 2022, and the Board of KTIS Bioindustrial Company Limited, Meeting No. 3/2023 of January 9, 2023 appointed Mr. Kridsada Prasertsuko as director, replacing Mr. Samutthanant, who resigned.

8.1.3 Governance of Subsidiaries and Associates

GGC's management of its subsidiaries and affiliates are detailed under "GGC Group Structure and Operations" and disclosed on the Company's website www.ggcplc.com under Organization Structure. The Board has formulated mechanisms in the governance of its group of companies to oversee its investment interests as follows:

- The Managing Director was authorized to define policies, rules, regulations, methods, management guidelines, and delegate approval authority to executives as seen necessary as well as assigning any employee or any person to the position of director of GGC Group companies under the selection and nomination criteria with office terms in compliance with GGC's Articles of Association and the terms of the joint-investment agreement with such company, including deciding an appropriate number of companies where each executive can hold directorship.
- The Managing Director ensures that implementation of GGC Group companies under key policies, such as CG policy, whistleblower policy, fraud and anti-corruption guidelines, compliance, including other policies, align with those of GGC and with SEC's and SET's rules and regulations, as well as other applicable laws.

- GGC prepared the GGC Way of Conduct to be applied in the management and monitoring of its invested companies appropriately, in line with GGC's objectives, nature of business and strategies as well as multi-level governance on the Apply & Explain principle to standardize GGC Group's overall operations.
- In 2022 GGC conveyed the GGC Way of Conduct to GGC Group, which are ready to align and standardize the monitoring and management of the operations of the Group for better connection and ensure that the operations are moving in a uniform direction.

8.1.4 Monitoring of Compliance with CG Policy and Practices

GGC has conducted its business in strict compliance with SET's corporate governance code for listed companies (CG Code), Corporate Governance Report (CGR), and Dow Jones Sustainability Indices (DJSI). In the past year, GGC complied with an international-standard CG code covering five categories:

1. The Rights of Shareholders

The Board of Directors values the protection of the shareholders' rights and their equality. It includes this matter in the CG Handbook and ensures that GGC complies as follows:

1. Material information disclosed to shareholders must be accurate and complete. The information, positive as well as negative, must be clear and up-to-date, even if some issues are not a legal requirement for disclosure. If the Company considers it essential to shareholders, it will disclose such information via its website and through SET's information disclosure channels.
2. The Board encourages shareholders' participation and exercising of their voting rights in the meeting or their authorizing proxies to attend the meeting and invited shareholders to express their opinions or provide their questions equitably.

The 2022 Annual General Meeting of Shareholders (AGM): Due to the lingering situation and out of the concern for the health and safety of all shareholders and those concerned, the 2022 AGM was held on April 1, 2022, at 9:30 hours via electronic media (E-AGM) in compliance with the the Emergency Decree on Electronic Meetings B.E. 2563 (2020) and other applicable laws and regulations. Facilitation was provided to shareholders, under the prevailing Covid-19 situation, as follows:

Before the Meeting

- Minority shareholders with no less than 0.4% of the shares with voting rights were invited to propose meeting agenda and nominate qualified candidates for directorship. The criteria for the nomination with clear procedures were posted on SET's and GCC's website before the meeting date and the submission period was from October 1, 2020 to December 31, 2021.
- Nominated candidates or proposed agenda items will be considered under the criteria previously set. The Nomination and Remuneration Committee will screen the qualifications of the candidates and the Corporate Governance and Sustainable Development Committee will screen the agenda items to be included on the meeting agenda before submitting them to the Board for consideration. The Board will inform the shareholders at the AGM of the results of such consideration along with reasons. This year, no meeting agenda items or director nomination was received.

- The Board at Meeting No. 2/2022, on February 11, 2022 approved the date of the 2022 Annual General Meeting of Shareholders. Accordingly, GGC informed SET to disseminate the meeting's resolution on the date of the 2022 AGM, the record date and agenda items on the same day, about two months before the AGM.
- Appointing of proxies to attend the AGM and vote on shareholders' behalf: GGC delivered to shareholders proxy forms on which shareholders can mark their voting, "Approve", "Disapprove" or "Abstain" for each agenda item. Details on the independent directors' profiles are also attached for shareholders to consider as their proxies with detailed explanation, procedures, documentary evidence to be used for proxy identification for convenience in attending the meeting, in Thai and English. The AGM Invitation letter was delivered to shareholders by mail on March 1, 2022, or 21 days in advance.
- GGC has informed shareholders of the procedure on submitting the meeting attendance form for identification verification. Details on meeting attendance procedures via electronics media were attached to the meeting invitation letter in both Thai and English. Shareholders or proxies who are not GGC's independent directors and wish to attend the meeting via electronics channels can file for registration through the Meeting Attendance Registration system which will be opened from March 1, 2023 to the meeting date on April 1, 2023, until the end of the meeting. The system can support users via mobile phone, computer tablet, Android and iOS application, personal computer or notebook to facilitate shareholders and meeting attendants.

On the day of the meeting

- The 2022 AGM was held via electronics platform (E-AGM) in compliance with the Royal Decree on Teleconferences through Electronic Media B.E. 2563 (2020) and other applicable laws and regulations. Before proceeding with the meeting, the Chairman informed the meeting of the registration methods and process. Those entitled to attend the meeting will confirm their identification to receive user name and password as defined by GGC and detailed in the meeting invitation letter. The meeting attendants must also comply with the E-Meeting requirements and file for meeting registration.
- GGC's 11 directors attended the AGM, together with management, auditors, legal advisors, shareholders who volunteered as vote-counting witnesses and shareholders' rights protection volunteers to evaluate the meeting quality via E-AGM.
- Before starting the meeting, the Chairman explicitly explained the method of voting and counting procedures for each agenda and voting cards for each agenda item. Shareholders attending the AGM via mobile phones or or tablets can sign in the voting system at the link informed in the Chat channel via the Inventech Connect system. Voting through "Approve", "Disapprove" or "Abstain", will be conducted for each agenda item.

- The Chairman proceeded with the AGM under the agenda items, and shareholders were invited to ask questions and express opinions equitably. During each agenda item, shareholders or proxies could raise questions in advance by sending them via the Chat channel through the Inventech Connect system, and officers will gather and submit them to the Board for response. Shareholders can also raise questions through the Conference system. The Chairman of each subcommittee, the Managing Director, and the management team answered the questions raised by shareholders. Essential questions and opinions were recorded in the minutes of the meeting.

After the Meeting

- GGC disclosed the resolutions passed at the 2022 Annual General Meeting of Shareholders (AGM) and the voting - Approve, Disapprove, Abstain and Voided – and the results of every meeting agenda item through SET's portal once the meeting had ended. GGC prepared the minutes of the AGM, specifying the names of directors and management in attendance, as well as other relevant attendees, essential explanations, a list of questions and answers and a summary of opinions expressed, in Thai and English, and submitted these to SET and other applicable agencies within 14 days after the meeting, and posted them on GGC's website: www.ggcplc.com.

2. Equitable Treatment of Shareholders

GGC is committed to equitable treatment of shareholders, major or minor, Thai or foreign. GGC's equitable treatment of shareholders can be summarized below:

- GGC values all shareholders and has defined guidelines and best practices for the treatment of shareholders and published them on GGC's website to foster investors' and shareholders' confidence in equitable treatment and ongoing appropriate returns.
- Minor shareholders are invited to express their opinions, complaints and recommendations to GGC through the Board, the Chairman of the Corporate Governance and Sustainable Development Committee (independent directors) or the Corporate Secretary via GGC's website www.ggcplc.com under "Good Corporate Governance" or E-mail: ggcvoice@ggcplc.com. The Corporate Governance and Sustainable Development Committee will consider, screen and see that appropriate actions are taken. Institutional investors can request information or express their opinions via three channels: GGC's website under Investors Relations, E-mail at IR@ggcplc.com or phone: 02-558-7395, 02-558-7345. Securities analysts and fund managers can communicate via LINE for prompt and convenient reporting and responses.

3. Roles of Stakeholders

GGC values all groups of stakeholders and treats all equitably. The principles on the rights and impacts on stakeholders are compiled, and written best practices are formulated and posted on GGC's website. Communication channels are provided for stakeholders to send their opinions to the Company. The policies and best practices toward all groups of stakeholders and concrete implementation in 2022 are summarized as follows:

1. **Shareholders:** GGC respects the fundamental rights of shareholders and treats each shareholder equitably for his or her maximum satisfaction, including the right to participate in the Annual General Meeting of Shareholders (AGM), the right to vote, to propose meeting agenda items, and to nominate directors before the AGM. Shareholders can propose recommendations or views and are provided with contact channels via the GGC's website www.ggcplc.com and via E-mail at: ir@ggcplc.com.

Institutional investors and minor investors: GGC holds meetings on quarterly operational and financial results via Facebook live and Microsoft Teams, including Virtual Roadshow via online, and communicates through assorted activities. GGC participated in the Opportunity Day quarterly and in the online SET Digital Roadshow in collaboration with SET to provide channels for international institutions and minor investors to access information and contact with listed companies. In addition, in compliance with Investors Relations' ethics, GGC refrains from seeing any investor 14 calendar days before the date of GGC's announcement of corporate performance to safeguard confidential information not yet disclosed to the public.

Moreover, GGC's 2022 AGM was rated "Excellence" by the 2022 Annual General Meeting of Shareholders Quality Assessment, with a complete score of 100 for the fifth consecutive year.

2. **Customers:** GGC treats all its customers equitably and regularly disseminates information on its products and services through sales agents and media such as promotional articles, newsletters and GGC's website. The Company operates its business for the maximum satisfaction of customers and ensures that its products and services are safe and of acceptable standards. GGC also provides channels to receive opinions and complaints on its products and services to improve them. A third party was employed to conduct customers' satisfaction on GGC's products and services annually.

GGC conducts quality checks on its products and issues a Certificate of Analysis (COA) before delivering them to customers to ensure quality reliability for safe use in processes.

During the Covid-19 pandemic, the Company expressed its concerns and distributed to customers and government agencies the CHOB alcohol hand gel to promote hygiene and reduce Covid-19 transmission and to enhance good relations and best interests of customers. GGC regularly communicates and organizes activities with customers through sales agents and marketing campaigns, such as Thank You Party, in conjunction with GC Group of companies, and business relations activities.

Further, GGC has been prepared for the Personal Data Protection Act B.E. 2562 (2019). The Company has issued a Privacy Notice to protect customers' personal data and formulated a policy and set up a taskforce to define measures for the management and protection of customers' personal data in compliance with the Act. It has communicated with its stakeholders, users, and procurement personnel to ensure that they observe applicable laws and that there is no unreasonable profit from excessive pricing, or unfair terms.

3. **Suppliers:** The Company values and treats its suppliers as its stakeholders in a fair and transparent way to foster their confidence. Businesses are conducted with transparency, fairness and strictly under the agreed terms. GGC prepared the Supplier Code of Conduct and Procurement Ethics in line with the CG Handbook. In 2022 suppliers signed their signatures acknowledging the Supplier Code of Conduct as a commitment to conducting business consistent with GGC's direction. The Company has improved the supplier selection and registration process, setting selection, assessment and checking standards of suppliers, which are under the care of the Vendor Register Committee, as well as a process for checking and assessing suppliers annually. In addition, GGC holds a Supplier Visit program to visit key suppliers every quarter to foster relationship and sustainable business.

In addition, GGC has been prepared for the enforcement of the Personal Data Protection Act B.E. 2562 (2019) in its procurement process. Relevant documents and working manuals have been prepared in line with the act. Stakeholders, users and procurement personnel are informed to ensure that activities taken under GGC's procurement process are properly conducted and in compliance with applicable laws.

4. **Institutional Creditors:** GGC treats institutional creditors equitably and fairly. The selection of institutional creditors for the Company's financial support and loans are executed in a transparent and fair manner. Information disclosed to them are accurate, complete and timely. GGC also regularly held activities with institutional creditors to foster good relationship through activities. Implementation of this is captured below:
 - Specifications in selecting institutional creditors are fair and transparent, with Requests for Proposal (RFPs) prepared to specify information and GGC's needs to ensure that all banks receive equal information.
 - Prepared was GGC's financial status report in an honest, accurate and timely manner, including actual information on significant events which might affect GGC's financial status, with emphasis on fair, equal and transparent information disclosure.
 - Strictly complied with contracts, agreements and terms, and ensured that the payment of the principal together with interest were fully made and on time, and that financial statements under the terms of the contracts are regularly submitted.
5. **Business Competitors** To ensure that treatment of its business competitors complies with the international principles within the framework of the laws on trade competition and honoring of the rules on fair competition, GGC has defined business ethics for treatment of business competitors in line with such principles to promote fair, transparent and non-discriminatory competition. GGC does not take unfair advantage by seeking confidential information of business competitors in a dishonest or inappropriate manner. It will not damage the reputation of business competitors with malicious accusations.
6. **Public Sector:** GGC values the public sector and its agencies. It also defined and published in the CG Handbook guidelines for best practices for the treatment of the public sector and compliance with the laws, rules and regulations to avoid any action which might affect GGC. The Company is also committed to lawfully obtaining permits from applicable government agencies. GGC regularly supports public activities. Representatives of GGC participated in an activity under the concept of "Leaders and Counter-Corruption" as shown in the topic "Anti- corruption" to foster the confidence of GGC's commitment to conducting business honestly, transparently and accountably.
7. **Employees:** GGC focuses on developing employees' competency through knowledge-sharing activities to enhance knowledge in business operations. Also, knowledge promotion occurs via the LINE application, E-mail, external training, as well as preparation of assessment forms and participation in GGC Group's activities. In 2022 GGC implemented self-education systems, the GREEN E-learning, and Anytime, Anywhere Learning, which are accessible around the clock to ensure continued development of employees and enable them to educate themselves while working from home. GGC promoted the quality of the work environment for safety reasons, supported essential work materials for working

from home, and conducted a survey on the views of employees on various issues to understand their problems along with needs for further improvement and development. GGC also defined a policy on employee remuneration that reflects the Company's performance as well as a Talent and Succession Management system to prepare them for business growth in the country and abroad.

8. **Communities, Society and Environment:** GGC stresses implementation of social and community responsibility to foster confidence and trust among all stakeholders and regularly visits surrounding communities around GGC's facilities to implement CSR activities to jointly create shared values for the communities, society and the environment.

GGC has prepared an Integrated Sustainability Report (ISR) under a world-class sustainability report framework, which covers economic, social and environment issues, including matters of material impacts to the Company. Details are as shown in the 2022 Integrated Sustainability Report.

4. Disclosure of Information and Transparency

The Company appreciates the significance of disclosure of information and transparency and set this among best practices and included in the CG Handbook and published it on GGC's website for all shareholders and interested parties. GGC ensures that disclosed information is accurate, complete, sufficient, reliable and timely, and that the information which includes financial and non-financial data are disclosed in strict compliance with laws and applicable rules and regulations via the SET Link of the Stock Exchange of Thailand and GGC's website www.ggcplc.com. Investor Relations (IR) and Corporate Affairs and Corporate Secretary monitor information and handle queries. The actions taken are as follows:

Disclosure of GGC's material information in the 56-1 One Report:

- Financial data: This has been reviewed and audited for accuracy in line with accounting standards and approved by the Audit Committee and the Board before disclosure to shareholders and the public. To ensure transparency, the Board included the Responsibility for Financial Statements together with the report of the external auditor, which included connected transactions and Management Discussion and Analysis (MD&A) as well as financial risk management, in the annual 56-1 One Report.
- Non-Financial data: GGC disclosed GGC Group's business structure, which consists of the major shareholding structure and number of shares, institutional shareholder ratios, free-float ratios, reports on interests of directors and executives and those of parties related to GGC Group's business and management filed when they first took up the positions and with each change. This includes monthly shareholding reports and, at the year-end, internal control and risk management audit reports, the charter of each Subcommittee, declaration of independence of independent directors and performance reports of the subcommittees in the previous year.

Disclosure of GGC's material data in Thai and English is made through the following channels:

- SET Link of the Stock Exchange of Thailand
- GGC's website: www.ggcplc.com. Corporate information in both Thai and English is regularly updated and completely specifies formal communication channels of each department and director.
- Disclosure of information to all stakeholders through quarterly analyst meetings, roadshows, management meetings, E-mail and LINE application, etc.

GGC set up Investor Relations to centralize all its communication and disclosure of essential information to shareholders, institutional and minor investors, financial analysts and applicable supervisory authorities. Investor Relations ensures the quality of the financial reporting process, including material information which might impact the prices of securities, such as financial statements, performance presentations, quarterly/annual Management Discussion and Analysis (MD&A), which represent GGC's performance and outlooks, including information disclosed to the public via SET Link to local and foreign investors alike. In addition, the "Investor Relations Code of Conduct" was instituted to define roles and best practices of Investor Relations in its treatment of shareholders, as seen in the CG Handbook and on the Company's website.

In 2022 GGC executives regularly met shareholders, security analysts, investors and employees through various activities adapted to suit the New Normal, in order to present performance results, such as analyst meetings, roadshows, local and abroad, as follows:

Investors' Meeting	
Domestic Investors	2 times
SET Opportunity Day	4 times
Analyst Meeting	4 times
Teleconference	34 times
Information Disclosure	
Disclosure via SET Link and GGC's Website	99 times

This year, due to the Covid-19 situation, no institutional investors' meeting or analyst meeting was held at GGC.

GGC discloses information via www.ggcplc.com for other stakeholders equitably. Interested parties can access the information via channels provided below:

- 1) Mail : Investor Relations, Global Green Chemicals Public Company Limited,
555/1 Energy Complex Building A, 4th Floor, Vibhavadi Rangsit Road,
Chatuchak, Bangkok 10900
- 2) Phone : +66 (0) 2558-7395, +66 (0) 2558-7345
- 3) E-Mail : ir@ggcplc.com
- 4) Fax : +66 (0) 2558-7301
- 5) Website : www.ggcplc.com

Moreover, shareholders, investors and interested parties can contact the Corporate Secretary for enquiries about the Company and information on corporate governance and sustainable development at E-mail: corporategovernance@ggcplc.com.

5. Responsibilities of the Board of Directors

The Board has defined a policy concerning its responsibilities. In 2022 the Board's actions included:

(1) Definition of policies, business strategies and directions

The Board considers, reviews and establishes operational policies, vision, mission, work plans, budgets and organizational development strategies in line with evolving business situations, defines business indicators and goals, provides recommendations for management to achieve goals, and assigns the Managing Director to regularly report to the Board. The Board also annually holds a meeting to consider long-term (8-year) corporate directions and strategies.

(2) Corporate Governance and Code of Business Conduct

The Board established a policy on corporate governance for directors, management and employees to observe as guidelines for the operations of GGC Group to ensure standards, transparency, efficiency and accountability of operations, based on business ethics and integrity and taking into account equitable benefits and rights of all stakeholders. Corporate Affairs and Corporate Secretary has been assigned as the central unit to oversee related matters. Details of corporate governance compliance appear under "Corporate Governance".

Since the fourth quarter of 2019, all directors, management and employees have signed on the Acknowledgment and Conformity Form as agreement to adopt the principles, policies and ethics in the "Corporate Governance and Business Code of Conduct Handbook" in their conduct of business.

In 2022 the Board at Meeting No. 14/2022 on December 14, 2022, approved the revised and updated CG Handbook to be more in line with the rules and best practices of local regulatory bodies, international standards, applicable laws and SEC's and SET's criteria, as well as practices of PTT Group companies to ensure that the CG Handbook is up to date and in line with GGC's business strategies and directions as well as local and international CG codes.

(3) Internal Control and Internal Audit

The Board values internal control and internal audit systems and has mandated that GGC Group be equipped with a standardized internal-control system aligning with its risk appetite by considering appropriate control environment factors. Internal Audit has been tasked with the review of the systems and monitoring of the implementation and is to report the progress to the Audit Committee and the Board to ensure that GGC can achieve its goals on operations, reporting and compliance with applicable laws, rules and regulations to foster stakeholders' confidence. Details appear under "Internal Control".

(4) Risk Management

The Board, in accordance with the stipulated roles, duties and responsibilities of the Board of Directors, identifies key risks and formulates comprehensive risk management guidelines. The Risk Management Committee defines a risk policy, monitors and promotes the efficiency of GGC Group's risk management, identifies significant risks, formulates action plans, monitors, assesses and improves risks to match the risk appetite and reports progress of the risk management to the Board. Details appear under "Risk Management".

(5) Conflicts of Interest

GGC takes very seriously the policy on conflicts of interest and has included it in the “Corporate Governance and Business Code of Conduct Handbook”. The policy prohibits directors, management and employees from exploiting their positions for personal gain which might lead to transactions of conflicts of interest with GGC. If the transaction is necessary, directors, management and employees with such transactions must refrain from participating in the approval process for transactions defined as connected transactions under SEC’s and SET’s notifications and criteria. GGC also prohibits and regularly warns its directors, management and employees against abusing their positions in trading GGC stocks or disclosing inside information (still under consideration) to others for personal gain in trading GGC stocks. Moreover, directors and executives from the vice president level up and those in finance-related positions under SEC’s criteria must submit reports on their interests or those of their related persons. All employees are also required to report their conflicts of interest via GGC’s intranet annually or file such reports promptly upon potential conflicts of interest concerning any consideration process or decision-making on GGC’s projects.

Key implementations under the four CG Principles

1. Prevention of Conflicts of Interest

In 2022 GGC’s actions in preventing conflicts of interest are summarized as follows:

- (1) Followed up on GGC Group executives’ and employees’ annual reports on conflicts of interest via GGC’s system. All duly submitted their reports.
- (2) Improved the Connected Transactions Manual for GGC and GGC Group to ensure that transactions between them are conducted and disclosed under SEC’s and SET’s criteria in the best interests of the companies and all stakeholders, and that they must refrain from being part of or involved in any conflicts of interest and ensure clear and transparent operation in the best interests of GGC Group.

2. Abuse of Inside Information

The Board has developed a policy on the use of inside information and included it in the CG Handbook, disclosed it on GGC’s website for investors’ information, and disseminated it among directors, management, and employees to observe and refrain from exploiting material inside information not yet disclosed to the public for personal or others’ gain, including GGC’s securities trading. Details of the policy are under “CG Policy and Practices”.

In 2022 there was no report on GGC’s Directors or Executives’ securities trading during blackout periods. Changes in securities holdings of the Directors and Executives, their spouses and minor children, are disclosed under “Board of Directors” and “Management”.

3. Anti - Corruption

GGC manages its operations with corporate governance and emphasis on transparency, honesty and integrity and in a responsible manner for society, environment and all stakeholders, and with strong intention against all forms of fraud and corruption, bribery to domestic and international government officers, or officers of private agencies. It supports and promotes all employees' awareness of all forms of fraud and corruption. The Company has improved and developed its business guidelines and practices in greater compliance with the laws and CG as follows:

- **CAC Certification:** GGC joined Thailand's Private Sector Collective Action against Corruption (CAC) in declaring its intention against all forms of fraud and corruption in 2017 and became CAC's certified member in 2018. As suggested by the CAC Council during the first quarter of 2019, GGC improved its risk management and internal control of anti-corruption to make it more effective. GGC's improvement followed CAC's procedures to completion, and the Board accordingly submitted to CAC for re-certification. In 2021 its CAC membership won the first recertification on March 31, 2021 for a three-year period to March 30, 2024.
- **Legal and Compliance Division:** In 2022 Legal and Compliance Division managed risks arising from non-compliance or violation of corporate rules and regulations by communicating with all departments through training and other media so that employees are aware of legal consequences from such actions as well as laws, rules and regulations concerning their performance. Legal and Compliance also improved the Company's rules to be more concise and with adequate monitoring. It communicated the revised rules to concerned employees to ensure their strict compliance with laws and GGC's rules and regulations.

4. Whistleblowing

GGC values all stakeholders' roles and participation in monitoring the business when confronting actions against the Business Code of Conduct, fraud and corruption, or any misconduct. They can forward tips or evidence or complaints directly to the Vice President of Internal Audit, or the Corporate Secretary, or to other channels provided below:

1. Vice President of Internal Audit, or Corporate Secretary	Corporate Secretary or Vice President of Internal Audit, 555/1 Energy Complex Building A, 4th Floor, Vibhavadi Rangsit Road, Chatuchak District, Bangkok 10900
2. E-mail	GGCVoice@ggcplc.com
3. Website	www.ggcplc.com (under Corporate Governance section)

In addition, to facilitate the handling of complaints, the Company has grouped complaints into: 1) complaints about Corporate Governance and the Code of Business Conduct, and 2) complaints about stakeholders.

Process under the Whistleblower Policy

- **Filing a Complaint:** Anyone who witnessed unethical business behavior or illegal misconduct can file a complaint to the Company through GGC's designated channels above.
- **Complaint Registration and Investigative Process:** The Corporate Secretary is responsible for registering complaints and forwarding them to Internal Audit or responsible departments for investigation and factfinding.
- **Confidentiality and Whistleblower Protection:** Names and other related information of the whistleblowers will be kept confidential for their protection.
- **Response:** A response will be made to the whistleblowers, informants or stakeholders who have stated their contact addresses in their complaints. Actions will be reported to the Corporate Governance and Sustainable Development Committee and the Audit Committee for their acknowledgment.

The Company commands measures to protect whistleblowers and informants who contribute to the examination and investigation. They will be protected under the whistleblowing criteria and policy as follows:

1. Whistleblowers, stakeholders or informants who cooperated in goodwill in every step of the examination and investigation process will be put under protection and non-retaliation.
2. Information on whistleblowers or related persons will be kept confidential as classified by GGC on Information Confidentiality Classification and Document Security.
3. Whistleblowers or the affected parties will be duly compensated under GGC's process.

GGC has put in place a Whistleblowing Procedure to keep all complaints in one place with standardized registration numbers and will be separated according to the defined categories to facilitate handling.

In 2022 no complaint was received.

In addition to the above-mentioned corporate governance compliance, GGC values information technology governance (IT Governance).

IT Governance

GGC uses IT services (Share Services) of PTT Global Chemicals Plc (GC). The services are provided for GC Group of companies under GC's management system framework, relying on Integrated Management System, COBIT 5 (IT Framework), TQA (Thailand Quality Award) and GC Way of Conduct to define IT standards with emphasis on key aspects in the information system, such as information quality, security and readiness, hardware and software specifications, cybersecurity, and information readiness in emergency situations. The IT service provider has divided IT management into three levels:

Governance

- GC Group's Digital and IT Steering Committee (DISC), chaired by the GC CEO and President, defines GGC Group's policy directions and digital goals to ensure its alignment with international standards, and comparable with international leading peer companies.
- The Information Security Management System Committee (ISMS Committee) monitors and oversees information security, cybersecurity, and Cloud security consistent with international standards.
- The Enterprise Architecture Committee (EA Committee) considers the corporation's IT management structure consistent with the needs and modern, international standards in the best interests of the application.
- The Chief Information Security Officer (CISO) defines a security policy and goals consistent with strategic plans, develops a policy, procedure and standards for information confidentiality, integrity and availability, coordinates IT control and reports cyber threats to top executives and to the National Cyber Security Agency (NCSA).

Management

- Formulate information management policies for information security (IS), cybersecurity, Cloud security, service level agreements, secure system development life cycle (SSDLC), and data protection.
- Adopt the ISO Series (ISO 27001, ISO 27701 and ISO 22301) and NIST Cybersecurity Framework as frameworks in the operation and control of users to ensure accuracy, precision and readiness of the information. External and internal tracking systems are installed to track and review the processes to ensure that the information are correct, reliable and stable.

Operation

- Define systems, procedures and services for users to comply with, announce and store these on the internet for users' additional study, and distribute IT news via e-mail monthly and immediately in case of emergencies.
- Monitor the progress of implementation, the findings from which will be used to improve IT management and services, improve and update IT security. Regularly report progress of the implementation to responsible management and the committee.
- Raise awareness among users and regularly organize training on information security for them to mitigate the risk of cyberattacks and threats from malicious persons. Users must take a test on information security awareness. If they fail, responsible units will report the results to their superiors for acknowledgement.
- Conduct an IT resource risk assessment annually to ensure the adequacy of the resources to guard information and maintain the accuracy, reliability, stability and currency of the information.

Furthermore, in the management of IT, the service provider and GGC have jointly taken actions which can be summarized as follows:

- Information Security: Established an information security management system based on ISO 27001 as the operational framework. The system relies on a Real-Time Monitoring system to review risks of threats on information system monthly.
- Information Readiness: Prepared a plan on GGC's use of information consistent with its strategic plans by conducting a survey on the needs of all groups used for an IT strategic plan. For an emergency situation, GGC has a DR Site for 24-hour storage of critical information which can be immediately recovered and used. An IT Disaster Recovery Plan (IT-DRP) consistent with Business Continuity Management (BCM) (ISO 22301) has been put in place. Work procedures have been prepared to cope with emergencies which might affect essential information systems. GGC conducted a related emergency drill annually.
- Hardware and Software Specifications and Standard Control: A policy on specifications and standard control was formulated which covers, for example, replacement of IT equipment every three years, quarterly preventive maintenance, and installation of an around-the-clock server-tracking system which will send out an SMS and an e-mail to the controller for immediate problem-solving. Scanning for vulnerabilities in the computer system is conducted, and any vulnerabilities which might expose GGC to threats will be cleared annually, an anti-virus program was installed at the server and clients' machines. The program is regularly updated and the data backed up daily, weekly and monthly.
- Security and Safety Maintenance: To manage many security and safety measures, such as identification of key Information Asset through ISO 27001 and ISO 22301, assessed risk to define safety plans, defined a policy, prepared manuals, installed protection systems and set up a Cyber Response team responsible for cyber attacks, including examination of damage and restore the system under the procedures on cyber response. Finally, promoted a Cyber Security culture and awareness among employees.

9. Internal Control and Connected Transactions

9.1 Internal Control

GGC values an internal-control system under the international standard of The Committee of Sponsoring Organizations of the Treadway Commission (COSO) or COSO Internal Control of 2013 in pursuit of its objectives of efficient operations, accuracy and completeness of reports, and full compliance with applicable laws and regulations. These would ensure righteous and transparent business in line with its objectives.

At Board of Directors Meeting No. 2/2023 of February 10, 2023, the Board assessed GGC's internal-control system. Consideration was given to management's SEC's assessment findings on the adequacy of the system and the Audit Committee's report of its review on such adequacy. The Board's view was that the system was both adequate and appropriate. To elaborate, GGC had assigned a unit to monitor the efficiency of the system for efficient implementation as well as for accurate and credible reports so that GGC may comply with applicable laws and regulations. The other purpose is to sufficiently prevent company assets from malfeasance of authorized officers and related parties as well as transaction engagement with parties of conflicts and connected parties. Internal Audit reviewed the corporate internal-control system against its risk-based audit plans, making several recommendations for improvement. Management took these to heart and accelerated corrective actions without finding significant deficiencies in the system that could affect GGC's key objective achievement.

GGC has adopted COSO's internal control framework of five elements:

- 1) Control Environment
- 2) Risk Assessment
- 3) Control Activities
- 4) Information & Communication
- 5) Monitoring and Reporting Activities

In 2022, GGC improved its processes and systems to increase its efficiency of internal control to strengthen the governance process and to identify risks and issues efficiently and rapidly. GGC's internal-control system is summarized below.

Control Environment

The Board and Executives ensure that GGC operates its businesses based on righteousness and business code of conduct while cultivating among its personnel corporate values in support of the corporate culture that focus on integrity, ethics, and responsibility. GGC is committed to providing a good, appropriate, and efficient control environment as follows:

- The Board works independently of management in overseeing GGC's overall business and comments on its strategic directions to guide business plans and action plans. At the same time, the Board regularly monitors GGC's performance and the performance of subcommittees to ensure achievement of goals.

- GGC has amended and approved the corporate structure as business groups and functions with common goals in line with its growth. This allows for efficient, transparent, and uniform business implementation for the entire group. Checks and Balances and alignment result from segregation of duties in key functions. Duties, responsibility, and delegation of authority are defined under the corporate structure, which is communicated to employees to be aware of their own roles, authority, duties, and responsibility.
- The Board has defined policies on corporate governance and compliance, internal control, and anti-corruption and guidelines for the Board, Executives, and employees to abide by performing their duties. It also distributed the Corporate Governance and Business Code of Conduct Handbook with the communication for their acknowledgment and signature as a pledge by all across GGC Group to accept as work guidelines under good corporate governance.
- GGC has set a Whistleblower Policy, stating procedures for the complaint scope and adding complaint channels for diversity, including whistleblower protective measures and fair, transparent treatment of whistleblowers. These establish credibility for the whistleblower system and the complainant's confidence.
- GGC has educated its employees to raise awareness of corporate governance, business ethics, conflicts of interest, and anti-corruption through communication channels every month. Senior executives and employees participated in training on corporate governance and compliance.
- GGC's corporate culture is engrained for employees' awareness of ethical business conduct and alignment with good practices through emphasis on examples of behavior and illustrate key behavior across the corporation to guide all employees.
- GGC's human resource management process defines the qualifications of each job position in line with the criteria for personnel recruitment and selection. It provides knowledge and skill development for staff, with close monitoring and fair, transparent appraisal of their performances.
- The Board has defined policies on internal control for the Board, executives, and employees to become aware of its importance and to observe in performing their duties to achieve its objectives and goals. GGC adopted the Three Lines of Defense Model, an internationally accepted model, as a framework in overseeing and defining the role and duties of the operators of the organization, that is, the process owner or risk owner (1st Line of Defense) who performs duties under GGC's policy and guidelines with Corporate Risk Management and Internal Control and other supporting units (2nd Line of Defense) providing advice and recommendations and supporting other units for systematic operation consistent with the standard. Internal Control (3rd Line of Defense) reviews and independently provides opinions on the findings of the adequacy and efficiency of the internal-control system or other measures defined for the risk management by process owners or risk owners and supporting units, to strengthen risk monitoring and management.

Risk Assessment

GGC focuses on promoting the corporate risk management culture by promoting such management as part of employees' responsibilities. It also values such management by linking their assessment to strategic plan formulation and that of short-term and long-term business plans. Appointed by the Board, the Risk Management Committee (RMC) devises and reviews policies, objectives, risk management scopes, monitoring and evaluation of compliance with the scopes, and giving opinions and recommendations on GGC's corporate risk management and project investment risks. The Enterprise Risk Management Committee (ERMC), chaired by the Managing Director, ensures that GGC manages its risks efficiently, leading to the achievement of business goals. Below are GGC's risk management approaches:

- The Board and the RMC focus on promoting the risk management corporate culture by defining a policy requiring everyone to become aware of and understand risk management as part of the culture, comply with the risk management policy, and make risk management everyone's mandate.
- GGC promotes the knowledge and understanding of corporate risk management by training with experts on enterprise risk management, involving the Board, Executives, and all level of employees by setting risk management as part of everyone's job description.
- GGC defines clear objectives and goals linking to its vision and mission.
- GGC manages enterprise risks under the International Organization for Standardization (ISO) or ISO 31000: 2018 - Risk Management scope and COSO Enterprise Risk Management guidelines (2017) and institutes a risk management policy for all.
- GGC carries out the risk profiling process to identify, analyze, and assess risks at the corporate and unit levels that could compromise enterprise goal achievement, embracing year-round risks, and specifies risk mitigation plans to systematically manage risks.
- GGC assesses risks by recognizing changes in factors and emerging risks, monitors the management of corporate risks against GGC's risk appetite, and defines Key Risk Indicators (KRIs) to track changes that may hinder the achievement of objectives, with a quarterly submission of risk management reports to ERMC for acknowledgement and reporting to the Board and the RMC every quarter.

Control Activities

GGC has control activities spanning all major processes, including risk management, to mitigate risks that may hinder the achievement of objectives:

- GGC has designed its control activities with due regard for good internal control principles. These include segregation of duties and systematic authorization of approval to groups of employees for checks and balances, also policies and good practices for conflicts of interest transactions. In addition, GGC's transactions have been conducted in a transparent, fair and auditable manner. Approval of transactions takes into account GGC's utmost benefit.
- GGC established written rules and regulations, requirements, corporate policies, and job manuals, which define the scopes of authority and duties of the Managing Director, executives, and employees by level along with clear work procedures as guidelines for their job performances. GGC also regularly reviews to ensure that business has been conducted in compliance with rules and regulations, requirements, corporate policies, and job manuals.

- GGC specified preventive and mitigation plans in line with risk assessment outcomes to manage risks at GGC's risk appetite level. It monitors and reports the implementation of these plans to the RMC and the Board for acknowledgement.
- GGC commands internal control of processes, both by the processes set out in the manual control system and by automated control systems defined in the automated control system for greater efficiency of business conduct as well as more careful and accurate internal control, including a process to manage feedstock and goods inventory together with a system to record and store inventory items. Both controls represent preventive control and detective control.
- GGC reviews IT-based control activities, including an authorization matrix based on duties and responsibility, meaning the management of access to information safely and the ability to efficiently keep critical data. GGC also devises requirements for the IT security policy to ensure that IT system is appropriate, efficient, and secure, without interruption.
- GGC puts in place processes to supervise its invested affiliates in individual businesses so that subsidiaries and associates may have compatible business guidelines that comply with GGC's policies, guidelines, and strategic directions while being able to track the work of these subsidiaries and associates regularly and continually.
- In 2022, GGC relentlessly improved its internal-control system embracing key processes across the corporation by clearly assigning responsible parties and improvement plans. Progress has been evident. Internal Control has also closely monitored these improvement steps and regularly reported updates to subcommittees as seen fit. In addition, the integrated Governance, Risk Management & Compliance (GRC) taskforce implemented the plans for communication and education on the significance and revision of key processes to drive GGC's governance development, raise the efficiency of planning, monitoring, and assessment under sufficient internal control to achieve strategic goals

Since GGC is an affiliate of PTTGC (GC), it was directed to follow the GC Way of Conduct, which is PTTGC's guidance for conduct and affiliate supervision. GGC itself has followed suit. In 2022, GGC has defined a GGC Way of Conduct for its own affiliates and communicated it to internal units and subsidiaries as well as assessing the operations of affiliated companies in which GGC holds shares.

Information & Communication

GGC values the quality of information and communication. Internal and external channels are provided for employees to access the information required for their efficient operation as follows:

- GGC prepares various reports for submission to the Board by including analyses of important data from internal and external sources, showing changes, trends, sales performance, production outputs, and inventory in support of presentations, including financial statements and performance reports. The Company prepares supporting adequate data for the Board's decision-making. Meeting documents are sent ahead of Board meetings for their analysis and decision-making. The Board can request additional information from applicable units in support of their deliberation.

- Diverse elements of the internal communication process are provided, taking into account their compatibility with the types of data and communication objectives. GGC's business directions, goals, and key policies are communicated through the MD Town Hall, cross-functional team meetings, G-HC Communication activities, GGC's intranet and e-mail, and through GRC News.
- GGC disseminates its information to various stakeholders, including communication through its website. Investor Relations and Management Accounting and Sustainable Development and Corporate Image are responsible for information dissemination.

Monitoring and Reporting Activities

In ensuring the adequacy and efficiency of internal control, GGC undertakes the following monitoring and assessment processes:

- GGC has put in place a Risk and Control Self-Assessment (RCSA) process to assess risks at unit level. Corporate Risk Management and Internal Control review the adequacy and appropriateness of the assessment and provides advice for the improvement of deficiencies detected in the internal-control system, and reports to management as deemed fit.
- GGC assigned a unit to take charge of managing internal control to support management's assessment, development, implementation, and review of the adequacy and appropriateness of the system as well as giving opinions about the 2nd Line of Defense. The outcomes of internal-control assessment are reported to the management committees to ensure efficient internal control.
- Independent Internal Audit, reporting direct to the Audit Committee, performs audit duties to ensure sufficiency, suitability, and consistently practiced internal control. To this end, the unit audits and assesses internal control under various activities against the audit plan approved by the Audit Committee, which conforms to GGC's strategic directions and key risks affecting operations. At the same time, it provides recommendations for high efficiency of internal control. Jointly with management, it defines guidelines for internal-control improvement. Internal Audit reports its findings to the Audit Committee and submits reports on the progress of implementation under the audit plan to the committee each quarter. Assessment findings on accounting and finance are provided by the external auditor, who presents its findings and reviews to the Audit Committee quarterly and annually.
- GGC secured the membership status of CAC (Private Sector Collective Action against Corruption) and must review its status every three years to report its assessment findings, which is signed by the Audit Committee to guarantee the existence of policies, guidelines, and measures for risk assessment and corruption prevention. GGC's mandate is to run its business in line with CAC's corporate governance code.

In 2022, GGC assessed its internal control under the five internal-control components. The findings indicated no material shortcomings in GGC's transactions or items that may involve conflicts of interest, corrupt practices, or violation of laws on securities and exchange, SET regulations, or other applicable laws.

9.2 Connected transactions

For Fiscal Year 2022, GGC conducted business transactions with various companies with common shareholders or directors. In the absence of reference market prices, connected transactions with entities of potential conflicts of interest are based on market or contractual prices. Details of the relationship with these companies are as follows:

Company	Relationship (As of December 31, 2022)	Connected Transaction	2020	2021	2022
(Million THB)					
PTT Public Company Limited (PTT)	• Major shareholder of GC holding 47.68% shares	Statements of Income			
		Sales of goods and services	-	-	-
	• Director and PTT executive: 1. Mr. Kongkrapan Intarajang	Purchase of goods or services	1	168	1
		Other income	-	-	-
	• Sales/purchase transactions of products and services	Other expenses	5	3	-
		Financial Statements			
		Trade payables – related business	-	-	-
		Other payables – related business	3	2	-
		Financial lease liabilities – related business	-	-	2
PTT Global Chemical Public Company Limited (GC)	• Major shareholder of GC holding 72.29% shares	Statements of Income			
		Sales of goods and services	1,574	1,792	2,700
	• Common director: 1. Mr. Kongkrapan Intarajang	Purchase of goods or services	186	163	177
		Other income	-	-	-
	• Directors who are GC executive: 1. Mr. Kongkrapan Intarajang	Other expenses	80	74	68
		Interest payment	11	8	9
	2. Mr. Varit Namwong	Financial Statements			
		Trade receivables – related business	109	155	147
	3. Mr. Piroj Samutthanont (Directorship terminated from December 31, 2022 onward)	Other receivables – related business	16	1	-
		Trade payables – related business	9	7	13
	• Sales/purchase transactions of products and services	Other payables – related business	24	35	22
		Payables to contractors	1	-	-
		– related business			
		1-year term of financial lease liabilities – related business	19	15	21
		Financial lease liabilities – related business	286	253	236

Company	Relationship (As of December 31, 2022)	Connected Transaction	2020	2021	2022
(Million THB)					
GC Glycol Company Limited (Glycol)	- GC wholly owns the company - Sales/purchase transactions of products and services - Registered for dissolution on August 31, 2022	Statements of Income			
		Sales of goods and services	-	2	2
		Purchase of goods or services	-	1	1
		Other expenses	2	9	-
		Interest payment	1	1	5
		Financial Statements			
		Other payables – related business	1	4	-
		1 – year term of financial lease liabilities – related business	9	8	-
		Financial lease liabilities – related business	20	7	-
Solution Creation Company Limited (SUN)	- GC wholly owns the company - Sales/purchase transactions of products	Statements of Income			
		Sales of goods and services	30	62	83
		Other income	-	-	2
		Financial Statements			
		Trade receivables – related business	6	15	3
Global Power Synergy Public Company Limited (GPSC)	- PTT holds 47.27 %, GC holds 10.00%, and TOP holds 10.00% shares - Common director: 1. Mr. Kongkrapan Intarajang - Service transactions	Statements of Income			
		Purchase of goods or services	481	427	665
		Financial Statements			
		Trade payables – related business	40	42	68
GC Maintenance and Engineering Company Limited (GCME)	- GC wholly owns the company - Service transactions	Statements of Income			
		Purchase of goods or services	62	88	87
		Other expenses	-	1	1
		Financial Statements			
		Trade receivables – related business	-	-	-
		Other payables – related business	23	26	27
		Payables to contractors – related business	9	-	2
GC Logistics Solutions Company Limited (GCL)	- GC wholly owns the company - Service transactions	Statements of Income			
		Purchase of goods or services	-	-	1
		Other expenses	17	13	25
		Financial Statements			
		Other payables – related business	3	3	7
		Payables to contractors – related business	-	1	1

Company	Relationship (As of December 31, 2022)	Connected Transaction	2020	2021	2022
(Million THB)					
Thai Tank Terminal Company Limited (TTT)	- GC holds 36.43% shares (GC shareholding in TTT, as its subsidiary changed to shareholding in a joint venture) - Service transactions	Statements of Income			
		Purchase of goods or services	-	-	-
		Financial Statements			
		Other payables – related business	-	-	-
PTT Digital Solution Company Limited (PTT Digital)	- GC holds 40%, PTT holds 20%, TOP holds 20%, and PTTEP holds 20% shares - Service transactions	Statements of Income			
		Other expenses	7	13	4
		Financial Statements			
		Other payables – related business	2	2	9
		Payables to contractors – related business	-	-	1
NPC Safety and Environmental Service Company Limited (NPC)	- GC wholly owns the company - Service transactions	Statements of Income			
		Purchase of goods or services	19	18	22
		Other expenses	-	4	2
		Financial Statements			
Dhipaya Insurance Public Company Limited (DHIPAYA) Until August 2021	- PTT holds 13.33% shares - Service transactions	Statements of Income			
		Purchase of goods or services	21	22	-
		Other income	2	-	-
		Financial Statements			
		Other receivables – related business	22	-	-
Thai Oil Public Company Limited (TOP)	- PTT holds 45.03% shares - Sales/purchase transactions of products and services	Statements of Income			
		Sales of goods and services	1,813	2,643	2,531
		Other income	-	-	-
		Financial Statements			
		Trade receivables – related business	146	198	94
PTT Oil and Retail Business Public Company Limited (OR)	- PTT holds 75% shares - Sales/purchase transactions of products	Other receivables – related business	-	-	-
		Other payables – related business	-	-	-
		Statements of Income			
		Sales of goods and services	6,465	4,144	3,006
		Purchase of goods or services	58	105	131
		Other income	-	-	-
		Financial Statements			
		Trade receivables – related business	342	270	147
		Trade payables – related business	8	13	13
		Payables to contractors – related business	-	-	-

Company	Relationship (As of December 31, 2022)	Connected Transaction	2020	2021	2022
(Million THB)					
Energy Complex Company Limited (ENCO)	- PTT holds 50% shares and PTTEP (in which PTT holds 63.79% shares) holds 50% shares - Service transactions	Statements of Income			
		Other expenses	8	9	10
		Financial Statements			
		Other receivables – related business	-	3	3
		Other payables – related business	-	-	1
		1 – year term of financial lease liabilities – related business	3	-	4
		Financial lease liabilities – related business	-	-	2
IRPC Public Company Limited (IRPC)	- PTT holds 45.05% shares - Sales/purchase transactions of products and services	Statements of Income			
		Sales of goods and services	562	1,578	1,552
		Financial Statements			
		Trade receivables – related business	39	66	19
Business Services Alliance Company Limited (BSA)	- PTT wholly owns the company - GC holds 25% of the preferred stocks - Service transactions	Statements of Income			
		Purchase of goods or services	2	2	2
		Other expenses	11	12	12
		Financial Statements			
TOP Solvent Company Limited (TS)	- Subsidiary of Thaioil Solvent Co., Ltd.(TOS), a subsidiary of TOP (in which PTT holds 45.03% shares), wholly owns this company - Sales/purchase transactions of products	Statements of Income			
		Sales of goods and services	-	-	-
		Financial Statements			
		Other payables – related business	3	4	3
NPC S&E Security Guard Company Limited (NPCSG)	- NPC wholly owns the company - Service transactions	Statements of Income			
		Purchase of goods or services	7	7	7
		Other expenses	1	-	-
		Financial Statements			
		Other payables – related business	1	1	-
Advanced Biochemical (Thailand) Company Limited (Advanced Biochemical)	- AGC Vinythai Public Company Limited (in which GC holds 32.72% shares) owns this company - Sales/purchase transactions of products	Statements of Income			
		Sales of goods and services	344	824	1,165
		Financial Statements			
		Trade receivables – related business	30	163	44

Company	Relationship (As of December 31, 2022)	Connected Transaction	2020	2021	2022
(Million THB)					
PTT International Trading Pte. Ltd (PTTT)	- PTT wholly owns the company - Sales/purchase transactions	Statements of Income Purchase of goods or services Financial Statements Trade payables – related business	33	-	-
GC Polyols Company Limited (GCP)	- GC holds 82.1% shares - Purchase transactions of products or services - Common director: 1. Mr. Varit Namwong	Statements of Income Sales of goods and services Financial Statements Trade receivables – related business	7	85	117
Emery Oleochemicals LLC (EOMUSA)	- Emery Oleochemicals (M) Sdn. Bhd (in which GC holds 50.00% shares) wholly owns this company - Purchase transactions of products	Statements of Income Sales of goods and services Financial Statements Trade receivables – related business	11	29	80
PTT Phenol Company Limited (PPCL)	- GC wholly owns the company - Purchase transactions of products or services	Statements of Income Sales of goods and services Other income	-	-	-
GC Oxirane Co., Ltd. (GCO)	- GC wholly owns the company - Purchase transactions of products or services	Statements of Income Sales of goods and services Other income	-	-	-
GC Estate Company Limited (GCEC)	- GC wholly owns the company - Service transactions	Statements of Income Other expenses Financial Statements 1 - year term of financial lease liabilities – related business Financial lease liabilities – related business	1	2	3
PTT Asahi Chemical Company Limited (PTTAC)	- GC holds 50% shares - Purchase transactions of products or services	Statements of Income Sales of goods and services Financial Statements Trade receivables – related business	-	-	76
Kuraray GC Advanced Materials Company Limited (KGC)	- GC holds 33.40% shares - Purchase transactions of products or services	Statements of Income Sales of goods and services Financial Statements Trade receivables – related business	-	-	6
AGC Vinythai Public Company Limited (AVT)	- GC holds 32.72% shares - Purchase transactions of products or services	Statements of Income Purchase of goods or services	-	-	1
Eastern Fluid Transport Company Limited (EFT)	- GC holds 15% shares and TTT holds 15% shares - Service transactions	Statements of Income Purchase of goods or services Financial Statements Financial lease liabilities – related business	-	-	1

Justification and Sensibility of Connected Transactions

GGC's connected transactions for the fiscal year ended on December 31, 2022, were undertaken in the course of normal businesses in line with the general business terms and fair price, without siphoning of benefits, as reasonable people would do with contractual partners under similar circumstances at arm's length.

In engaging in connected transactions where GGC produced for related companies, the objectives were to enable the buyers to process or make their own products. To this end, GGC's prices aligned with contractual formulas or market prices (as applicable), which had considered both contractual parties' interests and were referenced to market prices without siphoning of mutual benefits or irregular items.

Similarly, service transactions with related companies were meant for related companies to carry out day-to-day businesses. The rates of service fees were subject to market conditions, which had considered both parties' interests and referenced to market prices without siphoning of mutual benefits or irregular items.

Finally, purchases of goods, feedstock, or services (or all of these) from related companies were performed in the normal course of business. The volumes of such goods, feedstock, or services aligned with GGC's demand and business operations, and their prices were subject to contractual agreements that benefited both parties without siphoning of mutual benefits or irregular items. In addition, GGC needed to lease certain real-estate items from related companies, including office buildings and land, for which it had examined the need for each type of real estate in its own best interests without siphoning of mutual benefits.

Measures and Approval Procedures for Connected Transactions

To engage in transactions with related parties, GGC reviews the suitability of all transactions and set prices and terms on an arm's length basis.

When GGC or its subsidiaries have engaged in connected transactions under applicable Stock Exchange of Thailand (SET) and Securities and Exchange Commission (SEC) notifications on information disclosure and actions by listed companies on related-party transactions, the Board of Directors strictly ensures that such actions strictly abide by the criteria, conditions, and procedures of the notifications. The Board of Directors also discloses the transactions in GGC's 56-1 One Report for the transparency of related-party transactions and to eliminate conflicts of interest.

If a GGC director buys or sells its properties or engages in business with it by himself or herself or on behalf of other parties, GGC's Articles of Association clearly state that the transaction must secure a prior consent from the Board of Directors before its binding on GGC. At any rate, any director with vested interests in buying or selling properties or engaging in any business with GGC is barred by the Articles of Association from voting on such matter.

Apart from the approval of the Board of Directors, if the engagement of GGC or that of its subsidiaries in related-party transactions or actions result in the acquisition or sale of their significant assets, under the criteria of SEC notifications on related transactions of listed companies or the acquisition or sale of assets of listed companies, GGC or its subsidiaries (or both) must conform to the rules and procedures under such announcements. The Audit Committee must express its views on the measures or procedures for the engagement in connected transactions. If the committee has a dissenting opinion, they must state it.

The Company has put in place control measures over connected transactions to control, audit and execute random checks of actual transactions' conformance to contracts, policies, or terms. Any transactions with related parties must be undertaken for regular businesses. To this end, the volumes of goods or feedstock traded, or services received by GGC from such related parties, must match its needs and business operations. In addition, the prices, as well as the giving or acceptance of services by related parties, must conform to contractual provisions and benefit the businesses of both GGC and the related parties without siphoning of such benefits or any irregular items. Moreover, Internal Audit scrutinizes the movements to ensure that GGC has already set out control measures for such connected transactions in line with the regulations and under the internal audit plan. The progress is regularly reported to the Audit Committee.

Opinion of Independent Directors

No different opinion from the views of the Board of Directors.

Policy or Trends of Connected Transactions

As previously done, future transactions involving GGC are to be conducted as in the normal course of business without irregular items or siphoning of benefits between itself and related parties. The pricing policy between GGC and related parties is to be based on the same prices under the normal business as for third parties. The prices of goods or feedstock bought from the Company or related parties are to align with contracts or with market prices for such feedstock. In addition, the service fees to be paid to the Company or related parties are to be tied to regular fees paid to third parties. Finally, the prices of goods charged by GGC to itself or related parties are to be tied to market prices. Disclosure of GGC's related-party transactions abides by the law and regulations defined by SEC, SET, and accounting standards for related parties defined by the Federation of Accounting Professions under the Royal Patronage.

Chapter 3

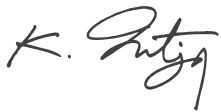
Financial Statements



Report of the Board of Directors' Responsibility for a Financial Reports

The consolidate financial statements of Global Green Chemicals Public Company Limited (“GGC”) and its subsidiaries were prepared in accordance with the Securities Exchange Commission under the Securities and Exchange Act B.E. 2535 and Department of Business Development, issued under the Accounting Act B.E. 2543 Section 11 Paragraph 3 in an accordance with the Federation of Accounting Professions’ Thai Financial Reporting Standards.

The Board of Directors is responsible for the Financial report of GGC’s and its subsidiaries in providing responsible assurance that the financial report present fairly financial position, financial performance and cash flows. The accounting data is sufficiently and accurately recorded to preserve GGC’s asset and prevent fraud and irregularity. The financial reports have been prepared accordingly to appropriate accounting policy and in accordance with consistency practices, and in accordance with Thai Financial Reporting standards. Significant information has been adequately disclosed in note of financial statements, where the auditors expressed an opinion on the financial statement of GGC’s and its subsidiaries in the auditor’s report.



(Mr. Kongkrapan Intarajang)
Chairman



(Mr. Kridsada Prasertsuko)
Managing Director

Independent Auditor's Report

To the Shareholders of Global Green Chemicals Public Company Limited

Opinion

I have audited the consolidated and separate financial statements of Global Green Chemicals Public Company Limited and its subsidiaries (the “Group”) and of Global Green Chemicals Public Company Limited (the “Company”), respectively, which comprise the consolidated and separate statements of financial position as at 31 December 2022, the consolidated and separate statements of income, comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

In my opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of the Group and the Company, respectively, as at 31 December 2022 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

Basis for Opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements* section of my report. I am independent of the Group and the Company in accordance with the *Code of Ethics for Professional Accountants including Independence Standards* issued by the Federation of Accounting Professions (Code of Ethics for Professional Accountants) that is relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with the Code of Ethics for Professional Accountants. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key Audit Matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.



Valuation of inventories	
Refer to Notes 7 to the consolidated and separate financial statements.	
The key audit matter	How the matter was addressed in the audit
Inventories are significant balances to both the consolidated and separate financial statements. The raw materials and finished goods are commodities that may be subject to significant price volatility. This volatility may impact the valuation of inventories at the end of the reporting period as inventories are measured at the lower of cost or net realisable value. The measurement of net realisable value may involve significant management judgement. This is an area of focus in my audit.	My audit procedures included : • Inquiry of the management to obtain understanding of the Group's policy in relation to setting adjusting to the net realisable value and reviewing the Group's and the Company's compliance with this policy and assess the appropriateness of the methodology used to calculate the net realisable value of inventories at the reporting period, considering the reasonableness of the market price used by reference to the expected selling price of commodity, and testing the accuracy of the calculation and checking samples of the related supporting documents. • Considering the adequacy of disclosure in accordance with the financial reporting standard.

Other Matter

The consolidated and separate financial statements of the Group and the Company for the year ended 31 December 2021 were audited by another auditor who expressed an unmodified opinion on those statements on 11 February 2022.

Other Information

Management is responsible for the other information. The other information comprises the information included in the annual report but does not include the consolidated and separate financial statements and my auditor's report thereon.

My opinion on the consolidated and separate financial statements does not cover the other information and I do not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.



Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's and the Company's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.



- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, actions taken to eliminate threats or safeguards applied.

From the matters communicated with those charged with governance, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

(Thanyalux Keadkeaw)
Certified Public Accountant
Registration No. 8179

KPMG Phoomchai Audit Ltd.
Bangkok
10 February 2023

Statements of Financial Position

Global Green Chemicals Public Company Limited and its Subsidiaries

Statement of financial position

Assets	Note	Consolidated financial statements		Separate financial statements	
		31 December		31 December	
		2022	2021	2022	2021
		(in Baht)			
Current assets					
Cash and cash equivalents		1,383,596,524	1,511,048,136	1,259,615,133	678,854,426
Trade accounts receivable	5, 6	1,759,087,142	2,381,395,693	1,759,087,142	2,456,271,947
Other receivables	5	262,956,007	306,308,184	263,027,378	303,160,671
Value-added tax receivable		99,386,645	108,097,253	99,386,645	-
Inventories	7	1,656,888,586	2,024,065,681	1,656,888,586	1,590,905,979
Current financial assets	8	1,350,000,000	280,000,000	1,350,000,000	280,000,000
Other current assets		24,585,851	35,809,394	24,585,851	33,341,880
Total current assets		6,536,500,755	6,646,724,341	6,412,590,735	5,342,534,903
Non-current assets					
Investments in subsidiaries	9	-	-	1,374,250,000	3,005,625,000
Investments in an associate	10	-	-	-	-
Investments in joint ventures	10	1,882,430,996	1,880,748,498	690,500,000	690,500,000
Plant and equipment	11	4,072,055,249	4,258,813,804	4,072,055,249	4,002,205,359
Right-of-use assets	12	385,163,362	473,597,113	385,163,362	455,778,042
Intangible assets	13	75,567,422	66,814,515	38,723,820	29,881,853
Deferred tax assets	19	168,630,934	180,996,903	168,630,934	177,811,615
Deposits at a financial institution					
pledged as collateral	24	503,307,481	-	503,307,481	-
Other non-current assets		9,051,453	8,806,190	9,051,453	8,806,190
Total non-current assets		7,096,206,897	6,869,777,023	7,241,682,299	8,370,608,059
Total assets		13,632,707,652	13,516,501,364	13,654,273,034	13,713,142,962

The accompanying notes form integral part of these financial statements.

Statements of Financial Position

Global Green Chemicals Public Company Limited and its Subsidiaries

Statement of financial position

Liabilities and equity	Note	Consolidated financial statements		Separate financial statements	
		31 December		31 December	
		2022	2021	2022	2021
<i>(in Baht)</i>					
Current liabilities					
Trade accounts payable	5	862,429,137	1,226,394,622	862,429,137	1,216,028,640
Other payables	5	367,505,218	398,326,685	367,684,119	310,570,240
Payables to contractors	5	40,802,968	61,152,597	40,802,968	60,534,796
Current portion of long-term borrowings					
from financial institutions	14	85,490,697	763,970,775	85,490,697	763,970,775
Current portion of lease liabilities	5, 12, 14	48,410,220	120,388,608	48,410,220	112,335,329
Income tax payable		120,599,827	29,815,680	10,353	-
Short-term provision	24	443,570,129	443,570,129	443,570,129	443,570,129
Total current liabilities		1,968,808,196	3,043,619,096	1,848,397,623	2,907,009,909
Non-current liabilities					
Long-term borrowings					
from financial institutions	14	859,175,980	-	859,175,980	-
Lease liabilities	5, 12, 14	359,049,316	382,009,955	359,049,316	370,528,664
Provision for employee benefits	15	118,818,714	120,503,390	118,818,714	120,503,390
Total non-current liabilities		1,337,044,010	502,513,345	1,337,044,010	491,032,054
Total liabilities		3,305,852,206	3,546,132,441	3,185,441,633	3,398,041,963
Equity					
Share capital:					
Authorized share capital					
(1,023,666,700 ordinary shares,					
par value at Baht 9.50 per share)		9,724,833,650	9,724,833,650	9,724,833,650	9,724,833,650
Issued and paid-up share capital					
(1,023,666,700 ordinary shares,					
par value at Baht 9.50 per share)		9,724,833,650	9,724,833,650	9,724,833,650	9,724,833,650
Share premium		89,240,250	89,240,250	89,240,250	89,240,250
Difference arising from business combination					
under common control		(4,134,457)	(4,134,457)	-	-
Retained earnings					
Appropriated					
Legal reserve	16	98,692,000	61,039,000	98,692,000	61,039,000
Unappropriated		418,224,003	99,390,480	556,065,501	439,988,099
Total equity		10,326,855,446	9,970,368,923	10,468,831,401	10,315,100,999
Total liabilities and equity		13,632,707,652	13,516,501,364	13,654,273,034	13,713,142,962

The accompanying notes form integral part of these financial statements.

Statements of Income

Global Green Chemicals Public Company Limited and its Subsidiaries

Statement of income

		Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
	Note	2022	2021	2022	2021
		(in Baht)			
Revenues from sales	5, 17, 20	25,084,048,925	20,923,382,039	24,199,486,505	20,147,315,523
Cost of sales	5, 18	(23,119,770,445)	(19,378,744,039)	(23,058,244,754)	(19,127,734,280)
Gross profit		1,964,278,480	1,544,638,000	1,141,241,751	1,019,581,243
Interest income and dividend income	5	11,709,959	6,393,148	716,578,934	201,640,411
Other income	5	68,810,675	65,454,805	96,672,861	103,015,046
Selling and distribution costs	5, 18	(403,992,573)	(337,807,742)	(183,882,388)	(126,011,812)
Administrative expenses	5, 18	(500,401,154)	(456,076,355)	(918,423,761)	(442,977,924)
Provision expenses for estimated damages	24	-	(443,570,129)	-	(443,570,129)
Net foreign exchange gain (loss)		79,640,929	73,535,228	(62,202,348)	10,268,243
Net derivatives (loss) gain		(128,318,122)	(68,095,882)	41,767,009	(205,409)
Profit from operating activities		1,091,728,194	384,471,073	831,752,058	321,739,669
Finance costs	5	(49,466,305)	(49,456,708)	(49,217,882)	(48,467,491)
Share of profit of joint ventures accounted for using equity method	10	47,056,437	86,431,307	-	-
Profit before income tax expense		1,089,318,326	421,445,672	782,534,176	273,272,178
Tax expense	19	(136,021,841)	(91,226,534)	(29,492,751)	(48,485,047)
Profit for the year		953,296,485	330,219,138	753,041,425	224,787,131
Profit attributable to:					
Owners of the Company		953,296,485	330,219,138	753,041,425	224,787,131
		953,296,485	330,219,138	753,041,425	224,787,131
Earnings per share	21	0.93	0.32	0.74	0.22

The accompanying notes form integral part of these financial statements.

Statements of Comprehensive Income

Global Green Chemicals Public Company Limited and its Subsidiaries

Statement of comprehensive income

		Consolidated		Separate	
		financial statements		financial statements	
		Year ended 31 December		Year ended 31 December	
	Note	2022	2021	2022	2021
		(in Baht)			
Profit for the year		953,296,485	330,219,138	753,041,425	224,787,131
Other comprehensive income					
Items that will not be reclassified					
to profit or loss					
Gain on remeasurements of					
defined benefit plans	15	14,885,962	5,671,126	14,885,962	5,671,126
Share of other comprehensive income (expense)					
of joint ventures accounted					
for using equity method	10	2,501,061	(367,396)	-	-
Total items that will not be reclassified					
to profit or loss		17,387,023	5,303,730	14,885,962	5,671,126
Other comprehensive income					
for the years, net of tax		17,387,023	5,303,730	14,885,962	5,671,126
Total comprehensive income (expense)					
for the year		970,683,508	335,522,868	767,927,387	230,458,257
Total comprehensive income attributable to:					
Owners of the Company		970,683,508	335,522,868	767,927,387	230,458,257
		970,683,508	335,522,868	767,927,387	230,458,257

The accompanying notes form integral part of these financial statements.

Statement of Changes in Equity

Global Green Chemicals Public Company Limited and its Subsidiaries Statement of changes in equity

Consolidated financial statements						
	Retained earnings					
	Issued and paid-up share capital	Share premium	Difference arising from business combination under common control	Legal reserve	Unappropriated	Total equity
Notes	(in Baht)					
Year ended 31 December 2021						
Balance as at 1 January 2021	9,724,833,650	89,240,250	(4,134,457)	49,799,000	133,389,172	9,993,127,615
Transactions with owners, recorded directly in equity						
Distributions to owners of the parent						
Dividends	-	-	-	-	(358,281,560)	(358,281,560)
Total distributions to owners of the parent	-	-	-	-	(358,281,560)	(358,281,560)
Total transactions with owners, recorded directly in equity	-	-	-	-	(358,281,560)	(358,281,560)
Comprehensive income for the year						
Profit	-	-	-	-	330,219,138	330,219,138
Other comprehensive income	-	-	-	-	5,303,730	5,303,730
Total comprehensive income (expense) for the year	-	-	-	-	335,522,868	335,522,868
Transfer to legal reserve	-	-	-	11,240,000	(11,240,000)	-
Balance as at 31 December 2021	9,724,833,650	89,240,250	(4,134,457)	61,039,000	99,390,480	9,970,368,923

The accompanying notes form integral part of these financial statements.

Statement of Changes in Equity

Global Green Chemicals Public Company Limited and its Subsidiaries Statement of changes in equity

Consolidated financial statements							
			Retained earnings				
			Difference arising from business combination under common control	Legal reserve	Unappropriated		Total equity
	Notes						
			(in Baht)				
Year ended 31 December 2022							
Balance as at 1 January 2022		9,724,833,650	89,240,250	(4,134,457)	61,039,000	99,390,480	9,970,368,923
Transactions with owners, recorded directly in equity							
Distributions to owners of the parent							
Dividends	22	-	-	-	-	(614,196,985)	(614,196,985)
Total distributions to owners of the parent		-	-	-	-	(614,196,985)	(614,196,985)
Total transactions with owners, recorded directly in equity		-	-	-	-	(614,196,985)	(614,196,985)
Comprehensive income for the year							
Profit		-	-	-	-	953,296,485	953,296,485
Other comprehensive income (expense)		-	-	-	-	17,387,023	17,387,023
Total comprehensive income (expense) for the year		-	-	-	-	970,683,508	970,683,508
Transfer to legal reserve	16	-	-	-	37,653,000	(37,653,000)	-
Balance as at 31 December 2022		9,724,833,650	89,240,250	(4,134,457)	98,692,000	418,224,003	10,326,855,446

The accompanying notes form integral part of these financial statements.

Statement of Changes in Equity

Global Green Chemicals Public Company Limited and its Subsidiaries Statement of changes in equity

	Note	Separate financial statements					Total equity
		Issued and paid-up share capital	Share premium	Retained earnings			
				Legal reserve (in Baht)	Unappropriated		
Year ended 31 December 2021							
Balance as at 1 January 2021		9,724,833,650	89,240,250	49,799,000	579,051,402		10,442,924,302
Transactions with owners, recorded directly in equity							
<i>Distributions to owners</i>							
Dividends	22	-	-	-	(358,281,560)		(358,281,560)
Total distributions to owners		-	-	-	(358,281,560)		(358,281,560)
Total transactions with owners, recorded directly in equity		-	-	-	(358,281,560)		(358,281,560)
Comprehensive income for the year							
Profit		-	-	-	224,787,131		224,787,131
Other comprehensive income (expense)		-	-	-	5,671,126		5,671,126
Total comprehensive income (expense) for the year		-	-	-	230,458,257		230,458,257
Transfer to legal reserve	16	-	-	11,240,000	(11,240,000)		-
Balance as at 31 December 2021		9,724,833,650	89,240,250	61,039,000	439,988,099		10,315,100,999

The accompanying notes form integral part of these financial statements.

Statement of Changes in Equity

Global Green Chemicals Public Company Limited and its Subsidiaries Statement of changes in equity

Separate financial statements						
		Retained earnings				
	Note	Issued and paid-up share capital	Share premium	Legal reserve (in Baht)	Unappropriated	Total equity
Year ended 31 December 2022						
Balance as at 1 January 2022		9,724,833,650	89,240,250	61,039,000	439,988,099	10,315,100,999
Transactions with owners, recorded directly in equity						
Distributions to owners						
Dividends	22	-	-	-	(614,196,985)	(614,196,985)
Total distributions to owners		-	-	-	(614,196,985)	(614,196,985)
Total transactions with owners, recorded directly in equity		-	-	-	(614,196,985)	(614,196,985)
Comprehensive income for the year						
Profit		-	-	-	753,041,425	753,041,425
Other comprehensive income (expense)		-	-	-	14,885,962	14,885,962
Total comprehensive income (expense) for the year		-	-	-	767,927,387	767,927,387
Transfer to legal reserve	16	-	-	37,653,000	(37,653,000)	-
Balance as at 31 December 2022		9,724,833,650	89,240,250	98,692,000	556,065,501	10,468,831,401

The accompanying notes form integral part of these financial statements.

Statements of Cash Flows

Global Green Chemicals Public Company Limited and its Subsidiaries

Statement of cash flows

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2022	2021	2022	2021
	(in Baht)			
<i>Cash flows from operating activities</i>				
Profit for the years	953,296,485	330,219,138	753,041,425	224,787,131
<i>Adjustments to reconcile profit to cash receipts (payments)</i>				
Tax expense	136,021,841	91,226,534	29,492,751	48,485,047
Finance costs	49,466,305	49,456,708	49,217,882	48,467,491
Depreciation and amortisation	604,078,186	711,897,152	574,292,277	665,186,551
Provision for employee benefits	15,034,205	14,883,044	15,034,205	14,883,044
Unrealised (gain) loss on foreign exchange rates	25,245,066	(6,206,640)	54,989,777	(1,743,525)
Unrealised (gain) loss on derivatives	(8,805,695)	10,657,034	(94,460,174)	(104,890)
Share of profit of joint ventures accounted for using equity method, net of tax	(47,056,437)	(86,431,307)	-	-
Loss on inventories devaluation	18,502,991	-	18,502,991	-
(Reversal of) loss on obsolete inventories	(5,746,308)	2,329,036	(5,728,967)	2,311,697
Loss on written-off of raw materials	8,186,846	107,548	8,169,707	76,057
Gain on written-off of right-of-use assets	(24,092,439)	(1,077,751)	(23,975,437)	(1,062,510)
Gain on disposal of plant and equipment	(446,033)	(179,163)	(446,033)	(179,167)
Interest income and dividend income	(11,709,959)	(6,393,148)	(716,578,934)	(201,640,411)
Provision expenses	-	443,570,129	-	443,570,129
Actuarial gain	(1,558,968)	-	(1,558,968)	-
Loss from capital return of a subsidiary	-	-	428,839,401	-
	<u>1,710,416,086</u>	<u>1,554,058,314</u>	<u>1,088,831,903</u>	<u>1,243,036,644</u>
<i>Changes in operating assets and liabilities</i>				
Trade accounts receivable	610,808,802	(740,730,662)	1,656,510,669	(720,770,336)
Other receivables	44,420,861	(20,910,654)	45,325,189	(21,079,979)
Value-added tax receivable	8,710,608	(82,627,894)	74,774,861	-
Inventories	346,233,564	(23,786,533)	537,407,202	(1,520,410)
Other current assets	(56,573,939)	(94,685,357)	(56,239,114)	(93,304,293)
Deposits at a financial institution pledged as collateral	(503,307,481)	-	(503,307,481)	-
Other non-current assets	(944,122)	5,493,622	(944,122)	5,493,622
Trade accounts payable	(363,858,931)	412,769,591	(885,651,728)	414,390,196
Other payables	(14,455,463)	119,760,152	14,093,969	86,839,026
Provisions for employee benefits	(3,359,853)	(233,066)	(3,359,853)	(233,066)
Proceeds from transferring provision for employee benefit	2,036,257	-	2,036,257	-
Net cash generated from operations	1,780,126,389	1,129,107,513	1,969,477,752	912,851,404
Taxes received (paid)	<u>(33,292,418)</u>	<u>(13,724,657)</u>	<u>(1,470,430)</u>	<u>1,780,700</u>
Net cash from operating activities	1,746,833,971	1,115,382,856	1,968,007,322	914,632,104

The accompanying notes form integral part of these financial statements.

Statements of Cash Flows

Global Green Chemicals Public Company Limited and its Subsidiaries

Statement of cash flows

	Consolidated		Separate	
	financial statements		financial statements	
	Year ended 31 December		Year ended 31 December	
	2022	2021	2022	2021
	(in Baht)			
<i>Cash flows from investing activities</i>				
Proceeds from (paid for) current investments				
in financial assets	(1,070,000,000)	120,000,000	(1,070,000,000)	120,000,000
Cash paid for investment in a subsidiary	-	-	(53,625,000)	(270,735,000)
Net cash payment from transfer of business	-	-	(121,183,620)	-
Proceed from capital return of subsidiary	-	-	450,192,857	-
Cash paid for investment in a joint venture	(53,625,000)	(262,875,000)	-	-
Loan to a subsidiary	-	-	(130,000,000)	-
Proceeds from loan to a subsidiary	-	-	130,000,000	-
Acquisition of plant and equipment	(271,428,755)	(219,878,579)	(259,398,296)	(218,055,253)
Proceeds from sale of plant and equipment	7,056,885	3,111,600	7,056,885	3,111,600
Acquisition of intangible assets	(14,759,394)	(5,704,153)	(14,759,394)	(2,387,970)
Dividend received	101,500,000	91,140,000	249,900,000	197,140,000
Interest received	9,602,785	6,329,661	8,797,038	4,432,465
Net cash used in investing activities	(1,291,653,479)	(267,876,471)	(803,019,530)	(166,494,158)
<i>Cash flows from financing activities</i>				
Repayments of lease liabilities	(99,866,039)	(126,403,313)	(94,813,942)	(116,814,260)
Proceeds from long-term borrowings				
from financial institutions	966,666,667	-	966,666,667	-
Repayments of long-term borrowings				
from financial institutions	(783,666,667)	(567,000,000)	(783,666,667)	(567,000,000)
Dividends paid	(614,196,985)	(358,281,560)	(614,196,985)	(358,281,560)
Finance cost paid	(37,817,927)	(31,816,345)	(37,817,927)	(31,816,345)
Net cash used in financing activities	(568,880,951)	(1,083,501,218)	(563,828,854)	(1,073,912,165)
Net increase (decrease) in cash and cash equivalents,				
before effect of exchange rates	(113,700,459)	(235,994,833)	601,158,938	(325,774,219)
Effect of exchange rate changes				
on cash and cash equivalents	(13,751,153)	4,554,818	(20,398,231)	2,888,719
Net increase (decrease) in cash and cash equivalents	(127,451,612)	(231,440,015)	580,760,707	(322,885,500)
Cash and cash equivalents at 1 January	1,511,048,136	1,742,488,151	678,854,426	1,001,739,926
Cash and cash equivalents at 31 December	1,383,596,524	1,511,048,136	1,259,615,133	678,854,426

The accompanying notes form integral part of these financial statements.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

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Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

These notes form an integral part of the financial statements.

The financial statements issued for Thai statutory and regulatory reporting purposes are prepared in the Thai language. These English language financial statements have been prepared from the Thai language statutory financial statements, and were approved and authorised for issue by the Board of Directors on 10 February 2023.

1 General information

Global Green Chemicals Public Company Limited, (the “Company”), is incorporated in Thailand and was listed on the Stock Exchange of Thailand on 2 May 2017. The Company’s registered offices are as follows:

Head Office	: 555/1, Energy Complex, Building A, 4 th Floor, Vibhavadi-rangsit Road, Chatuchak Sub-District, Chatuchak District, Bangkok, Thailand
Branch 1	: 8, I-8 Road, Map Ta Phut Industrial Estate, Tambon Map Ta Phut, Amphur Mueang Rayong, Rayong, Thailand
Branch 2	: 8 Soi G12, Pakorn Songkhrao-Rat Road, Tambon Map Ta Phut, Amphur Mueang Rayong, Rayong, Thailand
Branch 3	: 199/1 Moo 2, Tambon Khao Sok, Amphur Nong Yai, Chonburi, Thailand

The parent and ultimate parent companies are PTT Global Chemical Public Company Limited and PTT Public Company Limited, respectively. Both are incorporated in Thailand.

The principal activities of the Company are production, distribution and transportation of Oleochemicals products. The Company’s major products are Methyl ester, Fatty alcohol, Fatty acid, Fatty Amine, other Alcohol ester, and other By products. Details of the Company’s subsidiaries as at 31 December 2022 and 2021 are given in note 9.

2 Basis of preparation of the financial statements

The financial statements are prepared in accordance with Thai Financial Reporting Standards (“TFRS”), guidelines promulgated by the Federation of Accounting Professions and applicable rules and regulations of the Thai Securities and Exchange Commission. The financial statements are presented in Thai Baht, which is the Company’s functional currency. The accounting policies, described in note 3, have been applied consistently to all periods presented in these financial statements.

The preparation of financial statements in conformity with TFRS requires management to make judgements, estimates and assumptions that affect the application of the Group’s accounting policies. Actual results may differ from these estimates. Estimates and underlying assumptions that are described in note 3 are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

In addition, the Group has not early adopted a number of new and revised TFRS, which are effective for the period starting or after 1 January 2023 in preparing these financial statements. The Group assessed the impact of applying the new and revised TFRS and has determined it has no material impact to the financial statements.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

3 Significant accounting policies

(a) Basis of consolidation

The consolidated financial statements relate to the Company and its subsidiaries (together referred to as the “Group”) and the Group’s interests in associates and joint ventures.

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

At the acquisition date, the Group measures any non-controlling interest at its proportionate interest in the identifiable net assets of the acquiree. In addition, when there is a change in the Group’s interest in a subsidiary that does not result in a loss of control, any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received from the acquisition or disposal of the non-controlling interests with no change in control is accounted for as other surplus/deficit in shareholders’ equity.

When the Group loses control over a subsidiary, it derecognises the assets and liabilities, any related non-controlling interests and other components of equity of the subsidiary. Any resulting gain or loss is recognised in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

The Group recognised investments in associates and joint ventures using the equity method in the consolidated financial statements. They are initially recognised at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group’s dividend income and share of the profit or loss and other comprehensive income of equity-accounted investees, until the date on which significant influence or joint control ceases.

If an investment in an associate becomes an investment in a joint venture or vice versa, the retained interest is not remeasured. Instead, the investment continues to be accounted for under the equity method. In all other cases, when the group ceases to have significant influence over an associate or joint control over a joint venture, it is accounted for as a disposal of the entire interest in that investee, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former investee at the date when significant influence or joint control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset.

Intra-group balances and transactions, and any unrealised income or expenses arising from intra-group transactions, are eliminated on consolidation. Unrealised gains arising from transactions with associates and joint ventures are eliminated against the investment to the extent of the Group’s interest in the investee. Unrealised losses are eliminated in the same way as unrealised gains, but only to the extent that there is no evidence of impairment.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

Business combinations

The Group applies the acquisition method when the Group assess that the acquired set of activities and assets include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output. The acquisition date is the date on which control is transferred to the Group, other than business combinations with entities under common control. Expenses in connection with a business combination are recognised as incurred.

Goodwill is measured as the fair value of the consideration transferred including the recognised amount of any non-controlling interest in the acquiree, less net fair value of the identifiable assets acquired, and liabilities assumed. Any gain on bargain purchase is recognised in profit or loss immediately.

Consideration transferred includes assets transferred, liabilities incurred by the Group to the previous owners of the acquiree, any contingent consideration and equity interests issued by the Group.

Any contingent consideration is measured at fair value at the date of acquisition, and remeasured at fair value at each reporting date. Subsequent changes in the fair value are recognised in profit or loss.

A contingent liability of the acquiree is assumed in a business combination only if such a liability represents a present obligation and arises from a past event, and its fair value can be measured reliably.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group estimates provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period, or additional assets or liabilities are recognised, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

Business combination under common control are accounted for using a method similar to the pooling of interest method, by recognising assets and liabilities of the acquired businesses at their carrying amounts in the consolidated financial statements of the ultimate parent company at the transaction date. The difference between the carrying amount of the acquired net assets and the consideration transferred is recognised as surplus or deficit from business combinations under common control in shareholder's equity. The surplus or deficit will be written off upon divestment of the businesses acquired. The results from operations of the acquired businesses will be included in the consolidated financial statements of the acquirer from the beginning of the comparative period or the moment the businesses came under common control, whichever date is shorter, until control ceases.

(b) *Investments in subsidiaries, associates and joint ventures*

Investments in subsidiaries, associates and joint ventures in the separate financial statements are measured at cost less allowance for impairment losses. Dividend income is recognised in profit or loss on the date on which the Group's right to receive payment is established. If the Company disposes of part of its investment, the deemed cost of the part sold is determined using the weighted average method. Gains and losses on disposal of the investments are recognised in profit or loss.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

(c) *Foreign currencies*

Transactions in foreign currencies including non-monetary assets and liabilities denominated in foreign currencies are translated to the respective functional currencies of each entity in the Group at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rate at the reporting date. Non-monetary assets and liabilities measured at fair value in foreign currencies are translated at the exchange rates at the dates that fair value was determined.

Foreign currency differences are generally recognised in profit or loss.

(d) *Financial instruments*

(d.1) *Classification and measurement*

Debt securities issued by the Group are initially recognised when they are originated. Other financial assets and financial liabilities (except trade accounts receivables (see note 3(f))) are initially recognised when the Group becomes a party to the contractual provisions of the instrument, and measured at fair value plus or minus, for an item not at fair value through profit or loss (FVTPL), transaction costs that are directly attributable to its acquisition or issue.

Regular way of purchases and sales of financial assets are recognised on trade-date, the date on which the Company commits to purchase or sell the asset.

On initial recognition, a financial asset is classified as measured at: amortised cost; fair value through other comprehensive income (FVOCI); or FVTPL. Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified prospectively from the reclassification date.

On initial recognition, financial liabilities are classified as measured at amortised cost using the effective interest method or FVTPL. Interest expense, foreign exchange gains and losses and any gain or loss on derecognition are recognised in profit or loss.

Financial assets measured at amortised costs are subsequently measured at amortised cost using the effective interest method. The amortised cost is reduced by expected credit losses. Interest income, foreign exchange gains and losses, expected credit loss and any gain or loss on derecognition are recognised in profit or loss.

Debt investments measured at FVOCI are subsequently measured at fair value. Interest income, calculated using the effective interest method, foreign exchange gains and losses and expected credit loss are recognised in profit or loss. Other net gains and losses are recognised in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.

Equity investments measured at FVOCI are subsequently measured at fair value. Dividend income is recognised as income in profit or loss on the date on which the Group's right to receive dividend is established, unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognised in OCI and are never reclassified to profit or loss.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

(d.2) Derecognition and offset

The Group derecognises a financial asset when the contractual rights to receive the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Group derecognises a financial liability when its contractual obligations are discharged or cancelled, or expire. The Group also derecognises a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognised at fair value.

The difference between the carrying amount extinguished and the consideration received or paid is recognised in profit or loss.

(d.3) Derivatives

Derivative are recognised at fair value and remeasured at fair value at each reporting date. The gain or loss on remeasurement to fair value is recognised immediately in profit or loss.

(d.4) Impairment of financial assets other than trade accounts receivables

The Group recognises ECLs equal to 12-month ECLs unless there has been a significant increase in credit risk of the financial instrument since initial recognition or credit-impaired financial assets, in which case the loss allowance is measured at an amount equal to lifetime ECLs.

ECLs are a probability-weighted estimate of credit losses based on forward-looking and historical experience. Credit losses are measured as the present value of all cash shortfalls discounted by the effective interest rate of the financial asset.

In determining allowance of expected credit loss, the financial asset is considered to have low credit risk and no significant incremental of credit risk since initial recognition. The Group will not recognise any allowance of expected credit loss.

(d.5) Write offs

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectations of recovering. Subsequent recoveries of an asset that was previously written off, are recognised as a reversal of impairment in profit or loss in the period in which the recovery occurs.

(d.6) Interest

Interest income and expense is recognised in profit or loss using the effective interest method. In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortised cost of the liability.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

(e) *Cash and cash equivalents*

Cash and cash equivalents are cash on hand and all types of deposits at bank and financial institutions which have maturities of three months or less from the date of acquisition, excluding deposits at banks used as collateral. (if any)

(f) *Trade accounts receivable*

A trade receivable is recognised when the Group has an unconditional right to receive consideration. A trade receivable is measured at transaction price less allowance for expected credit loss. Bad debts are written off when incurred.

The Group estimates lifetime expected credit losses (ECLs), using a provision matrix to find the ECLs rates. This method groups the debtors based on shared credit risk characteristics and past due status, taking into account historical credit loss data, adjusted for factors that are specific to the debtors and an assessment of both current economic conditions and forward-looking general economic conditions at the reporting date.

(g) *Inventories*

Inventories are measured at the lower of cost and net realisable value. Cost is calculated using the weighted average cost principle. Cost includes direct costs incurred in acquiring the inventories. In the case of manufactured inventories and work-in-progress, cost includes an appropriate share of production overheads based on normal operating capacity. Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs to complete and to make the sale.

Provision is made for obsolete and slow-moving finished goods, raw materials, factory supplies and spare parts based on the items that are obsoleted and expected to be unsalable.

(h) *Plant and equipment*

Plant and equipment are measured at cost less accumulated depreciation and impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes capitalised borrowing costs, and the costs of dismantling and removing the items and restoring the site on which they are located. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of plant and equipment have different useful lives, they are accounted for as separate items (major components) of plant and equipment.

Differences between the proceeds from disposal and the carrying amount of plant and equipment are recognised in profit or loss.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

Subsequent costs

The cost of replacing a part of an item of plant and equipment is recognised in the carrying amount of the item when the future economic benefits embodied within the part will flow to the Group, and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. The costs of the day-to-day servicing of plant and equipment are recognised in profit or loss as incurred.

Depreciation

Depreciation is calculated on a straight-line basis over the estimated useful lives of each component of an asset and recognised in profit or loss. No depreciation is provided on assets under construction.

The estimated useful lives are as follows:

Plant, machinery, equipment and factory tools	3-25 years
Buildings and building improvements	5-25 years
Land improvement	5-20 years
Furniture, fixtures and office equipment	3-10 years
Vehicles	5 years

(i) Goodwill

Goodwill is measured at cost less accumulated impairment losses. In respect of equity-accounted investee, the carrying amount of goodwill is included in the carrying amount of the investment.

(j) Intangible assets

Intangible assets are measured at cost less accumulated amortisation and impairment losses. Subsequent expenditure is capitalised only when it will generate future economic benefits. Amortisation is calculated on a straight-line basis over the estimated useful lives of intangible assets and recognised in profit or loss from the date that they are available for use.

The estimated useful lives are as follows:

Production licence fees	20 years
Other intangible assets	3 - 20 years

The amortisation of production license fees is allocated to the cost of inventory and is recognised as cost of sales as inventory is sold; the amortisation of other intangible assets is included in administrative expenses.

(k) Leases

At inception of a contract, the Group assesses that a contract is, or contains, a lease when it conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

As a lessee

At commencement or on modification of a contract, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices of each component.

The Group recognises a right-of-use asset and a lease liability at the lease commencement date, except for leases of low-value assets and short-term leases which are recognised as expenses on a straight-line basis over the respective lease terms.

Right-of-use asset is measured at cost, less any accumulated depreciation and impairment loss, and adjusted for any remeasurements of lease liability. The cost of right-of-use asset includes the initial amount of the lease liability adjusted for any prepaid lease payments, plus any initial direct costs incurred. Depreciation is charged to profit or loss on a straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Company by the end of the lease term or the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment.

The lease liability is initially measured at the present value of all lease payments that shall be paid under the lease. The Group uses the interest rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate to discount the lease payments to the present value.

The lease liability is measured at amortised cost using the effective interest method. It is remeasured when there is a lease modification. When the lease liability is remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero. The Group remeasured lease liabilities using the original discount rate and recognised the impact of the change in lease liability in profit or loss.

(I) Impairment of non-financial assets

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill and intangible assets that have indefinite useful lives or are not yet available for use, the recoverable amount is estimated each year at the same time.

An impairment loss is recognised in profit or loss if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount.

The recoverable amount is the greater of the asset's value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

An impairment loss of an asset recognised in prior periods is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss in respect of goodwill is not reversed. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

(m) *Employee benefits*

Defined contribution plan

Obligations for contributions to the Group's provident funds are expensed as the related service is provided.

Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in the current and prior periods. The defined benefit obligations is discounted to the present value, which performed every 3 years by a qualified actuary using the projected unit credit method.

Remeasurements of the net defined benefit liability, actuarial gain or loss are recognised immediately in OCI. The Group determines the interest expense on the net defined benefit liability for the period by applying the discount rate used to measure the defined benefit obligation, taking into account any changes in the net defined benefit liability during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognised in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognised immediately in profit or loss. The Group recognises gains and losses on the settlement of a defined benefit plan when the settlement occurs.

The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognised in profit or loss in the period in which they arise.

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognizes costs for a restructuring. If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

Short-term employee benefits are expensed as the related service is provided. A liability is recognised for the amount expected to be paid if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

(n) *Provisions*

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as a finance cost.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

(o) *Fair value measurement*

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date in the principal or, in its absence, the most advantageous market to which the Group has access at that date. The fair value of a liability reflects its non-performance risk.

When measuring the fair value of an asset or a liability, the Group uses observable market data as far as possible. Fair values are categorised into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- Level 1: quoted prices in active markets for identical assets or liabilities that the entity can access at the measurement date.
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3: inputs for the asset or liability that are based on unobservable input.

If the inputs used to measure the fair value of an asset or liability might be categorised in different levels of the fair value hierarchy, then the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

(p) *Revenue from contracts with customers*

Revenue recognition

Revenue is recognised when a customer obtains control of the goods or services in an amount that reflects the consideration to which the Group expects to be entitled, excluding those amounts collected on behalf of third parties, value added tax or other sales taxes and is after deduction of any trade discounts and volume rebates.

Revenue from sales of goods is recognised on the date on which the goods are delivered to the customers.

(q) *Income tax*

Income tax expense for the year comprises current and deferred tax, which is recognised in profit or loss except to the extent that it relates to a business combination, or items recognised directly in equity or in other comprehensive income.

Current tax is recognised in respect of the taxable income or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognised for the temporary differences: the initial recognition of goodwill; the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss; and differences relating to investments in subsidiaries and joint ventures to the extent that it is probable that they will not reverse in the foreseeable future.

Notes to the Financial Statements

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For the year ended 31 December 2022

The measurement of deferred tax reflects the tax consequences that would follow the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities, using tax rates enacted or substantively enacted at the reporting date. Current deferred tax assets and liabilities are offset in the separate financial statements.

A deferred tax asset is recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realised.

(r) Earnings per share

Earnings per share (EPS) is calculated by dividing the profit or loss attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding during the year.

4 Transfers of business

The acquisition of the entire businesses of Thai Fatty Alcohols Co., Ltd.

At the Board of Directors' meeting, held on 27 April 2022, the Board approved the acquisition of the entire business of Thai Fatty Alcohols Co., Ltd., a 100% subsidiary of the Company, and the subsequent dissolution of the subsidiary. The group business restructuring will better support the operational efficiency of the Group, enhancing the competitiveness in the fatty alcohols business of the Group.

The details of the consideration transferred and the carrying values of assets and liabilities as at 1 October 2022, the date of acquisition, were as follows:

	<i>(in thousand Baht)</i>
Cash and cash equivalents	450,193
Trade accounts receivable	994,735
Other receivables	1,779
Inventories	624,334
Value-added tax receivables	174,161
Other current assets	2,802
Plant and equipment	243,804
Right-of-use assets	21,065
Intangible assets	76
Deferred tax assets	19,262
Total assets	2,532,211
Trade accounts payable	532,702
Other payables	598,740
Current portion of lease liabilities	13,438
Income tax payable	10
Lease liabilities	9,977
Total liabilities	1,154,867
Net carrying values of net assets acquired / net consideration transferred	1,377,344
Less Cash and cash equivalents	450,193
Net proceeds from entire business transfer	927,151

Notes to the Financial Statements

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Notes to the financial statements

For the year ended 31 December 2022

The subsidiary registered to dissolve the business with Department of Business Development, Ministry of Commerce on 31 October 2022. As at 31 December 2022, the subsidiary is in the process of liquidation (Note 9).

5 Related parties

A related party is a person or entity that has direct or indirect control or joint control, or has significant influence over the financial and managerial decision-making of the Group; a person or entity that is under common control or under the same significant influence as the Group; or a person or entity over which the Group has direct or indirect control or joint control or has significant influence over the financial and managerial decision-making.

Relationships with parent, ultimate parent, subsidiaries, associate and joint ventures are described in notes 1, 9 and 10. Other related parties which the Group had significant transactions with during the year were as follows:

Name of entities	Country of incorporation/ nationality	Nature of relationships
GC Glycol Co., Ltd.	Thailand	Direct subsidiary of the parent company
Solution Creation Co., Ltd.	Thailand	Direct subsidiary of the parent company
GC Maintenance & Engineering Co., Ltd.	Thailand	Direct subsidiary of the parent company
GC Logistics Solutions Co., Ltd.	Thailand	Direct subsidiary of the parent company
GC Estate Co., Ltd.	Thailand	Direct subsidiary of the parent company
GC Polyols Co., Ltd.	Thailand	Direct subsidiary of the parent company
PTT Phenol Co., Ltd.	Thailand	Direct subsidiary of the parent company
NPC Safety and Environmental Service Co., Ltd.	Thailand	Direct subsidiary of the parent company
GC Oxirane Co., Ltd.	Thailand	Direct subsidiary of the parent company
NPC S&E Security Guard Co., Ltd.	Thailand	Indirect subsidiary of the parent company
Kuraray GC Advance Material Co., Ltd.	Thailand	Direct associate of the parent company
AGC Vinythai Public Co., Ltd.	Thailand	Direct associate of the parent company
PTT Digital Solutions Co., Ltd.	Thailand	Direct associate of the parent company
Eastern Fluid Transport Co., Ltd.	Thailand	Direct associate of the parent company
PTT Asahi Chemical Limited	Thailand	Direct joint venture of the parent company

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

Name of entities	Country of incorporation / nationality	Nature of relationships
Advance Biochemical (Thailand) Co., Ltd.	Thailand	Indirect associate of the parent company
Emery Oleochemicals LLC	United States of America	Indirect associate of the parent company
Thai Oil Plc.	Thailand	Subsidiary of the ultimate parent company
PTT Oil and Retail Business Plc.	Thailand	Subsidiary of the ultimate parent company
Energy Complex Co., Ltd.	Thailand	Subsidiary of the ultimate parent company
IRPC Plc.	Thailand	Subsidiary of the ultimate parent company
Business Services Alliance Co., Ltd.	Thailand	Subsidiary of the ultimate parent company
Global Power Synergy Plc.	Thailand	Subsidiary of the ultimate parent company
Sarn Palung Social Enterprise Co., Ltd.	Thailand	Other related party, shareholding by the ultimate parent company and parent company

<i>Significant transactions with related parties</i> <i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Ultimate parent				
Purchases of goods or receiving of services	1	168	1	168
Other expense	-	3	-	3
Parent				
Sales of goods	2,700	1,792	2,700	1,792
Purchases of goods or receiving of services	177	163	173	152
Interest expense	9	8	9	8
Other expense	68	74	62	66
Dividends paid	444	259	444	259
Subsidiaries				
Sales of goods	-	-	6,171	4,572
Other income	-	-	30	38
Dividend income	-	-	604	106
Associate				
Sales of goods	-	72	-	72
Joint ventures				
Sales of goods	1,999	1,495	365	-
Other income	17	23	17	23
Dividend income	-	-	102	91

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

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For the year ended 31 December 2022

<i>Significant transactions with related parties</i> <i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Other related parties				
Sales of goods	8,618	9,338	8,545	9,338
Purchases of goods or receiving of services	917	671	814	565
Other income	2	-	2	-
Interest expense	-	1	-	-
Other expense	61	65	49	56
Expense capitalised to plant and equipment	24	7	24	7
Key management personnel				
Key management personnel compensation				
Short-term benefits	123	99	123	99
Post-employment benefits	5	-	5	-
Total key management personnel	128	99	128	99
 <i>Balances with related parties</i> <i>as at 31 December</i>				
	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Trade accounts receivable				
Parent	147	155	147	155
Subsidiary	-	-	-	1,003
Joint venture	243	348	243	-
Other related parties	319	724	319	724
Total	709	1,227	709	1,882
Less allowance for expected credit loss	-	-	-	-
Net	709	1,227	709	1,882
 Other receivables				
Parent	-	1	-	1
Subsidiaries	-	-	-	4
Joint ventures	4	8	4	8
Other related parties	3	3	3	3
Total	7	12	7	16
Less allowance for expected credit loss	-	-	-	-
Net	7	12	7	16
 Trade accounts payable				
Parent	13	7	13	7
Other related parties	82	55	82	48
Total	95	62	95	55
 Other payables				
Ultimate parent	-	2	-	2
Parent	22	35	22	31
Other related parties	54	47	54	42
Total	76	84	76	75

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

<i>Balances with related parties as at 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
<i>Payables to contractor</i>				
Other related parties	4	2	4	2
Total	4	2	4	2
<i>Current portion of lease liabilities</i>				
Parent	21	15	21	15
Other related parties	7	12	7	4
Total	28	27	28	19
<i>Lease liabilities</i>				
Ultimate parent	2	-	2	-
Parent	236	253	236	249
Other related parties	4	10	4	3
Total	242	263	242	252

Significant agreements with related parties

The Group has significant agreements with related parties as at 31 December 2022 as follows:

Methyl Ester Purchase and Sales Agreements

The Company has 5 Methyl Ester Purchase and Sales Agreements with the parent company and 3 related parties. Selling prices are determined based on B100 price announced by government and the adjustment as specified in each agreement. These agreements are for periods from 3 months to 1 year commencing from the effective date as specified in each agreement and expiring in March, May and December 2023, respectively. These agreements are renewable until either party terminates the agreement.

Fatty Alcohols Purchase and Sales Agreements

The Company has a Fatty alcohols Sales Agreement with a joint venture. Selling prices are determined based on Average Fatty Alcohols Weekly Prices published by ICIS and adjusted as specified for each transportation types. This agreement is for a year commencing from the effective date as specified in the agreement and expiring in October 2022. The Company currently is in the process of consideration for renewal of the expired agreement and in the meantime continues to trade with the joint venture under the same terms.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

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For the year ended 31 December 2022

Glycerine Purchase and Sales Agreements

The Company has a Glycerine Sales Agreement with a related party. Selling prices are determined based on Average Drum Refined Glycerine FOB SEA Weekly Spot Prices published by ICIS pricing for Glycerine (Asia Pacific). This agreement is for a period of 3 years commencing from the effective date as specified in the agreement and expiring in December 2023. This agreement is renewable until either party terminates the agreement.

Utilities Purchase and Sales Agreements and Other Services Agreements

The Company has Hydrogen Purchase and Sales Agreement with the parent company. Selling price is determined based on Natural Gas price for the industry. This agreement is for a period of 9 years 6 months, commencing from the effective date as specified in the agreement and expiring in December 2028.

The Company has 3 Utilities Purchase Agreements covering steam, electricity and water with a related party at the agreed quantities and prices as stipulated in the agreements. These agreements are for periods of 15 years, commencing from the effective date as specified in each agreement and expiring in June 2023.

The Company has a Tank Farm Storage and Service Agreement with the parent company covering tank storage, utilities for product warehouse and transportation of Methanol. This agreement is for a period of 20 years, commencing from the effective date as specified in the agreement and expiring in March 2039, with the service charge as stipulated in the agreement.

The Company has a Pipe rack Maintenance Agreement with a related party. The agreement is for a period of 15 years, commencing from the effective date as specified in the agreement and expiring in August 2037, with the service charge as stipulated in the agreement.

The Company has a Right to use pipe rack Agreement with the parent company. The agreement is for a periods of 15 years, commencing from the effective date as specified in the agreement and expiring in August 2037 with the service charge as stipulated in the agreement.

The Company has a Right to use pipe rack Agreement with the ultimate parent company. The agreement is for a period of 15 years 7 months, commencing from the effective date as specified in the agreement and expiring in December 2037 with the service charge as stipulated in the agreement.

The Company has a Tank Farm Storage and Service Agreement with a related party covering tank storage, utilities for product warehouse and transportation of Fatty Alcohol. This agreement is for a period of 2 years, commencing from the effective date as specified in the agreement and automatically renewing for every 2 years unless otherwise terminated by manual agreement of both parties, with the service charge as stipulated in the agreement.

Service Agreements

The Company has a Shared Service agreements with 1 subsidiary for the provision of general services. This agreement is for a period of 1 year, commencing from the effective date as specified in the agreement and expiring in December 2023, with the service charge as stipulated in the agreement.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

The Group has a Share Service Agreements with the parent company for the provision of administration office, lab and quality service and general services. This agreement is for a period of 1 year, commencing from the effective date as specified in the agreement and expiring in December 2023, with the service charge as stipulated in the agreement.

The Company has a Building Maintenance Services Agreement with a related party. This agreement is for a period of 5 years, commencing from the effective date as specified in the agreement and expiring in June 2023 with the service charge as stipulated in the agreement.

The Company has a Security and Fire Protection Agreement with a related party for receiving security and fire protection service for assets, employees, and visitors in the Company's location. The agreement is for the period of 2 years, commencing from the effective date as specified in the agreement and expiring in December 2024, with the service charge as stipulated in the agreement.

The Company has a Safety Inspector Agreement with a related party. The agreement is to inspect during working and in the Company's location. The agreement is for a period of 2 years, commencing from the effective date as specified in the agreement and expiring in December 2022, with the service charge as stipulated in the agreement. The Company currently is in the process of consideration for renewal of the expired agreements.

The Company has 4 Emergency Control and Management Agreements with a related party for consulting and safety training, occupational health & safety and environment, and set up of emergency control centre. The agreements are for periods of 3 years, commencing from the effective date as specified in the agreements and expiring in December 2023, January and March 2025, with the service charge as stipulated in the agreements.

The Company has an agreement with a related party for Manpower rescue team during plant shutdown to have manpower rescue team and equipment. The period for this agreement is 3 years, commencing from the effective date as specified in the agreement to January 2025, with the service charge stipulated in the agreement.

The Company has a Fire Fighting water agreement with a related party for Fire Fighting Water, Fire Fighting Facility and Maintenance of Fire Fighting at Plant 1. The period for this agreement is 15 years, commencing from the effective date as specified in the agreement to December 2034, with the service charge stipulated in the agreement.

Rental Agreement

The Company has 3 Land Lease Agreements with the parent company, for periods of 17 years and 30 years, commencing from the effective date as specified in each agreement and expiring in July 2036 with rental rate as stipulated in the agreements. The agreements can be extendable for another 20 years by providing not less than 1 year prior written notice to the lessor.

The Company has an Office Rental and Service agreements with 2 related companies. The agreements are for periods of 3 years and will expire in August 2023 and September 2024 respectively with rental and service rate and conditions as stipulated in the agreements.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

6 Trade accounts receivable

<i>At 31 December</i>	<i>Note</i>	Consolidated financial statements		Separate financial statements	
		2022	2021	2022	2021
		<i>(in million Baht)</i>			
Related parties	5	709	1,227	709	1,882
Other parties		1,050	1,154	1,050	574
Total		1,759	2,381	1,759	2,456
Less allowance for expected credit loss		-	-	-	-
Net		1,759	2,381	1,759	2,456
Related parties					
Within credit terms		709	1,201	709	1,856
Overdue:					
Less than 3 months		-	26	-	26
Total		709	1,227	709	1,882
Other parties					
Within credit terms		1,017	1,103	1,017	555
Overdue:					
Less than 3 months		33	51	33	19
Total		1,050	1,154	1,050	574
Less allowance for expected credit loss		-	-	-	-
Net		1,759	2,381	1,759	2,456

The normal credit term granted by the Group ranges from 15 days to 60 days.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

7 Inventories

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Finished goods	574	902	574	565
Work in progress	407	107	407	107
Raw materials	299	657	299	645
Spare parts and factory supplies	397	317	397	286
Goods in transit	9	57	9	4
Total	1,686	2,040	1,686	1,607
Less Allowance for inventories devaluation	(29)	(16)	(29)	(16)
Net	1,657	2,024	1,657	1,591
Inventories recognised as an expense and included in cost of sales				
- Cost of sales	23,101	19,379	23,039	19,128
- Write-down to net realisable value	19	-	19	-
Net	23,120	19,379	23,058	19,128

As at 31 December 2022 and 2021, the Company's inventories included petroleum legal reserve of 2,000 litters with approximated value of Baht 0.07 million and 680 litters with approximated value of Baht 0.03 million, respectively.

8 Current financial assets

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Time deposits with maturity of more than 3 months but not more than 1 year (interest rate of 0.85% to 1.27% per annum)	1,350	280	1,350	280
Total	1,350	280	1,350	280

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

9 Investments in subsidiaries

Separate financial statements											
Type of business	Country of operation	Ownership Interest		Cost		Impairment		At cost - net		Dividend income	
		2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
<i>(in million Baht)</i>											
Subsidiaries											
Thai Fatty Alcohols Co., Ltd. (in liquidate process)	Thailand	-	100	-	1,685	-	-	-	1,685	604	106
GGC Biochemical Co., Ltd.	Thailand	100	100	1,374	1,321	-	-	1,374	1,321	-	-
Total				1,374	3,006	-	-	1,374	3,006	604	106

All subsidiaries were incorporated and mainly operate in Thailand

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

<i>Material movement for the year ended 31 December</i>	<i>Note</i>	Separate financial statements	
		2022	2021
		<i>(in million Baht)</i>	
Subsidiaries			
Increase capital of GGC Biochemical Co., Ltd.		54	271
Dissolution of Thai Fatty Alcohols Co., Ltd.	4	(1,685)	-

GGC Biochemicals Co., Ltd.

On 18 April 2022, GGC Biochemical Co., Ltd., a subsidiary of the Company, has called for an increase in paid-up capital of 3,575,000 shares at Baht 15 per share, totalling Baht 53.63 million. The capital increase is for investment in sugarcane and sugar business under the subsidiary's joint venture Nakhonsawan Biocomplex Project.

Thai Fatty Alcohols Co., Ltd.

On 31 October 2022, Thai Fatty Alcohols Co., Ltd., a subsidiary of the Company, registered to dissolve the business with Department of Business Development, Ministry of Commerce. The subsidiary distributed capital to the Company amounting to Baht 1,256 million. The Company recognised a loss from capital return of subsidiary amounting to Baht 429 million in its separate statement of income for the year ended 31 December 2022. As at 31 December 2022, the subsidiary is in the liquidation process.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

10 Investments in associate and joint ventures

	Type of business	Country of operation	Ownership Interest	Consolidated financial statements					
				Equity method		Impairment		Equity method - net	
				2022	2021	2022	2021	2022	2021
			(%)	(in million Baht)					
<i>Associate</i>									
Thai Eastern Top Seeds Oil Co., Ltd.*	Production and sale of crude oil palm kernel oil and vegetable oil	Thailand	30	-	-	-	-	-	-
Total investment in associate				-	-	-	-	-	-
<i>Direct joint venture</i>									
Thai Ethoxylate Co., Ltd.	Production and sale of Fatty Alcohol Ethoxylates	Thailand	50	659	648	-	-	659	648
								102	91
<i>Indirect Joint venture</i>									
GGC KTIS Bioindustrial Co., Ltd.	Production and distribution of electricity and ethanol from sugarcane	Thailand	50	1,223	1,233	-	-	1,223	1,233
Total investment in joint ventures				1,882	1,881	-	-	1,882	1,881
								102	91

* During the year ended 31 December 2020, the Company recognised impairment loss on the investment in Thai Eastern Top Seeds Oil Co., Ltd. in the consolidated financial statements amounting to Baht 9.45 million because the recoverable amount of investment in such company was less than its carrying amount. Subsequently, on 15 September 2021, the Board of Directors' Meeting of the Company passed a resolution to approve to sell all shares in Thai Eastern Top Seeds Oil Co., Ltd. for a total amount of Baht 1 to a company. All shares have been sold and proceeds fully paid on 13 January 2022. As a result, the Company classified such investment to investment held for sale in the consolidated financial statements as at 31 December 2021.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

Separate financial statements											
Type of business	Country of operation	Ownership Interest		Cost method		Impairment		Cost method - net		Dividend income	
		2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
(in million Baht)											
<i>Associate</i> Thai Eastern Top Seeds Oil Co., Ltd.*	Production and sale of crude oil palm kernel oil and vegetable oil	Thailand	-	30	-	67	-	(67)	-	-	-
Total investment in associate											
<i>Direct joint venture</i> Thai Ethoxylate Co., Ltd.	Production and sale of Fatty Alcohol Ethoxylates	Thailand	50	50	691	691	-	-	691	691	91
Total investment in joint ventures											

* During the year ended December 31, 2020, the Company recognised impairment loss on the investment in Thai Eastern Top Seeds Oil Co., Ltd. in the separate financial statements amounting to Baht 66.60 million because the recoverable amount of investment in such company was less than its carrying amount. Subsequently, on 15 September 2021, the Board of Directors' Meeting of the Company passed a resolution to approve to sell all shares in Thai Eastern Top Seeds Oil Co., Ltd. for a total amount of Baht 1 to a company. All shares have been sold and proceeds fully paid on 13 January 2022. As a result, the Company classified such investment to investment held for sale in the separate financial statements as at 31 December 2021.

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Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

<i>Material movement</i> <i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			

Joint venture

Increase capital in GGC KTIS Bioindustrial Co., Ltd.	54	236	-	-
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GGC KTIS Bioindustrial Co., Ltd.

On 8 April 2022, GGC KTIS Bioindustrial Company Limited, an indirect joint venture of the Group, has called for an increase in paid-up capital of 3,575,000 shares at Baht 15 per share, totalling Baht 53.63 million, from GGC Biochemicals Company Limited, a subsidiary of the Company. The amount was fully paid in May 2022.

Transaction movement of investments in joint ventures for the years ended 31 December 2022 and 2021 is as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Joint venture				
As at 1 January	648	602	691	691
Share of net profit of investment in a joint venture	111	136	-	-
Share of other comprehensive income (expense) of a joint venture	2	1	-	-
Dividend income	(102)	(91)	-	-
At 31 December	659	648	691	691
Indirect joint venture				
At 1 January	1,233	1,021	-	-
Acquisition	54	263	-	-
Share of net loss of investment in a joint venture	(64)	(49)	-	-
Share of other comprehensive income (expense) of in a joint venture	-	(2)	-	-
At 31 December	1,223	1,233	-	-
Total investment in joint venture	1,882	1,881	691	691

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

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For the year ended 31 December 2022

Associate and joint ventures

The following table summarises the financial information of the associate and joint ventures as included in their own financial statements, adjusted for fair value adjustments at acquisition and differences in accounting policies. The table also reconciles the summarised financial information to the carrying amount of the Group's interest in these companies.

Year ended 31 December	Thai Ethoxylate Co., Ltd.		Thai Eastern Top Seed Oil Co., Ltd.		GGC KTIS Bioindustrial Co., Ltd.	
	2022	2021	2022	2021	2022	2021
	(in million Baht)					
Statements of income						
Revenue	7,084	5,765	-	380	-	-
Profit (loss) from continuing operations	256	271	-	(58)	(128)	(99)
Other comprehensive income (expense)	4	1	-	-	-	(3)
Total comprehensive income (expense) (100%)	260	272	-	(58)	(128)	(102)
Total comprehensive income (expense) of the Group's interest	130	136	-	(17)	(64)	(51)
Elimination of unrealised profit downstream	(17)	1	-	-	-	-
Less loss in excess of investment of the Group's interest	-	-	-	8	-	-
The Group's share of total comprehensive income (expense)	113	137	-	(9)	(64)	(51)
As at 31 December	Thai Ethoxylate Co., Ltd.		Thai Eastern Top Seed Oil Co., Ltd.		GGC KTIS Bioindustrial Co., Ltd.	
	2022	2021	2022	2021	2022	2021
	(in million Baht)					
Statements of financial position						
Current assets	2,082	2,178	-	30	860	312
Non-current assets	464	448	-	298	7,898	6,794
Current liabilities	(1,120)	(1,253)	-	(228)	(1,496)	(155)
Non-current liabilities	(61)	(68)	-	(127)	(4,816)	(4,486)
Net assets (100%)	1,365	1,305	-	(27)	2,446	2,465
The Group's share of net assets	682	653	-	(8)	1,223	1,233
Elimination of unrealised profit downstream	(23)	(5)	-	-	-	-
Less loss in excess of investment of the Group's interest	-	-	-	8	-	-
Carrying amount of investments in associate and joint ventures	659	648	-	-	1,223	1,233
Remark:						
Cash and cash equivalents	534	561	-	15	21	70
Depreciation and amortisation	55	53	-	38	7	3
Income tax expense	67	68	-	-	15	2
Includes current financial liabilities (excluding trade and other payables and provisions)	28	9	-	101	1,107	76
Includes non-current financial liabilities (excluding trade and other payables and provisions)	24	27	-	126	128	4,469

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

11 Plant and equipment

	Consolidated financial statements					
	Plant, machinery, factory, tools and equipment	Buildings and building improvements	Land improvement	Furniture, fixtures and office equipment (in million Baht)	Vehicles	Assets under construction
Cost						Total
As at 1 January 2021	9,379	804	62	14	10	10,395
Additions	36	-	-	3	10	184
Transfers	88	1	-	-	-	-
Disposals	(9)	(1)	-	-	(8)	(18)
As at 31 December 2021						
As at 1 January 2022	9,494	804	62	17	12	10,561
Additions	31	-	-	3	2	247
Transfers	174	6	-	4	-	-
Disposals	(4)	-	-	-	(8)	(12)
As at 31 December 2022	9,695	810	62	24	6	10,796
Accumulated depreciation						
As at 1 January 2021	(5,325)	(444)	(33)	(7)	(10)	(5,819)
Depreciation charge for the year	(445)	(40)	(3)	(2)	(8)	(498)
Disposals	6	1	-	-	8	15
As at 31 December 2021						
As at 1 January 2022	(5,764)	(483)	(36)	(9)	(10)	(6,302)
Depreciation charge for the year	(402)	(24)	(2)	(4)	(2)	(434)
Disposals	4	-	-	-	8	12
As at 31 December 2022	(6,162)	(507)	(38)	(13)	(4)	(6,724)
Net book value						
As at 31 December 2021	3,730	321	26	8	2	4,259
As at 31 December 2022	3,533	303	24	11	2	4,072

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

	Note	Separate financial statements (in million Baht)					
		Plant, machinery, factory, tools and equipment	Buildings and building improvements	Land improvement	Furniture, fixtures and office equipment	Vehicles	Assets under construction
Cost							Total
As at 1 January 2021		8,636	713	61	14	10	9,559
Additions		36	-	-	2	10	181
Transfers		87	-	-	-	-	-
Disposals		(9)	(1)	-	-	(8)	(18)
As at 31 December 2021 and 1 January 2022		8,750	712	61	16	12	9,722
Additions		28	-	-	3	2	235
Acquisitions from transfers of businesses	4	753	92	1	-	-	850
Transfers		167	6	-	5	-	-
Disposals		(3)	-	-	-	(8)	(11)
As at 31 December 2022		9,695	810	62	24	6	10,796
Accumulated depreciation							
As at 1 January 2021		(4,838)	(388)	(32)	(7)	(10)	(5,275)
Depreciation charge for the year		(412)	(35)	(3)	(2)	(8)	(460)
Disposals		6	1	-	-	8	15
As at 31 December 2021 and 1 January 2022		(5,244)	(422)	(35)	(9)	(10)	(5,720)
Depreciation charge for the year		(380)	(21)	(3)	(4)	(2)	(410)
Acquisitions from transfers of businesses	4	(542)	(64)	-	-	-	(606)
Disposals		4	-	-	-	8	12
As at 31 December 2022		(6,162)	(507)	(38)	(13)	(4)	(6,724)
Net book value							
As at 31 December 2021		3,506	290	26	7	2	4,002
As at 31 December 2022		3,533	303	24	11	2	4,072

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For the year ended 31 December 2022

Reviewing of the useful life of assets

In 2022, the management reviewed the useful life of assets through an assessment by the Group's engineers. As a result, changes in the estimated useful life of certain classes of assets has been recognised prospectively from 1 January 2022 as follow:

<i>For the year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Buildings and building improvements	5-25 years	5-25 years	5-25 years	5-25 years
Plant, machinery, factory, tools and equipment	3-25 years	5-25 years	3-25 years	5-25 years

The change in the estimated useful lives of assets resulted in decreases in depreciation expenses of the Group and the Company for the year ended 31 December 2022 amounting to Baht 72 million and Baht 72 million, respectively.

12 Leases

<i>Right-of-use assets As at 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Land	156	165	156	160
Buildings	8	6	8	6
Plant, machinery, factory, tools and equipment	185	273	185	260
Furniture, fixtures and office equipment	-	1	-	1
Vehicles	36	29	36	29
Total	385	474	385	456

In 2022, additions to the right-of-use assets of the Group and the Company were Baht 49 million and Baht 49 million, respectively (2021: Baht 27 million and Baht 27 million, respectively).

The Group Company leases land, buildings, pipe racks, storage tanks, equipment and vehicles for 2 - 29 years, with extension options at the end of lease term. The rental fee and payment schedule are as specified in the contract.

Extension options

The Group Company has extension options on property leases exercisable up to one year before the end of the contract period. The Group Company assesses at lease commencement date whether it is reasonably certain to exercise the extension options and will regularly reassess so.

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For the year ended 31 December 2022

	Consolidated financial statements		Separate financial statements	
<i>For the year ended 31 December</i>	2022	2021	2022	2021
	<i>(in million Baht)</i>			
<i>Amounts recognised in profit or loss</i>				
Depreciation of right-of-use assets				
- Land	9	9	9	9
- Buildings	4	6	4	6
- Plant, machinery, factory, tools and equipment	72	96	67	87
- Furniture, fixtures and office equipment	1	2	1	2
- Vehicles	12	7	12	7
Interest expense on lease liabilities	14	17	14	16
Expense relating to short-term leases	5	9	4	7
Expense relating to leases of low value assets	2	1	2	1
Expense relating to variable lease payments not include in the measurement of the lease liability	3	4	2	2
Gain on lease modification and cancellation	24	1	24	1

13 Intangible assets

	Consolidated financial statements			
	Production license fees	Goodwill	Other intangible assets	Total
	(in million Baht)			
Cost				
As at 1 January 2021	88	33	17	138
Additions	-	-	4	4
As at 31 December 2021 and 1 January 2022	88	33	21	142
Additions	-	-	15	15
As at 31 December 2022	88	33	36	157
Amortisation				
As at 1 January 2021	(60)	-	(9)	(69)
Amortisation charge for the year	(5)	-	(1)	(6)
As at 31 December 2021 and 1 January 2022	(65)	-	(10)	(75)
Amortisation charge for the year	(4)	-	(2)	(6)
As at 31 December 2022	(69)	-	(12)	(81)
Net book value				
As at 31 December 2021	23	33	11	67
As at 31 December 2022	19	33	24	76

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For the year ended 31 December 2022

	Separate financial statements		
	Production license fees	Other intangible assets (in million Baht)	Total
Cost			
As at 1 January 2021	88	17	105
As at 31 December 2021 and 1 January 2022	88	17	105
Additions	-	15	15
As at 31 December 2022	88	32	120
Amortisation			
As at 1 January 2021	(60)	(9)	(69)
Amortisation charge for the year	(5)	(1)	(6)
As at 31 December 2021 and 1 January 2022	(65)	(10)	(75)
Amortisation charge for the year	(4)	(2)	(6)
As at 31 December 2022	(69)	(12)	(81)
Net book value			
As at 31 December 2021	23	7	30
As at 31 December 2022	19	20	39

14 Interest-bearing liabilities

Long-term borrowings

Long-term borrowings balances as at 31 December 2022 and 2021 were as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	(in million Baht)			
Current				
Current portion of long-term borrowings from financial institutions				
Unsecured	87	765	87	765
Less Current portion of deferred financing service fee	(1)	(1)	(1)	(1)
Total current	86	764	86	764
Non-current				
Long-term borrowings from financial institutions				
Unsecured	861	-	861	-
Less Deferred financing service fee	(2)	-	(2)	-
Total non-current	859	-	859	-
Total	945	764	945	764

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For the year ended 31 December 2022

As at 31 December 2022, the Group had unutilised long-term borrowing facilities totalling Baht 833 million (2021: Baht 1,800 million).

As at 31 December 2022, the Group had unutilised short-term borrowing totalling Baht 900 million (2021: Baht 900 million).

As at 31 December 2022, the Group and the Company had long-term and revolving long-term credit facility agreements with several financial institutions totalling Baht 945 million and Baht 945 million, respectively (2021: Baht 764 million and Baht 764 million, respectively) bearing different interest rates and repayment terms as specified in each agreement. The Group is required to comply with certain covenants pertaining to maintaining certain financial ratios, percentage of share held by the major shareholder and other conditions as specified in each agreement.

Details of the Group's borrowings for financial institutions as at 31 December 2022 were as follows:

Currency	Facilities (in million)	Interest Rates (% per annum)	Repayment Terms
Baht	700	THOR plus margin	Principal is repayable on semi-annual basis, in 15 instalments commencing on 6 months after first drawdown.
Baht	700	FDR 6 M plus margin	Principal is repayable on semi-annual basis, in 12 instalments commencing from April 2023.
Baht	400	MRL less discount rate	Principal is repayable on semi-annual basis, in 10 instalments commencing from June 2024.

The periods to maturity of interest-bearing liabilities, excluding finance lease liabilities, as at 31 December 2022 and 2021 were as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	(in million Baht)			
Within one year	85	764	85	764
After one year but within five years	590	-	590	-
After five years	270	-	270	-
Total	945	764	945	764

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For the year ended 31 December 2022

Lease liabilities

The periods to maturity of lease liabilities, as at 31 December 2022 and 2021 were as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Within one year	61	133	61	125
After one year but within five years	136	150	136	141
After five years	324	320	324	317
	521	603	521	583
Less Deferred interest expense	(114)	(101)	(114)	(100)
Total	407	502	407	483
Classification				
- Current portion of lease liabilities	48	120	48	112
- Lease liabilities	359	382	359	371
	407	502	407	483

Changes in liabilities arising from financing activities

	Consolidated financial statements			
	Accrued interest expense	Borrowings	Lease liabilities	Total
	<i>(in million Baht)</i>			
2022				
As at 1 January	-	764	502	1,266
Net financing cash flows	(38)	183	(100)	45
Interest expense	25	-	14	39
Others	13	(2)	(9)	2
As at 31 December	-	945	407	1,352
2021				
As at 1 January	-	1,330	616	1,946
Net financing cash flows	(32)	(567)	(126)	(725)
Interest expense	29	-	-	29
Others	3	1	12	16
As at 31 December	-	764	502	1,266
	Separate financial statements			
	Accrued interest expense	Borrowings	Lease liabilities	Total
	<i>(in million Baht)</i>			
2022				
As at 1 January	-	764	483	1,247
Net financing cash flows	(38)	183	(95)	50
Interest expense	25	-	13	38
Others	13	(2)	6	17
As at 31 December	-	945	407	1,352

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For the year ended 31 December 2022

	Separate financial statements			
	Accrued interest expense	Borrowings	Lease liabilities	Total
		(in million Baht)		
2021				
As at 1 January	-	1,330	582	1,912
Net financing cash flows	(32)	(567)	(117)	(716)
Interest expense	29	-	-	29
Others	3	1	18	22
As at 31 December	-	764	483	1,247

15 Provisions for employee benefits

	Consolidated financial statements		Separate financial statements	
<i>As at 31 December</i>	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Post-employment benefits	102	101	102	101
Other long-term employee benefits	17	19	17	19
Total	119	120	119	120

Defined benefit plans

The Group and the Company operate a defined benefit plan based on the requirement of Thai Labour Protection Act B.E 2541 (1998) to provide retirement benefits to employees based on pensionable remuneration and length of service. The defined benefit plans expose the Company to actuarial risks, such as longevity risk, currency risk, interest rate risk and market (investment) risk.

<i>Present value of the defined benefit obligations</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
As at 1 January	120	113	120	113
Recognised in profit or loss:				
Current service costs	13	12	13	12
Interest on obligations	2	2	2	2
Actuarial gain	(1)	-	(1)	-
Recognised in other comprehensive income:				
Actuarial gain				
- Financial assumptions	(14)	(7)	(14)	(7)
Others				
Benefit paid	(3)	-	(3)	-
Received from acquired of business transfer	2	-	2	-
At 31 December	119	120	119	120

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Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

The principal actuarial assumptions as at 31 December 2022 and 2021 (expressed as weighted-averages) were as follows:

<i>Actuarial assumptions</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
		(%)		
Discount rate	2.8	1.9	2.8	1.9
Future salary increases	5.0	5.0	5.0	5.0
Resignation rate	0 - 6.0	0 - 6.0	0 - 6.0	0 - 6.0
Retirement age	60 years	60 years	60 years	60 years

Assumptions regarding future mortality have been based on published statistics and mortality tables.

As at 31 December 2022, the weighted-average duration of the defined benefit obligation is 10 years (2021: 10 years).

Sensitivity analysis

Reasonably possible changes at the reporting date to one of the relevant actuarial assumptions, holding other assumptions constant, would have affected the defined benefit obligation by the amounts shown below:

<i>Effect to the defined benefit obligation At 31 December</i>	Consolidated/ Separate financial statements			
	1% increase in assumption		1% decrease in assumption	
	2022	2021	2022	2021
		(in million Baht)		
Discount rate	(15)	(16)	18	19
Future salary growth	17	17	(14)	(14)

16 Legal reserve

Section 116 of the Public Limited Companies Act B.E. 2535 (1992) Section 116 requires that a public company shall allocate not less than 5% of its annual net profit, less any accumulated losses brought forward, to a reserve account ("legal reserve"), until this account reaches an amount not less than 10% of the registered authorised capital. The legal reserve is not available for dividend distribution.

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Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

17 Segment information and disaggregation of revenue

(a) Segment information

Management consider that the Group has 2 reportable segments which are significant business segments of the Group that offer different products and services, and are managed separately. For each of the business segments, the chief operating decision maker (CODM) reviews internal management reports on at least a quarterly basis. The following summary describes the operations in each of the Group's reportable segments.

Segment 1	Methyl ester
Segment 2	Fatty alcohols
Other	Other segment

Other operations in 2022 and 2021, none of these segments meets the quantitative thresholds for determining additional reportable segments.

Performance of each reportable segment is measured based on profit before finance cost, income tax, depreciation, amortisation and others which is as included in the internal management reports that are reviewed by the Group's CODM. Management believes that using profit before finance cost, income tax, depreciation, amortisation and others to measure performance is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries.

Information about reporting segments for the year ended 31 December 2022

	Methyl ester	Fatty alcohols	Other	Total
	<i>(in million Baht)</i>			
External revenues				
- At a point in time	16,370	8,714	-	25,084
Total segment revenues	16,370	8,714	-	25,084
Cost of sales	(15,677)	(6,877)	-	(22,554)
Selling and distribution expenses and administrative expenses	(495)	(369)	(1)	(865)
Profit (loss) before finance costs, depreciation, amortisation, income tax and others	237	1,496	(1)	1,732
Interest income	5	7	-	12
Finance costs	(38)	(11)	-	(49)
Depreciation and amortisation	(337)	(267)	-	(604)
Share of profit (loss) of joint ventures accounted for using equity method	-	111	(64)	47
Others	12	(61)	-	(49)
Profit (loss) before income tax	(121)	1,275	(65)	1,089
Net profit (loss) for reportable segment	(169)	1,188	(66)	953

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Information about reporting segments for the year ended 31 December 2021

	Methyl ester	Fatty alcohols (in million Baht)	Other	Total
External revenues				
- At a point in time	15,308	5,615	-	20,923
Total segment revenues	15,308	5,615	-	20,923
Cost of sales	(14,151)	(4,558)	-	(18,709)
Selling and distribution expenses and administrative expenses	(644)	(554)	(1)	(1,199)
Profit (loss) before finance costs, depreciation, amortisation, income tax and others	541	541	(1)	1,081
Interest income	3	3	-	6
Finance costs	(38)	(11)	-	(49)
Depreciation and amortisation	(388)	(320)	-	(708)
Share of profit (loss) of joint ventures accounted for using equity method	-	136	(49)	87
Others	7	(3)	-	4
Profit (loss) before income tax	125	346	(50)	421
Net profit (loss) for reportable segment	99	281	(50)	330

(b) Geographical segments

In presenting information on the basis of geographical segments, segment sales revenues are based on the geographical location of customers. Segment non-current assets (exclude derivatives and deferred tax) are based on the geographical location of the assets.

Geographical information

	Revenues	
	2022	2021
	(in million Baht)	
Thailand	18,666	16,955
The People's Republic of China	2,283	1,410
India	1,364	848
Korea	404	241
Other countries	2,367	1,469
Total	25,084	20,923

The Group is managed and operates principally in Thailand and no assets located in foreign countries.

(c) Major customers

The Group's revenues from one customer of the Methyl ester segment amount to more than 10% of the total Group revenues. Revenue from this customer for the year ended 31 December 2022 amounted to Baht 3,004 million (2021: amounting to Baht 4,144 million).

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Global Green Chemicals Public Company Limited and its Subsidiaries

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For the year ended 31 December 2022

18 Expenses by nature

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	(in million Baht)			
Changes in inventories of finished goods and work in progress	28	(70)	(309)	(53)
Raw materials and consumables used	21,702	18,023	22,025	17,843
Depreciation and amortisation	604	708	574	662
Employee benefit expenses	523	455	523	455
Distribution expenses	374	300	170	114
Loss from capital return of a subsidiary	-	-	429	-
Others	793	757	749	676
Total cost of sales, selling and distribution expenses and administrative expenses	24,024	20,173	24,161	19,697

During 2022, the Group and the Company has contributed provident funds for its employees amounting to Baht 20 million and Baht 20 million, respectively (2021: Baht 18 million and Baht 18 million, respectively), which is included in employee benefit expenses.

19 Income tax

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	(in million Baht)			
Income tax recognised in profit or loss				
Current tax expense				
Current year	121	45	-	-
Under provided in prior year	2	-	-	-
	123	45	-	-
Deferred tax expense				
Movements in temporary differences	13	46	29	48
Total	136	91	29	48

Reconciliation of effective tax rate

	Consolidated financial statements			
	2022		2021	
	Rate (%)	(in million Baht)	Rate (%)	(in million Baht)
Profit before income tax expense		1,089		421
Income tax using the Thai corporation tax rate	20.00	218	20.00	84
Income not subject to tax		-		(65)
Expenses deductible at a greater amount		(104)		(33)
Utilisation tax losses		-		(58)
Expenses not deductible for tax purposes		71		127
Share of profit of joint ventures accounted for using equity method		(9)		(15)
Temporary difference				
- Loss carry forward		(17)		60
- Others		30		(14)
Others		(53)		5
Income tax expenses	12.49	136	21.62	91

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<i>Reconciliation of effective tax rate</i>	Separate financial statements			
	2022		2021	
	<i>Rate (%)</i>	<i>(in million Baht)</i>	<i>Rate (%)</i>	<i>(in million Baht)</i>
Profit before income tax expense		783		273
Income tax using the Thai corporation tax rate	20.00	157	20.00	54
Income not subject to tax		(141)		(104)
Expenses deductible at a greater amount		(99)		(30)
Utilisation tax losses		-		(44)
Expenses not deductible for tax purposes		50		123
Temporary difference				
- Loss carry forward		(17)		58
- Others		46		(9)
Others		33		-
Income tax expenses	3.70	29	17.58	48

	Consolidated financial statements				Separate financial statements			
<i>Deferred tax</i>	Assets		Liabilities		Assets		Liabilities	
<i>At 31 December</i>	2022	2021	2022	2021	2022	2021	2022	2021
	<i>(in million Baht)</i>				<i>(in million Baht)</i>			
Total	233	234	(64)	(53)	233	230	(64)	(52)
Set off of tax	(64)	(53)	64	53	(64)	(52)	64	52
Net deferred tax assets								
(liabilities)	169	181	-	-	169	178	-	-

<i>Deferred tax</i>	Consolidated financial statements			
	(Charged) / credited to:			
	As at 1 January 2022	Profit or loss <i>(in million Baht)</i>	Other comprehensive income	As at 31 December 2022
<i>Deferred tax assets</i>				
Provision for employee benefits	20	4	1	25
Plant and equipment	32	(7)	-	25
Tax loss carry forward*	164	17	-	181
Allowance for impairment of investment	13	(13)	-	-
Others	5	(3)	-	2
Total	234	(2)	1	233
<i>Deferred tax liabilities</i>				
Plant and equipment	(9)	(12)	-	(21)
Provision for expenses from raw materials derogation	(43)	-	-	(43)
Other	(1)	1	-	-
Total	(53)	(11)	-	(64)
Net	181	(13)	1	169

*Included deferred tax asset arising from provision for estimated damages

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Deferred tax

	As at 1 January 2021	Consolidated financial statements (Charged) / credited to:		As at 31 December 2021
		Profit or loss	Other comprehensive income	
		(in million Baht)		
Deferred tax assets				
Provision for employee benefits	22	(1)	(1)	20
Plant and equipment	20	12	-	32
Tax loss carry forward*	224	(60)	-	164
Allowance for impairment of investment	13	-	-	13
Others	1	4	-	5
Total	280	(45)	(1)	234
Deferred tax liabilities				
Plant and equipment	(8)	(1)	-	(9)
Provision for expenses from raw materials derogation	(43)	-	-	(43)
Other	(1)	-	-	(1)
Total	(52)	(1)	-	(53)
Net	228	(46)	(1)	181

*Included deferred tax asset arising from provision for estimated damages

Deferred tax

	As at 1 January 2022	Separate financial statements (Charged) / Credited to			As at 31 December 2022
		Profit or loss	Other comprehensive income	Acquired in business combination	
		(in million Baht)			
Deferred tax assets					
Provision for employee benefits	20	4	1	-	25
Plant and equipment	30	(7)	-	2	25
Tax loss carry forward*	164	17	-	-	181
Allowance for impairment of investment	13	(13)	-	-	-
Others	3	(20)	-	19	2
Total	230	(19)	1	21	233
Deferred tax liabilities					
Plant and equipment	(9)	(11)	-	(1)	(21)
Provision for expenses from raw materials derogation	(43)	-	-	-	(43)
Others	-	1	-	(1)	-
Total	(52)	(10)	-	(2)	(64)
Net	178	(29)	1	19	169

*Included deferred tax asset arising from provision for estimated damages

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

<i>Deferred tax</i>	As at 1 January 2021	Separate financial statements (Charged) / credited to:		As at 31 December 2021
		Profit or loss	Other comprehensive income	
		<i>(in million Baht)</i>		
<i>Deferred tax assets</i>				
Provision for employee benefits	22	(1)	(1)	20
Plant and equipment	20	10	-	30
Tax loss carry forward*	222	(58)	-	164
Allowance for impairment of investment	13	-	-	13
Others	1	2	-	3
Total	278	(47)	(1)	230
<i>Deferred tax liabilities</i>				
Plant and equipment	(7)	(2)	-	(9)
Provision for expenses from raw materials derogation	(43)	-	-	(43)
Total	(50)	(2)	-	(52)
Net	228	(49)	(1)	178

*Included deferred tax asset arising from provision for estimated damages

As at 31 December 2022, the Group and Company has accumulated taxable loss carry forward of Baht 987 million and Baht 981 million, respectively which expire in 2023-2031. The Company has not yet recognised the deferred tax assets as the Company considered that no sufficient future taxable profit will be available to allow the related deferred tax assets to be utilised (2021: Baht 916 million and Baht 912 million, respectively).

20 Promotional privileges

The Company has been granted promotional certificates by the Office of the Board of Investment relating to production and distribution of Methyl ester, Fatty alcohols, Glycerin and Potassium sulfate. The Company has been granted several privileges including exemption and/or reduction from payment of income tax on the net profit derived from promoted operations with certain terms and conditions prescribed in the promotional certificates, which the Company must comply with.

	2022			2021		
	Promoted Businesses	Non- promoted businesses	Total	Promoted businesses	Non- promoted businesses	Total
	<i>(in million Baht)</i>					
Export sales	65	1,377	1,442	49	293	342
Local sales	7,176	15,581	22,757	6,617	13,188	19,805
Total revenue	7,241	16,958	24,199	6,666	13,481	20,147

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

21 Earnings per share

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht / in million shares)</i>			
Profit attributable to ordinary shareholders of the Company (basic)	953	330	753	225
Weighted average number of ordinary shares	1,024	1,024	1,024	1,024
Earnings per share (Baht)	0.93	0.32	0.74	0.22

The Company has no potential dilutive ordinary shares during the years ended 31 December 2022 and 2021. Therefore, there are no dilutive earnings per share effect.

22 Dividends

	Approval date	Payment schedule	Dividend rate per share <i>(in Baht)</i>	Amount <i>(in million Baht)</i>
2022				
2021 Annual dividend	1 April 2022	April 2022	0.35	358.28
2022 Interim dividend	9 August 2022	September 2022	0.25	255.92
				614.20
2021				
2020 Annual dividend	2 April 2021	April 2021	0.35	358.28
				358.28

23 Financial instruments

(a) Carrying amounts and fair values

Carrying amounts of cash and cash equivalents, current financial assets, trade accounts receivable, other receivables, deposits at a financial institution pledged as collateral, trade accounts payable, other payables and payables to contractor, which are measured at amortised cost. They are approximate to their fair values due to their short maturities.

Carrying amounts of long-term loans from financial institutions with floating interest rates, lease liabilities and other non-current liabilities measured at amortised cost. The value is close to the estimated fair value.

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy, but does not include fair value information for financial assets and financial liabilities measured at amortised cost if the carrying amount is a reasonable approximation of fair value.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

	Carrying amount Financial instruments measured at FVTPL	Consolidated financial statement			
		Fair value			
		Level 1	Level 2	Level 3	Total
		(in million Baht)			
<i>At 31 December 2021</i>					
Forward exchange contract					
- Financial assets	2	-	2	-	2
- Financial liabilities	(11)	-	(11)	-	(11)

Measurement of fair values

Level 2 fair values for simple over-the-counter derivatives are based on broker quotes. Those quotes are tested for reasonableness by discounting expected future cash flows using market interest rate for a similar instrument at the measurement date. Fair values reflect the credit risk of the instrument and include adjustments to take account of the credit risk of the Company and counterparty as appropriate.

(b) Financial risk management policies

Risk management framework

The Group is exposed to normal business risks from changes in market interest rates, currency exchange rates and commodity prices and from non-performance of contractual obligations by counterparties. The Group does not hold or issue derivative financial instruments for speculative or trading purposes.

Risk management is integral to the whole business of the Group. The management continually monitors the Group's risk management process to ensure that an appropriate balance between risk and control is achieved.

Capital management

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers.

(b.1) Credit risk

Credit risk is risk of failure from a customer or a counterparty to settle its obligations to the Group as and when they fall due.

(b.1.1) Trade accounts receivables

The Group's exposure to credit risk is influenced mainly by the individual characteristics of each customer. However, management also considers the factors that may influence the credit risk of its customer base, including the default risk associated with the industry and country in which customers operate.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

Management has a policy in place and the exposure to credit risk is monitored on an ongoing basis. Credit evaluations are performed on all customers requiring credit over a certain amount. At the reporting date, there were no significant credit risk and the concentration of credit risk. The maximum exposure to credit risk is represented by the carrying amount of each financial asset in the statement of financial position. However, the majority of the customers are on the long-term contracted commitment and parts of them are the Company's shareholders which the company has consistently collected from them. For the customers who do not have the long-term contracted commitments, the Group monitors the risk on an ongoing basis and would do the business only with the credible customers by limiting the credit lines and requesting the guarantee on some cases. For the export, the credit of counterparty will be considered. The Group will demand a payment on a case to case basis and also has commercial credit insurance. Management anticipates no material losses from its debt collection.

For trade accounts receivable, the Group apply simplified approach in accordance with TFRS 9 to measure lifetime expected credit loss. The Group consider expected credit loss by using trade receivables provision table which estimate historical credit loss. The overdue circumstance adjusted to reflect current situation of receivables and the future economic conditions were taken into account.

(b.1.2) Cash and cash equivalents

The Group's exposure to credit risk arising from cash and cash equivalents and derivative assets is limited because the counterparties are financial institutions which are rated at investment grade. The Group constantly assesses the financial status and stability of those financial institutions and companies to manage risks from deposit and investing.

(b.2) Liquidity risk

The Group monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Group's operations and to mitigate the effects of fluctuations in cash flows.

The following table shows the remaining contractual maturities of financial liabilities at the reporting date. The amounts are gross and undiscounted and include contractual interest payments and exclude the impact of netting agreements.

At 31 December	Consolidated financial statements			Total
	1 year or less	More than 1 years but less than 5 years	More than 5 years	
	(in million Baht)			
2022				
Non-derivative financial liabilities				
Trade accounts payable	862	-	-	862
Other payables	344	-	-	344
Payables to contractors	41	-	-	41
Long-term borrowings				
from financial institutions	118	692	278	1,088
Lease liabilities	48	95	264	407
	1,413	787	542	2,742

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

<i>At 31 December</i>	Consolidated financial statements			Total
	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	
2021				
<i>Non-derivative financial liabilities</i>				
Trade accounts payable	1,226	-	-	1,226
Other payables	314	-	-	314
Payables to contractors	61	-	-	61
Long-term borrowings from financial institutions	778	-	-	778
Lease liabilities	120	114	268	502
	2,499	114	268	2,881
<i>Derivative financial liabilities</i>				
Cash inflows from Foreign exchange forward contracts	1,075	-	-	1,075
Cash outflows from Foreign exchange forward contracts	(1,084)	-	-	(1,084)
<i>At 31 December</i>	Separate financial statements			Total
	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	
2022				
<i>Non-derivative financial liabilities</i>				
Trade accounts payable	862	-	-	862
Other payables	344	-	-	344
Payables to contractors	41	-	-	41
Long-term borrowings from financial institutions	118	692	278	1,088
Lease liabilities	48	95	264	407
	1,413	787	542	2,742
2021				
<i>Non-derivative financial liabilities</i>				
Trade accounts payable	1,226	-	-	1,226
Other payables	258	-	-	258
Payables to contractors	61	-	-	61
Long-term borrowings from financial institutions	778	-	-	778
Lease liabilities	112	107	264	483
	2,435	107	264	2,806

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

At 31 December	Separate financial statements			Total
	1 year or less	More than 1 years but less than 5 years	More than 5 years	
	(in million Baht)			
Derivative financial liabilities				
Cash inflows from Foreign exchange forward contracts	30	-	-	30
Cash outflows from Foreign exchange forward contracts	(30)	-	-	(30)

The cash inflows/cash outflows disclosed in the above table represent the contractual undiscounted cash flows relating to derivative financial liabilities held for risk management purposes and which are not usually closed out before contractual maturity. The disclosure shows net cash flow amounts for derivatives that are net cash-settled and gross cash inflow and outflow amounts for derivatives that have simultaneous gross cash settlement.

(b.3) Market risk

The Group is exposed to the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk is as follows:

(b.3.1) Foreign currency risk

The Group is exposed to foreign currency fluctuations risk in financial assets and liabilities and the gross profit (Product to Feed margin - P2F) of the Group that is referenced in foreign currency. Therefore, the Group has a policy in place to manage those risks by emphasizing the natural hedge on assets and liabilities held in foreign currency and the gross profit (P2F) of the Group that is referenced in foreign currency.

As at 31 December 2022, the Company had no forward contracts (2021: USD 32 million equivalent to Baht 1,084 million). However, the Group does not use hedge accounting for such financial instruments.

	Consolidated		Separate	
<i>Exposure to foreign currency</i>	financial statements		financial statements	
<i>At 31 December</i>	2022	2021	2022	2021
	<i>(in million Baht)</i>			
<i>USD</i>				
Financial assets	810	909	810	106
Financial liabilities	(18)	(24)	(18)	(18)
Statement of financial position exposure	792	885	792	88
Net Derivatives	-	(1,084)	-	(30)
Net exposure	792	(199)	792	58
<i>Euro</i>				
Financial liabilities	(6)	(3)	(6)	(2)
Statement of financial position exposure	(6)	(3)	(6)	(2)
Net exposure	(6)	(3)	(6)	(2)

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

Sensitivity analysis

A reasonably possible strengthening (weakening) of Thai Baht against all other foreign currencies at the reporting date would have affected the measurement of financial instruments denominated in a foreign currency. This analysis assumes that all other variables, in particular interest rates, remain constant.

Impact to profit or loss	Movement (%)	Consolidated financial statements		Separate financial statements	
		Strengthening	Weakening (in million Baht)	Strengthening	Weakening
2022					
USD					
- Net gain (loss) on foreign exchange rate	10	(79)	79	(79)	79
EUR					
- Net gain (loss) on foreign exchange rate	10	1	(1)	1	(1)
2021					
USD					
- Net gain (loss) on foreign exchange rate	10	20	(20)	(6)	6
EUR					
- Net gain (loss) on foreign exchange rate	10	-	-	-	-

(b.3.2) Interest rate risk

Interest rate risk is the risk that future movements in market interest rates will affect the results of the Group's operations and its cash flows because the Group's finances loans which have both fixed and floating interest rates for their operations. The Group has managed this risk to ensure the appropriateness to the business operation.

Interest rate sensitivity analysis

The sensitivity analyses below have been determined based on the exposure to interest rates for financial liabilities at the reporting date. For floating rate liabilities, the analysis is prepared assuming the amount of liability outstanding at the reporting date was outstanding for the whole year and using an increase or decrease rate by considering the reasonably possible change in interest rates.

Impact to profit or loss	Consolidated financial statements		Separate financial statements	
	Increase in interest rate 1%	Decrease in interest rate 1%	Increase in interest rate 1%	Decrease in interest rate 1%
(in million Baht)				
2022				
Finance costs	11	(11)	11	(11)
2021				
Finance costs	5	(2)	5	(2)

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

24 Commitments, provisions and contingent liabilities with non-related parties

(a) Commitments

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	(in million Baht)			
Capital commitments				
Contracted but not provided for plant, machinery and equipment	39	93	39	84
Total	39	93	39	84
Other commitments				
Bank guarantees	519	24	519	24
Other agreements	14	30	14	22
Total	533	54	533	46

Utilities and Other Services Agreements with minimum purchase quantity

The Company has a utility and other services agreement which has minimum purchase quantities with a party. This agreement is for the period from 1 November 2007 to 31 October 2027. The minimum purchase quantity, the selling price of products and the renewal of the contract will be subject as specified in the agreement. At 31 December 2022, the Group had outstanding commitments totalling Baht 38.17 million under this agreement (31 December 2021: Baht 6.50 million).

(b) Provisions and contingent Liabilities

Expenses from raw materials derogation and relevant lawsuit

As the raw materials used in the production process are volatile commodity materials, the Company has a policy to manage inventory to be at an appropriate level in order to mitigate the impacts from raw material price volatility. During second quarter of 2018, the Company found that the quantity of raw materials recorded in the system was higher than actual quantity stored at the suppliers' facilities. In addition, this also includes the case that the Company delivered the raw materials to the supplier for refining, however, the supplier neither returned back the refined products according to the contract nor the raw materials to the Company.

The Company conducted an in-depth investigation and found misconduct among certain suppliers and some employees in the relevant functions of the Company, in which certain suppliers are related. The Company has already taken legal actions against the parties involved (both external and internal) as well as disciplinary actions against every employee involved.

In consequence, the Company recognised expenses from raw materials derogation in the consolidated and separate statements of profit or loss for the year ended 31 December 2018 amounting to Baht 2,004 million. However, the Company is legally entitled to claim from those involved.

In 2019, the suppliers delivered pending raw materials of Baht 16 million to the Company as per the settlement agreements. In addition, such suppliers registered a mortgage on land to the Company with fair value of Baht 217 million. Consequently, the Company reviewed the provision for expenses from raw materials derogation and reversed such provision amounting to Baht 233 million.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

Moreover, on 23 March 2021 the Securities and Exchange Commission (“SEC”) filed a criminal complaint to the Economic Crime Suppression Division of the Royal Thai Police against 11 offenders, namely a former director and a former executive of the Company and nine suppliers, for acting with dishonest intent regarding the Company’s raw material management to seek unlawful benefits from the Company, which resulted in losses incurred to the Company. In any case, filing a criminal complaint is merely the commencement of the criminal procedure whereby the inquiry official will perform an investigation before deciding whether to recommend the case to the public attorney who has the authority for prosecution. The power to adjudicate whether any person is guilty or not is, however, vested in the Thailand Court of Justice.

Relevant lawsuits arising from raw materials derogation

On 18 August 2017, Anatta Green Company Limited (“Anatta”), later changing its name to Thai Bio Innovation Company Limited, the Company and Asia Capital Group Public Company Limited (“ACAP”) entered a tripartite MOU where Anatta agreed to be responsible for supplying crude palm oil to the Company and ACAP agreed to provide financial support to Anatta for payment to its suppliers. On the same day, Anatta entered into a loan agreement with ACAP and transferred its right to receive payment for raw materials to ACAP, along with notifying the transfer of such claim to the Company and the Company has given consent to such transfer.

During the 2nd quarter of 2018, the Company disclosed the material event of inventory issue to the Stock Exchange of Thailand. At the same time, ACAP has demanded that the Company pay for the raw materials purchased from Anatta under the transfer of claim, a total of 11 items. The Company considered the documents received and clarified to ACAP that such documents were not in the Company’s system and did not find evidence of the delivery of the raw materials from Anatta as specified.

Subsequently, on 20 August 2018, ACAP filed a lawsuit in the Civil Court, claiming Anatta and the Company jointly to pay damages totaling Baht 324.65 million and 15% interest per annum. The Company’s legal advisor considered the relevant facts and evidence and provided an opinion that the Company is not liable for the allegation. Therefore, the Company appointed a lawyer and submitted a statement to defend itself.

The Court of First Instance issued its judgement on 10 June 2020, requiring the Company to compensate ACAP in the amount of Baht 289.56 million plus interest of 15% per annum from the date of default until the payment is complete. If the Company does not pay the said debt in full, Anatta shall pay the remaining balance. The Company filed a legal appeal on 25 November 2020.

On 20 January 2022, the Appeal Court upheld the judgment of the Court of First Instance. However, the Company did not agree with the Appeal Court’s decision and submitted a request for a petition to the Supreme Court on 9 March 2022. The Company believes that its defenses in facts, laws, and the exercising rights in court in good faith, in the end, the Supreme Court will consider evidences in the case and adjudicate the Company not to be liable for payment of debts according to the judgments of the Court of First Instance and the Court of Appeal because there is clear evidence that there is no such sales and purchase transaction and no delivery of the raw materials to the Company.

The Company had evidence from Department of Internal Trade, Ministry of Commerce and third party that attested in the trial of the Court of First Instance. Also, the Company has submitted important evidence additionally in the Court of Appeal that directly related to the issue of the case. The new evidence has been gathered and prepared from the investigation by an inquiry official in criminal cases after the Court of First Instance decided the case.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries

Notes to the financial statements

For the year ended 31 December 2022

The Company believes that this solid evidence will make the Supreme Court hear that the transaction documents prepared by Anatta and assisted by former employees of the Company, including the evidence used by ACAP for filing against the Company, are dishonest and unlawful acts. This is consistent with the fact that the SEC has found fraudulent acts related to inventory issue and unlawful exploitation which caused the Company to be damaged. It is considered as an offense under the Securities and Exchange Act B.E. 2535. The inquiry official has made recommendation to pursue prosecution in some criminal cases and submitted the investigation documents to the public prosecutor already. Therefore, the Company believes that the Company has no debts to be liable to ACAP under the contracts arising from the dishonest and unlawful acts. However, the Company has decided to record a provision for damages from the said case amounting to Baht 444 million during 2021.

On 31 March 2022, the enforcement officer at the request of ACAP issued an order to freeze the deposits of the Company. The Company filed a request to withdraw the execution with the Civil Court. Subsequently, on 17 May 2022, the court has investigated and issued an order granting permission to unfreeze the deposits of the Company. The Company provided a bank guarantee amounting to Baht 503.31 million to the court as guarantee. The Company has pledged certain deposits of the Company as collateral against the guarantee that the Company received from the bank.

Civil lawsuit from a former supplier of the Company

A former supplier of the Company, filed lawsuits against the Company in 3 cases. Currently, these cases are in the process of the witness hearing in the court of first instance. However, since the former supplier has now been placed under receivership, the official receiver has taken control and is managing the former suppliers' business. The Civil Court therefore issued a summons to the official receiver to enter the cases.

- 1) On 8 September 2020, the Company received a summons and a copy of a Civil Court plaintiff, in which such company filed a civil lawsuit against the Company regarding the breach of agreements concerning the reclaiming of the purchase price on raw materials and claiming damages amounting to Baht 470.03 million with interest at the rate of 7.5% per annum on the principal, totaling Baht 595.10 million starting from the date of the lawsuit until the date of completion of payment.
- 2) On 8 November 2020, the Company received a summons and a copy of a Civil Court plaintiff, in which such company filed a civil lawsuit against the Company as the first defendant and two other companies as joint defendants regarding the breach of agreements and agency, and claiming damages amounting to Baht 92.29 million with interest at the rate of 7.5% per annum on the principal, totaling Baht 109.42 million starting from the date of the lawsuit until the date of completion of payment.
- 3) On 25 December 2020, the Company received a summons and a copy of a Civil Court plaintiff, in which such company filed a civil lawsuit against a supplier and the Company as the second defendant regarding the breach of agreements concerning the reclaiming of the purchase price on raw materials and claiming damages amounting to Baht 305.26 million with interest at the rate of 7.5% per annum on the principal, totaling Baht 364.71 million starting from the date of the lawsuit until the date of completion of payment.

The Company's legal advisor has considered relevant facts and evidence in all three cases and provided the opinion that the Company has not breached the agreements and has no obligation to pay as claimed. The company is in the process of litigation. Therefore, the Company has not recorded any provision against any losses from such cases.

Notes to the Financial Statements

Global Green Chemicals Public Company Limited and its Subsidiaries Notes to the financial statements For the year ended 31 December 2022

Other lawsuits

- 1) Civil plaintiff regarding tort, breach of agreements, breach of promise and claiming damages occurred in year 2020

On 5 June 2020, the Company received a summons and a copy of a civil plaintiff, in which a company filed a lawsuit against the Company with the Civil Court regarding breach of agreements, tort and claiming damages in the amount of Baht 22.94 million with interest at the rate of 7.5% per annum. The Company and legal advisor of the Company considered relevant facts and evidence and provided the opinion that the Company has no obligation to pay such claims. Also, the plaintiff's claims are precluded by prescription. Therefore, the Company appointed a lawyer and submitted a file testimony with its defense including a counterclaim regarding undue enrichment, amounting to Baht 8.29 million. Subsequently, on June 16, 2022, the Civil Court rendered its judgment ordering the Company to compensate the plaintiff in the amount of Baht 60,318.54 together with interests until completion of payment (from the damages claimed by the plaintiff in the amount of Baht 22.94 million) and dismissed the counterclaim of the Company. However, the case is not yet final because the plaintiff has exercised its right to appeal on 10 November 2022.

- 2) Civil plaintiff regarding tort, breach of agreements, breach of promise and claiming damages occurred in year 2021

On 28 June 2021, the Company received a summons and a copy of the civil plaintiff in which a company filed a lawsuit against the Company in the Civil Court regarding tort, breach of agreements, breach of promise and claiming damages amounting to Baht 449.77 million, together with interest at the rate of 7.5% per annum. The Company and legal advisor of the Company considered relevant facts and evidence and provided the opinion that the issue of this lawsuit is the same as the case that the Company had filed against such company and the Company has not committed a wrongful act and has not breached the agreements against the plaintiff as claimed. The Company appointed a lawyer and submitted file testimony with its defense. Subsequently, on 21 March 2022, the Civil Court has rendered its judgment to dismiss such case. However, the case is not yet final as both the plaintiff and the Company have exercised their right to appeal on 21 May 2022 and 20 May 2022, respectively.

25 Events after the reporting period

At the Board of Directors' meeting held on 10 February 2023, the Board approved to submit for dividend payment approval for the year 2022 to the Annual General Meeting of the Shareholders at the rate of Baht 0.50 per share amounting to Baht 511.8 million, of which Baht 0.25 per share amounting to Baht 255.9 million was paid in 6 September 2022. Thus, the remaining dividend will be at the rate of Baht 0.25 per share amounting to Baht 255.9 million to the shareholders entitled to receive dividends. This dividend is subject to the approval of the Shareholders.

Appendix 1

Details about the Board of Directors, Executives, Controllers,
Assigned Top Executives of the finance and accounting function,
Assigned Personnel directly in charge of account preparation
and Company Secretary

The Board of Directors

(as of 15 January 2023)

Mr. Kongkrapan Intarajang

Age: 55

Chairman

Date of Appointment:

6 November 2019

21 October 2020 (Appointed as Chairman of the Board of Directors)

1 April 2022 (1st re-elected)

Education / Training:

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, University of Houston, U.S.A.
- Bachelor of Engineering (Chemical Engineering) (Second-class Honors), Chulalongkorn University
- Executive Development Training Program, The Royal Thai Police
- Capital Market Academy Programs (Class 30), Capital Market Academy
- Leadership Development Programs (LDP 3) Class 4, PTT Leadership and Learning Institute
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course Class 60, National Defence College of Thailand (NDC)
- Breakthrough Program for Senior Executives, IMD Business School

Director Training :

- Role of the Chairman Program (RCP) Class 21/2009, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) Class 119/2009, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand :4

- Chairman, Global Green Chemicals Public Company Limited
- Senior Executive Vice President reporting to the Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
- Director and Secretary to the Board of Directors, Director to the Risk Management Committee and Chief Executive Officer & President, PTT Global Chemical Public Company Limited
- Director and Director to Risk Management Committee, Global Power Synergy Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand : 3

- Chairman of the Advisory Committee in relation to its investment in Allnex, PTTGC International (Netherlands) B.V.
- Chairman, PTTGC International (Netherlands) B.V.
- Chairman, PTTGC International Private Limited

Positions in Other Company / Organization/Insitution / Notable Positions : 10

- Director and Director to Nomination Committee and Remunerating Committee, Thai Institute of Directors Association (IOD)
- Director, Association of Capital Market Academy Alumni
- Director, The Federation of Thai Industries
- Vice President (Supporting), Thailand Swimming Association
- Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)
- Member of Trustee, Petroleum Institute of Thailand (PTIT)
- Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)
- Executive Director, Thailand Energy Academy
- Director, Kamnoetvidya Science Academy (KVIS)
- Co-Chairman, France-Thailand Business Forum

Work Experience (Last 5 Years):

- | | |
|---------------------------------------|---|
| • 1 October 2020 - 31 March 2022 | Advisor of the Member Relations, The Federation of Thai Industries |
| • 1 September 2020 – 15 February 2022 | Chairman, GC International Corporation |
| • 1 July 2015 – 15 February 2022 | Chairman, PTTGC America Corporation |
| • 1 July 2015 – 15 February 2022 | Chairman, PTTGC America LLC |
| • 24 August 2020 – 25 March 2021 | Committee Member, Sustainable Energy Foundation |
| • 6 November 2019 – 20 October 2020 | Director, Global Green Chemicals Public Company Limited |
| • November 2019 – September 2020 | Director, Power of Innovation Foundation |
| • October 2019 – September 2020 | Director, Power of Learning foundation |
| • 31 October 2019 – 31 August 2020 | Director, GC International Corporation |
| • 9 September 2008 – 31 August 2020 | Director, PTTGC International Private Limited |
| • May 2017 – January 2020 | Director, Thai Tank Terminal Limited |
| • April 2017 – September 2019 | Chief Operating Officer - Upstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| • July 2015 – September 2019 | Director and President & CEO, PTTGC America Corporation |
| • April 2015 – September 2019 | Director, PTTGC Innovation America Corporation |
| • February 2015 – September 2019 | Director, PTTGC International (Netherlands) B.V. |
| • January 2015 – September 2019 | Director, Vencorex Holding |
| • November 2008 – September 2019 | Director, Emery Oleochemicals (M) Sdn. Bhd. |
| • November 2008 – September 2019 | Director, Emery Specialty Chemicals Sdn. Bhd |
| • September 2014 – December 2018 | Director and Vice President, GC International Corporation (formerly PTTGC International (USA) Inc.) |
| • September 2014 – December 2018 | Director, NatureWorks LLC |

Shareholding: None**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries:** None

Prof. Dr. Kumchai Jongjakapun**Age: 62****Chairman of Independent Directors / Chairman of the Audit Committee****Date of Appointment:**

17 February 2016

15 March 2016 (1st re-elected)2 April 2019 (2nd re-elected)1 April 2022 (3rd re-elected)**Education / Training:**

- Ph.D. King's College London (KCL), University of London, United Kingdom
- LL.M. in International Business Law (with Merit), University College London (UCL), University of London, United Kingdom
- LL.B., 2nd Class Honors, Thammasat University
- B.A. (Political Science), Ramkhamheang University
- Barrister-at-law, The Thai Bar under the Royal Patronage
- Diploma, National Defence College (The Joint State-Private Sector Class 20, The National Defence Course Class 50), National Defence College of Thailand (NDC)
- Juridical Executives Program (National Juridical Academy Class 15), Juridical Training Institute
- Capital Market Academy Programs (Class 9), Capital Market Academy
- Corporate Governance Program for Directors and Executives of State Enterprises and Public Organizations (Class 12), King Prajadhipok's Institute, State Enterprise Policy Office and Office of the Public Sector Development Commission

Director Training:

- Role of the Chairman Program (RCP) Class 34/2014, Thai Institute of Directors Association (IOD)
- Audit Committee Program (ACP) Class 38/2012, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) Class 128/2010, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 1

- Chairman of Independent Directors and Chairman of the Audit Committee, Global Green Chemicals Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: None**Positions in Other Company/Organization/Institution / Remarkable Positions: 3**

- Chairman, Pearl S. Buck Foundation (Thailand)
- Legal Sub-committee, Electronic Transactions Development Agency (ETDA)
- Member of the Committee of Council of State, Office of the Council of State

Work Experience (Last 5 Years): -**Shareholding:** 15,000 shares held by spouse (accounting for 0.0014653% of the total shares as of 15 January 2023)**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries:** None

Mrs. Kannika Ngamsopee

Age: 66

**Independent Director / Chairman of the Risk Management Committee /
Director to the Audit Committee**

Date of Appointment:

17 February 2016

21 March 2017 (1st re-elected)

5 June 2020 (2nd re-elected)

Education / Training:

- MM, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- M.Acc. (Accounting), Thammasat University
- LL.B. (Law), Thammasat University
- BBA (Accounting), Second-class Honors, Thammasat University
- Capital Market Academy Programs (Class 3), Capital Market Academy
- Diploma, National Defence College, The National Defence Course Class 52, National Defence College of Thailand (NDC)
- Administration of Public and Private Management Program (Class 1), Royal Thai Police
- Advanced Strategic Management, IMD, Swiss Confederation (2012)
- Certified Public Accountant Licence No. 3156
- Certificate of International Trade Law (Class 1), The Thai Bar Association under the Royal Patronage
- Certification Course in Good Governance for Medical Executives, Class 8, King Prajadhipok's Institute and The Medical Council of Thailand

Director Training:

- Director Certification Program (DCP) Class 21/2002, Thai Institute of Directors Association (IOD)
- Risk Management Program for Corporate Leaders (RCL) Class 13/2018, Thai Institute of Directors Association (IOD)
- Board Nomination and Compensation Program (BNCP) Class 7/2019, Thai Institute of Directors Association (IOD)
- Advanced Audit Committee Program (AACP) Class 36/2020, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 5

- Independent Director, Director to the Audit Committee and Chairman of the Risk Management Committee, Global Green Chemicals Public Company Limited
- Independent Director, Chairman of the Audit Committee, Chairman of the Nomination, Remuneration and Corporate Governance Committee and Director to the Risk Management Committee, Scan Inter Public Company Limited
- Independent Director, Chairman of the Audit Committee and Director to the Risk Management Committee, Thonburi Healthcare Group Public Company Limited
- Independent Director and Director to the Audit Committee, Siam Makro Public Company Limited
- Director, Bangkok Aviation Fuel Services Public Company Limited

Board Member / Management in Non-Listed Company – The Stock Exchange of Thailand: None

Positions in Other Company / Organization/Institution / Remarkable Positions: 5

- Honorary Director (Finance, Accounting and Budgeting, Auditing and Evaluation and Risk Management) and Chairman of the Audit Committee, Digital Government Development Agency (Public Organization) (DGA)
- Member, Finance and Budget Sub-Committee, Equitable Education Fund
- Director, ARYU International Hospital, Republic of the Union of Myanmar
- Honorary Member, Financial Institutions Policy Committee, Bank of Thailand
- Member, Asset Management Committee, Vajiravudh College

Work Experience (Last 5 Years):

- 2019 - 2021 Independent Director, Thonburi Wellbeing Company Limited
(An affiliate of Thonburi Healthcare Group)
- 2021 Director, Thonburi Canabiz Public Company Limited
- 2019 - 2021 Sub-Committee Member, Audit and Assessment of Public Sector Administrative Work,
Office of Public Sector Development Commission
- 2016 – 2021 Director, Audit Committee, Social Security Office
- 2020 – 2021 Member, Finance and Property Management Committee, Chulabhorn Royal Academy
- 2019 Sub-Committee member, Audit and Corporate Governance, Thai Arbitration Institute
- 2017 – 2019 Independent Director, Bumrungruang Plaza Limited
(an affiliate of Thonburi Healthcare Group)

Shareholding: 20,000 shares held by spouse (accounting for 0.0019538% of the total shares as of 15 January 2023)

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

ACM Songtam Chokkanapitag

Age: 68

Independent Director / Chairman of the Nomination and Remuneration Committee

Date of Appointment:

17 February 2016

21 March 2017 (1st re-elected)

5 June 2020 (2nd re-elected)

Education / Training:

- Air Command and Staff College (Class 35), Air War College
- Royal Thai Air Force Academy (Class 21)
- Armed Forces Academies Preparatory School (Class 14)
- Diploma, National Defence College, The National Defence Course Class 50, National Defence College of Thailand (NDC)

Director Training:

- Director Certification Program (DCP) Class 227/2016, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 1

- Independent Director and Chairman of the Nomination and Remuneration Committee, Global Green Chemicals Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: None

Positions in Other Company/Organization/Institution / Remarkable Positions: 1

- Member, National Legislative Assembly

Work Experience (Last 5 Years): -

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Police General Suchart Theerasawat Age: 61
Independent Director /
Chairman of the Corporate Governance and Sustainable Development Committee

Date of Appointment:

23 December 2020

2 April 2021 (1st re-elected)

Education / Training:

- Bachelor's degree, Police Cadet Academy (Batch 36)
- Master's degree of Sociology in Criminology and Justice, Mahidol University
- Course of Police Superintendent (Batch 29)
- Course of Senior Police Administration (Batch 25), Department of Police Development
- Diploma, National Defence College, The National Defence Course Class 59, National Defence College of Thailand (NDC)
- Course of LA Sheriff SWAT, U.S.A.
- Course of Counterattack Technique and Strategy

Director Training:

- Director Certification Program (DCP) Class 329/2022, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP) Class 184/2021, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Independent Director and Chairman of the Corporate Governance and Sustainable Development Committee, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: None

Positions in Other Company/Organization/Institution / Remarkable Positions: 6

- Director of Deforestation, Natural Resources Prevention and Suppression Centre, Royal Thai Police
- Director of Narcotics Prevention and Suppression Centre, Royal Thai Police
- Director of Centre for Children, Women, Family Protection and Anti-Trafficking in Persons, Royal Thai Police
- Director of Royal Thai Police Operation Centre
- Deputy Director of Transnational Crimes Centre, Royal Thai Police
- Deputy Director of Gunman and Influential Person Centre, Royal Thai Police

Work Experience (Last 5 Years):

- October 2019 – September 2022 Deputy Commissioner General, Royal Thai Police
- October 2017 – September 2019 Senior Inspector General, Royal Thai Police

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Jarun Wiwatjesadawut**Age: 59****Independent Director / Director to the Risk Management Committee****Date of Appointment:**

2 April 2021

Education / Training:

- Bachelor of Political Science, Chulalongkorn University
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives Class 13, King Prajadhipok's Institute
- Capital Market Academy Program (Class 9), Capital Market Academy
- Senior Executive on Criminal Justice Administration Class 15, Judicial Training Institute
- Advanced Security Management Program Class 3, The Association of National Defence College
- Power of the Kingdom Class 1, Chulalongkorn University
- Diploma, National Defence College, The National Defence Course Class 26, National Defence College of Thailand (NDC)
- Certificate Course in Good Governance for Medical Executives, Class 3, King Prajadhipok's Institute and The Medical Council of Thailand
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14, Thailand Energy Academy (TEA)

Director Training:

- Director Accreditation Program (DAP) Class 9/2004, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) Class 98/2008, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 3

- Independent Director and Director to the Risk Management Committee, Global Green Chemicals Public Company Limited
- Director and Chief Executive Officer, J.R.W. Utility Public Company Limited
- Director and Chairman of the Recruitment Committee, Sikarin Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: None**Positions in Other Company / Organization/Institution / Remarkable Positions: 3**

- Member, Srinakarin Garden Foundation Under the Patronage of HRH Princess Srinagarindra
- Member, The Roster Directors Enterprises
- Chairman of The Committee for Promotion of Mahasarakham University Affairs and Member of Mahasarakham University Council

Work Experience (Last 5 Years):

- 2019 – 2021 Member of Social Security Fund, Social Security Office
- 2018 – 2020 Board of Directors, The Metropolitan Electricity Authority
- 1994 – 2020 Director, Sarnti Green Pack Company Limited

Shareholding: None**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None**

Mr. Thanwa Laohasiriwong**Age: 57****Independent Director/ Director to the Audit Committee/****Director to the Corporate Governance and Sustainable Development Committee****Date of Appointment:**

1 April 2022

Education / Training:

- Bachelor of Engineering (Computer), King Mongkut's Institute of Technology Ladkrabang
- IBM/Harvard Management Development Program, 2001
- IBM/INSEAD Management Development Program, 1998
- Diploma, National Defence College, The National Defence Course Class 60, National Defence College of Thailand (NDC)
- Capital Market Academy Programs (Class 30), Capital Market Academy
- The Executive Program in Energy Literacy for a Sustainable Future Class 13, Thailand Energy Academy (TEA)
- Executive Program on Rule of Law and Development (RoLD) Class 3/2019, Thailand Institute of Justice
- Environmental Governance for Executive Officer Class 4/2016, Department of Environmental Quality Promotion (DEQP), Ministry of Natural Resources and Environment
- Year 2018, Cybersecurity, Cyber Resilience & Privacy Risk in the Era of Digital Transformation, ACIS Professional Center
- Year 2020, Cyber Resilience Program, Bank of Thailand
- Year 2021, Cyber Resilience Program, Bank of Thailand

Director Training:

- Finance for Non-Finance Directors Program (FND) Class 10/2004, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) Class 43/2004, Thai Institute of Directors Association (IOD)
- Successful Formulation & Execution of Strategy (SFE) Class 22/2014, Thai Institute of Directors Association (IOD)
- Ethical Leadership Program (ELP) Class 1/2015, Thai Institute of Directors Association (IOD)
- Advanced Audit Committee Program (AAP) Class 20/2015, Thai Institute of Directors Association (IOD)
- Driving Company Success with IT Governance (ITG) Class 2/2016, Thai Institute of Directors Association (IOD)
- Boardroom Success through Financing and Investment (BFI) Class 2/2017, Thai Institute of Directors Association (IOD)
- Role of the Chairman Program (RCP) Class 45/2019, Thai Institute of Directors Association (IOD)
- Board Nomination and Compensation Program (BNCP) Class 13/2021, Thai Institute of Directors Association (IOD)
- Corporate Governance for Directors and Top Management of State-Owned Enterprise and Public Organization (PDI) Course Class 20/2019, King Prajadhipok's Institute

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 3

- Independent Director, Director to the Audit Committee and Director to the Corporate Governance and Sustainable Development Committee, Global Green Chemicals Public Company Limited
- Independent Director, Chairman of the Nomination and Remuneration Committee, Member of the Compliance Committee and Member of the Risk Oversight Committee, Krungthai Bank Public Company Limited
- Independent Director, Chairman of the Audit Committee and Director to the Nomination and Remuneration Committee, TPBI Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: 2

- Independent Director and Director to the Audit Committee, Relationship Republic Company Limited
- Member of the Support Research and Innovation Administration Committee,
National Research Council of Thailand (NRCT)

Positions in Other Company / Organization / Institution / Remarkable Positions: 1

- Advisor, Investment Committee, BCPG Public Company Limited

Work Experience (Last 5 Years):

- 2021 - April 2022 Director, Supamitr General Hospital Pcl.
- 2019 - 2020 Independent Director and Member of the Audit Committee, State Railway of Thailand
- 2015 - 2019 Chairman, Humanica Public Company Limited
- 2018 - 2019 Honorary Director, Thailand Research Fund Policy Committee,
The Thailand Research Fund (TRF)
- 2014 - 2018 Director and Executive Director, TOT Public Company Limited

Shareholding : None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Lt. Gen. Titawat Satiantip**Age: 52**

**Independent Director / Director to the Nomination and Remuneration Committee /
Director to the Corporate Governance and Sustainable Development Committee**

Date of Appointment :

11 September 2019

2 April 2021 (1st re-elected)**Education / Training :**

- Master of Defense Studies, The University of New South Wales of Australian Defense Force Academy, Australia
- B.Sc. (Mechanical Engineering), Chulachomklao Royal Military Academy
- Command and General Staff College, Class 80
- Intelligence Analysis Course, the Federal Republic of Germany
- Advanced Security Cooperation (ASC) Course, Asia-Pacific Center for Security Studies (APCSS), U.S.A
- Asia-Pacific Program for Senior National Security Officers (APPSNO) Course, Singapore
- Executive CISO, Class 1, National Cyber Security Agency (NCSA)

Director Training:

- Director Certification Program (DCP) Class 285/2019, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Independent Director, Director to the Nomination and Remuneration Committee and Director to the Corporate Governance and Sustainable Development Committee, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: None**Positions in Other Company / Organization / Institution / Remarkable Positions: 1**

- Director, Prime Minister Operation Center (PMOC)

Work Experience (Last 5 Years):

- 2019 – 2021 Senior Staff Office for Ministry of Defence

Shareholding : None**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None**

Mr. Varit Namwong

Age: 59

**Director / Director to the Nomination and Remuneration Committee /
Director to the Risk Management Committee**

Date of Appointment:

19 January 2022

Education / Training:

- Master of Business Administration, Business Administration (International Program), Ramkhamhaeng University
- Bachelor of Business Administration, Marketing, Assumption Business Administration College
- Diploma, National Defence College, The National Defence Course Class 61, National Defence College of Thailand (NDC), 2018
- The Executive Program in Energy Literacy for a Sustainable Future, Class 10, Thailand Energy Academy (TEA)
- Certificate of Advanced Human Resource Executive Program, The Stephen M. Ross School of Business, University of Michigan, 2014
- Certificate of Leadership Development Program (LDP 3), PTT Leadership and Learning Institute, 2014
- Certificate of Senior Executive Program (September), Sasin Graduate Institute of Business Administration of Chulalongkorn University

Director Training:

- Director Accreditation Program (DAP) Class 91/2011, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) Class 160/2012, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 2

- Director, Director to the Nomination and Remuneration Committee and Director to the Risk Management Committee, Global Green Chemicals Public Company Limited
- Chief Operating Officer - Value Added Products (COV) , PTT Global Chemical Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: 5

- Chairman, HMC Polymers Company Limited
- Chairman, GC Polyols Company Limited
- Chairman, GC Marketing Solutions Company Limited
- Chairman, PTT Asahi Chemical Company Limited
- Director, GC International Corporation

Positions in Other Company / Organization / Institution / Remarkable Positions: 1

- Committee, The Federation of Thai Industries / Vice Chairman of the Industrial Promotion and Support Committee

Work Experience (Last 5 Years):

- 2019 – 2022 Director, GC Marketing Solutions Company Limited
- 2017 – 2022 Director, HMC Polymers Company Limited
- 2016 – 2022 Chairman, NPC Safety and Environmental Service Company Limited
- 2016 – 2022 Chairman, GC Maintenance and Engineering Company Limited
- 2016 – 2022 Chief Operating Officer - Center of Excellence,
PTT Global Chemical Public Company Limited
- 2015 – 2022 Director, PTTGC America Corporation
- 2015 – 2022 Director, PTTGC America LLC
- 2016 – 30 September 2019 Director, PTT Energy Solutions Company Limited
- April 2012 – January 2019 Director, Sport Services Alliance Company Limited

Shareholding : None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Thanakorn Manoonpol**Age: 33****Director****Date of Appointment:**

15 June 2022

Education / Training:

- Chartered Financial Analyst (CFA)
- The Bachelor of Arts Program in Economics, Faculty of Economics, Chulalongkorn University

Director Training:

- Director Certification Program (DCP) Class 324/2022, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 2

- Director, Global Green Chemicals Public Company Limited
- Executive Vice President, Group Investment, GMM Grammy Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: None**Positions in Other Company / Organization / Institution / Remarkable Positions: None****Work Experience (Last 5 Years):**

- November 2017 – April 2020 First Vice President, Head of Investment and Product Solutions, Private Banking, CIMB Thai Bank Public Company Limited

Shareholding: None**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: Yes**

- Family relationship with a major shareholder of GGC

Mr. Piroj Samutthananont**Age: 60****Director / Director to the Risk Management Committee / Managing Director**

(as of 29 December 2022)

Date of Appointment:

1 May 2021

Education/Training:

- Master of Business Administration (Business Administration), Queen's University, Canada
- Bachelor of Engineering (Mechanical Engineering), Chulalongkorn University

Director Training:

- Director Certification Program (DCP) Class 291/2020, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 2

- Director, Director to the Risk Management Committee and Managing Director, Global Green Chemicals Public Company Limited
- Senior Executive Vice President, Value Added Products, PTT Global Chemical Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: 2

- Chairman, GGC Biochemicals Company Limited
- Director, GGC KTIS Bioindustrial Company Limited

Positions in Other Company / Organization / Institution / Remarkable Positions: None**Work Experience (Last 5 Years) :**

- | | |
|-----------------------------------|--|
| • 12 May 2021 – 29 September 2022 | Director, Thai Ethoxylate Company Limited |
| • 1 February – 31 August 2022 | Senior Vice President, Value Added Products, PTT Global Chemical Public Company Limited |
| • 16 March 2021 – 31 January 2022 | Senior Vice President, Downstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| • 1 January 2020 – 15 March 2021 | Senior Vice President, Center of Excellence, PTT Global Chemical Public Company Limited |
| • 1 January 2020 – 15 March 2021 | Director and Managing Director, GC Maintenance and Engineering Company Limited |
| • 1 September – 31 December 2019 | Senior Vice President, Center of Excellence, PTT Global Chemical Public Company Limited |
| • 1 July – 31 August 2019 | Senior Vice President, Procurement, PTT Global Chemical Public Company Limited |
| • 1 July 2017 – 30 June 2019 | Head of Procurement, PTT Global Chemical Public Company Limited |

Shareholding: None**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None**

Mr. Kridsada Prasertsuko**Age: 57****Director / Director to the Risk Management Committee / Managing Director****Date of Appointment:**

1 January 2023

Education / Training:

- Master of Business Administration (International Program) Bangkok University (Joint Study with Ohio University, U.S.A.)
- Bachelor of Science Program (Occupational Health and Safety), Mahidol University
- Executive Education Program, INSEAD Business School, Singapore
- Business Leader, Sasin Institute of Business School
- Inspire Leader, GE Business Training Center
- Leadership Development, DDI Institute
- Leadership Development Program, Thammasat University
- Process Safety, Risk Management and Risk Management Auditing, Process Improvement Institute, U.S.A.
- Diploma in Risk Management, Sedgewick, London, England
- HAZOP Training, ICI Australia Engineering
- Modern Safety Management and Safety Program Auditing, International Loss Control Institute, Atlanta, U.S.A.
- Subsidiary Governance and Business and Legal Issues for Directors & Executives Class 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High-Performing Board & Board Effectiveness Class 2021 (In-house Programs by GC)

Director Training:

- Director Certification Program (DCP) Class 269/2019, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 2

- Director, Director to the Risk Management Committee and Managing Director, Global Green Chemicals Public Company Limited
- Senior Vice President Under Value Added Products (COV), PTT Global Chemical Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: 7

- Chairman, GGC Biochemicals Company Limited
- Director, GGC KTIS Bioindustrial Company Limited
- Director, Khum Klao Innovation Company Limited
- Director, Khum Klao Convenience Company Limited
- Director, Khum Klao Coffee Garden Company Limited
- Director, Quantum Technology Company Limited
- Director, Global Best Intertrade Company Limited

Positions in Other Company / Organization / Institution / Remarkable Positions: None

Work Experience (Last 5 Years):

- August 2018 – September 2022 Managing Director, NPC Safety and Environmental Service Company Limited
- April 2016 – September 2022 Chairman and Managing Director, NPC S&E Security Guard Company Limited
- 2009 – 2018 Vice President Commercial and Marketing Strategy,
NPC Safety and Environmental Service Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Executives

(as of 15 January 2023)

Mr. Kridsada Prasertsuko

Age: 57

Managing Director

Date of Appointment:

1 January 2023 (Details are disclosed in the Board of Directors Information)

Mr. Kumpol Chaikitkosi

Age: 63

Deputy Managing Director, Operational Excellence

Date of Appointment:

1 January 2021

Education / Training:

- B.Eng. (Chemical Engineering), Chulalongkorn University
- Program for Executive Development, IMD, Switzerland
- Executive Development Program, Thai Listed Companies Association (TLCA)
- Director Certification Program (DCP) Class 219/2016, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Deputy Managing Director, Operational Excellence, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: 1

- Director, GGC KTIS Bioindustrial Company Limited

Work Experience (Last 5 Years) :

- August 2021 – January 2022 Director, Thai Eastern Top Seeds Oil Company Limited
- 2019 – 2020 Director, GC Oxirane Company Limited
- 2019 – 2020 Director, GC Styrenics Company Limited
- 2019 – 2020 Executive Advisor, Thai Ethoxylate Company Limited
- 2019 – 2020 Senior Vice President, EO-Based Performance Business Unit, PTT Global Chemical Public Company Limited
- 2019 – 2020 Director and Managing Director, GC Glycol Company Limited
- 2015 – 2019 Senior Vice President, Phenol Business Unit, PTT Global Chemical Public Company Limited
- 2015 – 2019 Director and Managing Director, PTT Phenol Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Piya Suri **Age: 52**
Deputy Managing Director, Commercial Excellence /
Acting Vice President, Sales and Marketing – Biochemicals

Date of Appointment:

1 October 2022

Education / Training:

- Master of Engineering in Water Resources, Kasetsart University
- Bachelor of Engineering in Water Resources, Kasetsart University
- Director Certification Program (DCP) Class 267/2018, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Deputy Managing Director, Commercial Excellence and Acting Vice President, Sales and Marketing - Biochemicals, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: 1

- Director, Thai Ethoxylate Company Limited

Work Experience (Last 5 Years):

- 2016 – 2022 Managing Director, Thai Ethoxylate Company Limited
- 2016 – 2022 Vice President, reporting to the Managing Director, Global Green Chemicals Public Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Ms. Wanlapa Sophiskhaunkhant **Age: 43**
Vice President, Corporate Finance and Accounting

Date of Appointment:

24 August 2015

Education / Training:

- M.Eng. (Chemical Engineering), King Mongkut's University of Technology Thonburi
- B.Eng. (Chemical Engineering), King Mongkut's Institute of Technology Ladkrabang
- CFO Orientation Course, Stock Exchange of Thailand
- Strategic CFO Course, Stock Exchange of Thailand
- CFO Certification Program, Federation of Accounting Professions
- CFO Refresher Program, Stock Exchange of Thailand
- Director Certification Program (DCP) Class 270/2019, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Corporate Finance and Accounting, Global Green Chemicals Public Company Limited

Board Member / Management in Non - Listed Company – The Stock Exchange of Thailand: None

Work Experience (Last 5 Years) :

- April 2021 – Present Member of Industrial Advisory Board, Faculty of Engineering,
King Mongkut's Institute of Technology Ladkrabang
- 2020 – 2022 Director and Managing Director, Thai Fatty Alcohols Company Limited
- 2018 – 2020 Director, GGC Biochemicals Company Limited
- 2018 – 2020 Director, Thai Eastern Top Seeds Oil Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mrs. Kunakorn Witthayapaisarn
Vice President, Internal Audit

Age: 56

Date of Appointment:

1 January 2018

Education / Training:

- B.A. (Accounting), Thammasat University
- Certified Internal Auditor, The Institute of Internal Auditors, U.S.A.
- Accreditation in Quality Assessment, The Institute of Internal Auditors, U.S.A.

Board Member / Management in Listed Companies – The Stock Exchange of Thailand: 1

- Vice President, Internal Audit, Global Green Chemicals Public Company Limited

Board Member / Management in Non - listed Companies – The Stock Exchange of Thailand: None

Positions in Other Company / Organization / Institution / Remarkable Positions: 1

- Member, Audit Committee, National Higher Education Science Research and Innovation Policy Council

Work Experience (Last 5 Years):

- 2020 – Present Member, Audit Committee, National Higher Education Science Research and Innovation
Policy Council
- 2015 – 2018 Member, Audit Committee, National Science Technology and Innovation Policy Office

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mrs. Boodsada Seema **Age: 54**
Vice President, Corporate Affairs and Corporate Secretary

Date of Appointment:

1 October 2021

Education / Training:

- Master of Art, Language and Communication, National Institute of Development Administration
- Bachelor of Education, Secondary Education (English – French), Chulalongkorn University
- Corporate Secretaries Professional Development Program Class 1/2021, Thai Listed Companies Association
- Advances for Corporate Secretaries 2020, Thai Listed Companies Association
- Board Reporting Program (BRP) Class 11/2013, Thai Institute of Directors Association (IOD)
- Effective Minutes Taking (EMT) Class 3/2006, Thai Institute of Directors Association (IOD)
- Company Secretary Program (CSP) Class 18/2006 and Company Secretary Refreshment Training Program (RFP) Class 4/2021, Thai Institute of Directors Association (IOD)
- APCG & Anti-Corruption Working Paper Briefing, Director's Legal Liabilities, and Ethical Leadership for New Era 2021 (In-house Programs by GC)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Corporate Affairs and Corporate Secretary, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: None

Work Experience (Last 5 Years):

- 2019 – 2021 Division Manager, Subsidiary Board Management,
PTT Global Chemical Public Company Limited
- 2011 – 2019 Division Manager, Corporate Secretarial Management,
PTT Global Chemical Public Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Jakrit Rungsimanop **Age: 47**
Vice President, Corporate Strategy

Date of Appointment :

1 June 2020

Education/Training :

- M.Eng. (Chemical Engineering), Chulalongkon University
- B.Eng. (Chemical Engineering), Khon Kaen University

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Corporate Strategy, Global Green Chemicals Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: 1

- Director, GGC Biochemicals Company Limited

Work Experience (Last 5 Years):

- 2020 – 2022 Director, Thai Fatty Alcohols Company Limited
- 2016 – 2020 Division Manager, Strategy, Planning and Portfolio Management, Global Green Chemicals Public Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Jiruss Rianchaiwanich

Age: 49

Vice President, Human Resource and Corporate Support

Date of Appointment :

1 January 2023

Education / Training :

- Doctor of Philosophy (Ph.D.) in Industrial and Human Resources Development, King Mongkut University of Technology North Bangkok (KMUTNB)
- Master of Science in Human Resource Development and Organization Development, National Institute of Development Administration
- Master of Business in Information System, Victoria University of Technology (VUT), Melbourne, Australia
- Director Certification Program (DCP) Class 219/2016, Thai Institute of Directors Association (IOD)
- Director Certified Program : Public Director Institute by King Prajadhipok's Institute (PDI) Class 23

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 1

- Vice President, Human Resource and Corporate Support, Global Green Chemicals Public Company Limited

Board Member / Management in Non-Listed Company - The Stock Exchange of Thailand: None**Work Experience (Last 5 Years) :**

- 2022 Vice President, reporting to the Managing Director, Global Green Chemicals Public Company Limited
- 2021 – 2022 Vice President, Human Resources, Modernform Group Public Company Limited
- 2020 – 2021 Senior Digital Consultant, Digital Government Development Agency (Public Agency) (DGA)
- 2018 – 2020 Vice President, Human Resources, Zuellig Pharma Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Sutthisarn Khongaphirak
Vice President, Corporate Legal

Age: 50

Date of Appointment:

1 January 2023

Education/Training:

- Bachelor of Laws, Thammasat University

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Corporate Legal, Global Green Chemicals Public Company Limited

Board Member / Management in Non-Listed Company – The Stock Exchange of Thailand: None

Work Experience (Last 5 Years):

- 2015 – 2022 Division Manager, Legal, PTT Global Chemical Public Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Ekaphong Govitgoongrai

Age: 50

Vice President, Supply Planning and Feedstock Sourcing

Date of Appointment:

1 December 2019

Education / Training:

- MBA, Chulalongkorn University
- B.Eng. (Chemical Engineering), Chulalongkorn University
- Director Certification Program (DCP) Class 298/2020, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Supply Planning and Feedstock Sourcing, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: None

Work Experience (Last 5 Years):

- June 2019 – December 2022 Vice President reporting to the Managing Director, Global Green Chemicals Public Company Limited
- December 2019 – January 2022 Director, Thai Eastern Top Seeds Oil Company Limited
- 2020 – 2021 Director, GGC KTIS Bioindustrial Company Limited
- 2020 Director, Thai Fatty Alcohols Company Limited
- 2018 – 2019 Deputy General Manager (DGM), Supply Planning and Oil Trading Business, BCP Trading Pte. Ltd., Singapore
- 2016 - 2018 Vice President, Oil Trading Business and Acting Senior Manager, Crude Oil Procurement and Trading Division, Bangchak Corporation Public Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Satit Vaewvichit **Age: 47**
Vice President, Business and Product Development

Date of Appointment:

16 April 2022

Education / Training:

- Master of Business Administration, Utah State University, U.S.A.
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 1

- Vice President, Business and Product Development, Global Green Chemicals Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: 1

- Director, IL Marche Food Company Limited

Work Experience (Last 5 Years):

- 2017 - 2022 Director, IHS Global (Thailand) Company Limited

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Kawin Kaewkong **Age: 49**
Vice President, Sales and Marketing – Biofuels

Date of Appointment:

1 January 2023

Education / Training:

- MBA, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- B.Eng. (Chemical Engineering), Chulalongkorn University King Mongkut's University of Technology Thonburi

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 1

- Vice President, Sales and Marketing – Biofuels, Global Green Chemicals Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: None

Work Experience (Last 5 Years):

- 2020 – 2022 Vice President for Sales & Marketing, Energy Absolute Public Company Limited
- 2019 – 2020 Head of Sales & Project Development, Impress Ethanol Co., Ltd (KNM Group)

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Mr. Thodsaphorn Phienchob**Age: 55****Vice President, Operations****Date of Appointment:**

1 January 2020

Education / Training:

- B.Econ., Sukhothai Thammathirat Open University

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Operations, Global Green Chemicals Public Company Limited

Board Member / Management in Non-Listed Company – The Stock Exchange of Thailand: None**Work Experience (Last 5 Years):**

- 2015 – 2019 Division Manager, Plant Technical, PTT Global Chemical Public Company Limited

Shareholding: None**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None****Ms. Chompunuch Liamprawat****Age: 44****Vice President, Process Technology****Date of Appointment:**

31 January 2020

Education/Training:

- MBA, National Institute of Development Administration
- M.Eng. (Chemical Engineering), King Mongkut's University of Technology Thonburi
- B.Sc. (Chemical Industrial), 2nd Class Honors, Chiang Mai University
- Certificate Event Marketing, William Angliss Institute, Melbourne, Australia
- Financial Statements for Directors (FSD), 2555

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Process Technology, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: None**Work Experience (Last 5 Years):**

- 2014 – 2019 Consultant / Senior Consultant, Master Planning, Product Development and Technical Training Academy, Knowledge Excellence Unit, PTT Energy Solution Company Limited

Shareholding: None**Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None**

Mr. Phromphron Isarankura Na Ayutthaya
Vice President, Engineering and Maintenance

Age: 55

Date of Appointment:

16 August 2022

Education / Training:

- MBA, National Institute of Development Administration
- B.Sc. (Industrial Chemistry), Chiang Mai University

Board Member / Management in Listed Company - The Stock Exchange of Thailand: 1

- Vice President, Engineering and Maintenance, Global Green Chemicals Public Company Limited

Board Member / Management in Non - Listed Company - The Stock Exchange of Thailand: None

Work Experience (Last 5 Years):

- 1 January– 15 August 2022 Division Manager, reporting to the Deputy Managing Director, Operational Excellence, Global Green Chemicals Public Company Limited
- 1 July 2018 – 31 December 2021 Division Manager, Quality Management (QMS), PTT Global Chemical Public Company Limited
- 1 January – 30 June 2018 Division Manager, Operational Excellent Management (OEMS), PTT Global Chemical Public Company Limited

Shareholding: 2,000 shares (accounting for 0.0001954% of the total shares as of 15 January 2023)

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Vice President appointment as Executive of GGC Subsidiaries and Join Venture

1. Mr. Dumrong Putiput

Vice President, Reporting to Managing Director

Secondment as Managing Director, GGC KTIS Bioindustrial Company Limited

2. Mr. Krit Treenutchakorn

Vice President, Reporting to Managing Director

Secondment as Managing Director, Thai Ethoxylate Company Limited

3. Mr. Chanasiri Vanit

Vice President, Reporting to the Deputy Managing Director, Operational Excellence

Secondment, GGC KTIS Bioindustrial Company Limited

4. Mr. Suchet Deemangmee

Vice President, Reporting to Managing Director

Secondment, Thai Ethoxylate Company Limited

Chief Accountant

GGC assigned Ms. Phunnapa Homyen, Division Manager, Accounting and Budgeting, since March 1, 2022 to oversee its accounting and ensure its compliance with applicable standards, laws and regulations.

Ms. Phunnapa Homyen

Age: 38

Division Manager, Accounting and Budgeting

Date of Appointment:

1 March 2022

Education / Training:

- MBA, Chulalongkorn University
- B.Acc., Thammasat University
- Certified Public Accountant (CPA)
- Financial Statements Analysis Training Course, Standard Accounting Training Course Related to Land, Building and Equipment, Income Training Course (difference between accounting and tax), and a training course on the changes and key issues of TFRS (23.5 hours of training)

Board Member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Division Manager, Accounting and Budgeting, Global Green Chemicals Public Company Limited

Board Member / Management in Non – Listed Company – The Stock Exchange of Thailand: None

Work Experience (Last 5 Years):

- March 2022 – Present Division Manager, Accounting and Budgeting, Global Green Chemicals Public Company Limited
- January 2021 – February 2022 Senior Manager, Internal Audit, Thai Beverage Plc
- September 2015 – December 2020 Accounting and Budgeting Manager, Thai Beverage Plc

Shareholding: None

Family Relationship with Other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Appendix 2

Details about Directors of Subsidiaries

Directorships in Subsidiaries/ Joint Ventures / Related Companies of the Company's Directors/ Executives

Directorships in Subsidiaries/ Joint Ventures / Related Companies of the Company's Directors/ Executives

Name – Surname	Subsidiaries			Joint Ventures	Indirect Joint Ventures	Related Companies									
	GGC	TFA**	GGC Bio	TEX	GKBI	PTT	GC	GPSC	GCM	GCP	GC Inter	GC BV	GCI	HMC	PTTAC
1. Mr. Kongkrapan Intarajang	●					●	● ●	●			●	●			
2. Mr. Varit Namwong	●						●		●	●			●	●	●
3. Mr. Piroj Samutthanant	● ●		●	●	●		●								
4. Mr. Kridsada Prasertsuko	● ●		●		●		●								
5. Mr. Kumpol Chaikitkosi	●				●										
6. Mr. Piya Suri	●		●	●											
7. Mr. Warophat Kimchuanit	●	●	●												
8. Ms. Wanlapa Sophiskhaunkhant	●	●													
9. Mr. Jakrit Rungsimanop	●	●	●												
10. Mr. Krit Treenutchakorn	●			● ●											
11. Mr. Dumrong Putiput	●				● ●										

ReMarchks :

* Information on directorships in subsidiaries/ joint ventures/related companies of GGC's directors/executives for No. 1-2, 4-6 and 8-11 was as of January 9, 2023. Information on directorships in subsidiaries/ joint ventures /related companies of GGC's directors/executives for No. 3 was as of September 29, 2022. Mr. Piroj Samutthanant was a director of Global Green Chemicals Plc until December 30, 2022, a director of GGC Biochemicals Company Limited until December 29, 2022, a director of Thai Ethoxylate Company Limited until September 29, 2022, a director of GGC KTIS Bioindustrial Company Limited until December 29, 2022, and an executive of PTT Global Chemical Plc until December 31, 2022. Information on directorships in subsidiaries/ joint ventures /related companies of GGC's directors/executives for No. 7 was as of September 29, 2022.

** Board of Directors' Meeting of Thai Fatty Alcohols Co., Ltd. No. 2/2022 on April 27, 2022 passed a resolution approving the entire business transfer to Global Green Chemicals Plc. The business transfer was completed on October 1, 2022, and the Extraordinary General Meeting of Shareholders of Thai Fatty Alcohols Company Limited No. 2/2022 on October 25, 2022 passed a special resolution approving the dissolution of Thai Fatty Alcohols Limited with effect from October 31, 2022.

Subsidiaries

TFA = Thai Fatty Alcohols Co., Ltd.
GGC Bio = GGC Biochemicals Co., Ltd.

Joint Ventures

TEX = Thai Ethoxylate Co., Ltd.

Indirect Joint Ventures

GKBI = GGC KTIS Bioindustrial Co., Ltd.

Related Companies

PTT = PTT Plc
GC = PTT Global Chemical Plc
GPSC = Global Power Synergy Plc
GCM = GC Marketing Solution Co., Ltd.
GCP = GC Polyols Co., Ltd.

GC Inter = PTTGC International Private Limited
GC BV = PTTGC International (Netherlands) B.V.
GCI = GC International Corporation
HMC = HMC Polymers Co., Ltd.
PTTAC = PTT Asahi Chemicals Co., Ltd.

ReMarchks:

● = Chairman
● = Director
● = Management

Appendix 3

Details about the Chief of Internal Audit
and Chief of Compliance

Vice President of Internal Audit and Vice President of Corporate Affairs

(1) Vice President, Internal Audit

The Audit Committee No. 8/2017 held on 21 December 2017 has approved the appointment of Vice President Internal Audit and Secretary to the Audit Committee, Mrs. Kunakorn Witthayapaisarn. Her appointment has been effective since 1 January 2018. Mrs. Kunakorn Witthayapaisarn is exceptionally well qualified to perform the duties due to her extensive experience in internal audit, internal control and risk management since 1992. She also attended a comprehensive internal auditor training course which was considered essential to performance of the job.

Thus, the appointment, removal and transfer of an internal auditor will be forwarded to the Audit Committee for consideration and approval as stated in the Charter of the Audit Committee.

Mrs. Kunakorn Witthayapaisarn
Vice President, Internal Audit

Age: 56

Date of appointment:

1 January 2018

Education / Training:

- B.A. (Accounting), Thammasat University
- Certified Internal Auditor, Institute of Internal Auditors, U.S.A.
- Accreditation in Quality Assessment, Institute of Internal Auditors, U.S.A.

Board Member / Management in Listed Companies – The Stock Exchange of Thailand: 1

- Vice President, Internal Audit, Global Green Chemicals Public Company Limited

Board Member / Management in Non - listed Companies – The Stock Exchange of Thailand: None

Work Experience (in the Last 5 Years):

- 2020 – Present Member, Audit Committee, National Higher Education Science Research and Innovation Policy Council
- 2015 – 2018 Member, Audit Committee, National Science Technology and Innovation Policy Office

Shareholding : None

Family Relationship with other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

(2) Vice President, Corporate Affairs

GGC has appointed Mrs. Boodsada Seema as Vice President of Corporate Affairs and Corporate Secretary. Her main responsibilities are to build the corporate profile as a listed company and make sure the Company follow rules and regulations of the Securities and Exchange Commission (SEC), the Stock Exchange of Thailand (SET), Public Limited Companies Act, B.E. 2535 (1992) and Securities and Exchange Act, B.E. 2535 (1992).

Mrs. Boodsada Seema

Age: 54

Vice President, Corporate Affairs and Corporate Secretary

Date of Appointment:

1 October 2021

Education / Training:

- Master of Art, Language and Communication, National Institute of Development Administration
- Bachelor of Education, Secondary Education (English – French), Chulalongkorn University
- Corporate Secretaries Professional Development Program Class 1/2021, Thai Listed Companies Association
- Advances for Corporate Secretaries 2020, Thai Listed Companies Association
- Board Reporting Program (BRP) Class 11/2013, Thai Institute of Directors Association (IOD)
- Effective Minutes Taking (EMT) Class 3/2006, Thai Institute of Directors Association (IOD)
- Company Secretary Program (CSP) Class 18/2006 and Company Secretary Refreshment Training Program (RFP) Class 4/2021, Thai Institute of Directors Association (IOD)
- APCG & Anti-Corruption Working Paper Briefing, Director's Legal Liabilities, and Ethical Leadership for New Era 2021 (In-house Programs by GC)

Board member / Management in Listed Company – The Stock Exchange of Thailand: 1

- Vice President, Corporate Affairs and Corporate Secretary, Global Green Chemicals Public Company Limited

Board member / Management in Non-Listed Company – The Stock Exchange of Thailand: None

Work Experience (in the Last 5 Years):

- 2019 – 2021 Division Manager, Subsidiary Board Management,
PTT Global Chemical Public Company Limited
- 2011 – 2019 Division Manager, Corporate Secretarial Management,
PTT Global Chemical Public Company Limited

Shareholding: None

Family Relationship with other Directors, Executives, Major Shareholders of GGC or its Subsidiaries: None

Appendix 4

Assets in Business and Valuation

Asset in Business

Key fixed assets of GGC and its subsidiaries

As of December 31, 2022 Net Book Value in the company's financial statements is as follows

List of Asset	Type	Net Book Value as of		
		December 31, 2021 (THB)	December 31, 2022 (THB)	Obligation (THB)
Plants, Machinery, Factory tools and Equipment	Property of the entity	3,730,074,364	3,532,731,318	No Obligation
Buildings and buildings improvement	Property of the entity	320,538,776	303,405,100	No Obligation
Land improvement	Property of the entity	26,595,414	24,024,609	No Obligation
Furnitures, fixtures and office equipment	Property of the entity / Leased asset	7,189,836	11,328,564	No Obligation
Vehicles	Property of the entity / Leased asset	2,141,817	1,582,725	No Obligation
Assets under construction	Property of the entity	172,273,596	198,982,933	No Obligation
Net Book Value		4,258,813,803	4,072,055,249	

Leasehold

The list of leasehold of GGC and its subsidiaries as of December 31, 2022 is as below.

- (1) Title deed No. 111033 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 27 rai 3 ngan 13.598 square wa, owned by PTT Global Chemical Plc. Lease period of 30 years from August 1, 2006, to July 31, 2036. Location of Methyl Ester Plant 1.
- (2) Title deed No. 123254 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 9 rai 3 ngan 43.9 square wa, owned by PTT Global Chemical Plc. Lease period of 30 years from August 1, 2006, to July 31, 2036. Location of Methyl Ester Plant 1.
- (3) Title deed No. 126435 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 28.70 square wa, owned by PTT Global Chemical Plc. Lease period of 16 years 7 months 15 days from December 17, 2019, to July 31, 2036. Location of Methyl Ester Plant 1.
- (4) Title deed No. 6150 in Tambon Khao Sok, Amphoe Nong Yai, Chon Buri, occupying 27 rai 2 ngan, owned by Thai Eastern Industrial Land Company Limited. Lease period of 30 years from April 1, 2016, to March 31, 2046. Location of Methyl Ester Plant 2.
- (5) Title deed No. 6150 in Tambon Khao Sok, Amphoe Nong Yai, Chon Buri, occupying 2 rai 2 ngan, owned by Thai Eastern Industrial Land Company Limited. Lease period of 30 years from March 1, 2018, to February 29, 2048. Location of Refined Glycerine Plant 2.

- (6) Title deed No. 111033 in Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, occupying 2 rai 86.402 square wa, owned by PTT Global Chemical Plc. Lease period of 13 years 10 months from October 1, 2022, to July 31, 2036. Location of Fatty Alcohols Plant.

Other lease rights agreement as of December 31, 2022

- (1) 2 years lease agreement to rent the office building and common areas with Energy Complex Company Limited at No. 555/1 Energy Complex Building A, 4th Floor. The agreement covers 837 square metres and is effective from October 1, 2022 to September 30, 2024.
- (2) 3 years lease agreement to rent the office building with GC Estate Company Limited., at No. 888, 3rd Floor, Map Chalut – Laem Son Road, Tambon Huai Pong, Amphoe Mueang Rayong, Rayong. The agreement covers 750 square metres and is effective from September 1, 2020, to August 31, 2023.
- (3) 8 months land lease agreement with PTT Global Chemical Plc., part of title deed No. 77010, at No.45, the agreement covers 1 rai and is effective from May 1, 2022, to December 31, 2022.

Right of Use Assets

Right of use assets of GGC and subsidiaries as of 31 December 2022 is as follow

(THB)

Right of use assets	Net value after cumulative amortization and provision for asset impairment
Land	156,169,662
Building	7,811,645
Plants, Machinery, Factory tools and Equipment	185,075,901
Vehicles	36,106,154
Total net book value	385,163,362

Intangible Assets

Intangible assets of GGC and subsidiaries as of 31 December 2022 is as follow

(THB)

Intangible asset	Net value after cumulative amortization and provision for asset impairment
Production process patent fees	18,308,837
Goodwill	33,527,418
Other intangible assets	23,731,167
Total net book value	75,567,422

Trademarks and Service Marks

As of December 31, 2022, subsidiaries own key trademarks for products are shown in the table below:

Service Mark / tradeMark	THAIOL	For industrial application of Fatty Alcohols
Country	Period	
Thailand	August 21, 2017 – August 21, 2027	
India	August 22, 2017 – August 22, 2027	
South Africa	September 7, 2017 – September 7, 2027	
Mexico	August 23, 2017 – August 23, 2027	
New Zealand	August 20, 2017 – August 20, 2027	
Indonesia	September 7, 2017 – September 7, 2027	
Malaysia	September 19, 2017 – September 19, 2027	
Chile	February 27, 2018 – February 27, 2028	
Philippines	March 10, 2018 – March 10, 2028	
Columbia	April 30, 2018 – April 30, 2028	
Argentina	August 15, 2018 – August 20, 2028	
Brazil	March 24, 2015 – March 24, 2025	
Canada	March 21, 2016 – March 21, 2026	

Service Mark / tradeMark		For chemical fertilizer products potassium sulfate
Country	Period	
Thailand	September 23, 2019 – September 22, 2029	

Other Intellectual Property Rights

At present, GGC hold no current intellectual property.

GGC engaged in a licensing agreement with UHDE GmbH (Uhde), with effect from September 7, 2006, under which Uhde licensed the application of Agrar Technik's technology in the Company's Methyl Ester plants through the plants' operating periods. GGC fully paid the license fee as laid out in such agreement.

GGC also engaged in a licensing agreement with a leading Germany technology company for technological application in Fatty Alcohols plant through its operating period. Development of technology for fatty alcohols production belongs solely to the Company; in return, GGC is eligible for the rights to upgraded technology in its processes, but such rights are non-transferable and not limited to GGC fully paid the license fee as laid out in such agreement.

Investment Promotion Certificates

GGC earned investment promotion certificates from the Office of the Board of Investment of Thailand (BOI) in the form of tax privileges, including corporate income tax rebates for net profits applicable to income generation of the business.

The details of GGC's certificates valid as of December 31, 2022 are as below :

Project	Issuance Date	Product and Production Capacity	Expiration Date	Note
1. Production of Methyl Ester, Fatty Alcohols, Glycerin, and Potassium Sulfate Approved for investment promotion according to the notification letter no. 1308/526 (is under the apply for investment promotion certificates according to improve efficiency measurement)	June 1, 2022	- Produce Methyl Ester 300,000 tons annually - Produce Fatty Alcohols 120,000 tons annually - Produce Glycerine 42,000 tons annually - Produce Potassium Sulfate 4,500 tons annually	3 years from the day after issue date	
2. Production of Biodiesel Certificate No. 59-1251-1-00-1-0	September 28, 2016	- Produce Biodiesel or Methyl Ester 346,820,810 litres (or 300,000 tons)	November 17, 2026	
3. Production of Glycerin Certificate No. 60-1232-1-18-1-0	October 10, 2017	- Refined Glycerine (99.5% purity or more), about 45,000 tons per year	November 23, 2033	
4. Production of Fatty Alcohols Certificate No. 65-1245-0-00-0-2	October 4, 2022	- Produce Fractionated Fatty Alcohols 120,000 tons annually - By products 1,700 tons of light end hydrocarbon fuels and 1,250 tons of residue	Earn privileges only for machinery rae material and benefit which are not related to taxation.	Business Transfer from Thai Fatty Alcohols Co., Ltd. (TFA)

Appendix 5

Corporate Governance Policy
and Guidelines and Business Code of Conduct in full form

Independent Director Charter

Global Green Chemicals Public Company Limited

1. Objectives

The Independent Director Charter is prepared to identify the composition, qualifications, roles, duties, and responsibilities of the Company's Independent Directors with clarity, transparency, and efficiency, and in compliance with Good Corporate Governance to ensure confidence and reliability for all shareholders and stakeholders.

2. Composition and Qualifications of Independent Directors

- 2.1 Independent Directors must possess all the qualifications as defined in the Company's Corporate Governance and Business Code of Conduct Handbook. Such qualifications are required to be reviewed and endorsed at least once every year throughout their terms.
- 2.2 Independent Directors must comprise more than one-third of the Board of Directors. These Independent Directors must be experienced and fully qualified as per the specifications of the Capital Market Supervisory Board and the Company's Board of Directors.
- 2.3 An Independent Director can serve up to nine consecutive years with the term of office starting from 2 May 2017, not taking into account the past tenure of the former Independent Director, or from the date of the first appointment as an Independent Director (as applicable).
- 2.4 The Chairman of the Independent Directors serves a term of three years from the day of the appointment. If he or she leaves the position or, under any circumstances, has to vacate his or her position before the term ends, the Independent Directors are to appoint a qualified replacement within three months from the day the position becomes vacant. The term of the appointed replacement will be the same as the remaining term of the former Chairman.

3. Scope of Duties and Responsibilities

Independent Directors are to maintain their neutrality at all times and are required to perform in the best interests of the Company as a whole, to ensure fair treatment for all shareholders. Duties and responsibilities towards the Board of Directors are as follows:

- 3.1 Provide suggestions and opinions to the Board of Directors concerning important issues related to the operations and the interests of the Company and its shareholders as well as other relevant stakeholders.
- 3.2 Encourage the Company to fully comply with the anti-corruption measures.
- 3.3 Encourage the Company to operate business based on social and environmental responsibilities.
- 3.4 Seek external advice from independent consultants if needed, with the Company providing the budget for such expenses.
- 3.5 Ensure that the Company operates according to all the rules and regulations issued by the regulatory body supervising listed companies with respect to Independent Directors. The Independent Directors are also to review the definition of 'Independent Director to ensure that it is appropriate and complete according to laws.

- 3.6 Annually review the appropriateness of the Independent Director Charter and submit it to the Board of Directors for endorsement if there is any improvement or modification.
- 3.7 Engage in any duties as assigned by the Board of Directors as long as they do not interfere with the independent nature of the Independent Directors.

4. Meetings

- 4.1 At least one meeting of the Independent Directors is to be held in each calendar year. Members of management or any other concerned party in the matters being discussed, or other individuals as deemed fit, can also be invited to join the meetings.
- 4.2 The required quorum for the meeting of the Independent Directors is no less than two-thirds of all mandatory Independent Directors. The Chairman of the Independent Directors is also to act as the chairman of the meeting. If, under any circumstances, the chairman cannot chair the meeting, the quorum can appoint one of the Independent Directors present to act on behalf of the Chairman. When a vote is required in such meetings, each Independent Director is eligible for one vote. A majority of the votes are considered the resolution of the meeting. In case of equal votes of both sides, the chairman of the meeting is to exercise his or her vote to decide the matter.
- 4.3 Independent Directors who may have a conflict of interest in any matter being discussed in a meeting are required to leave the meeting.

5. Reporting

The Independent Directors are required to provide their performance reports or any worthwhile issues to the Board of Directors on a regular basis.

6. Development and Performance Evaluation

The Independent Directors are encouraged to regularly participate in skill development programs or activities that contribute to the development of their knowledge, skills, and performance.

Effective July 20, 2022.



(Mr. Kongkrapan Intarajang)
Chairman of the Board

Audit Committee Charter

Global Green Chemicals Public Company Limited

1. Objectives

The Board of Directors has deemed it appropriate to prescribe an Audit Committee Charter to compile details relating to composition, duties, responsibilities, and guidelines for the discharge of duties as assigned by the Board of Directors. This allows the Audit Committee to efficiently perform under the Securities and Exchange Act and the Stock Exchange of Thailand requirements. Furthermore, it has been driven as an important mechanism to promote the responsible discharge of duties of the Board of Directors by affording sufficient oversight of the operation of the Company, as well as giving opinions and suggestions freely and fairly to foster confidence and credibility of the Company's stakeholders.

2. Composition and Qualifications of Audit Committee Members

- 2.1 The Audit Committee is comprised of at least three Independent Directors. Their qualifications, duties, and responsibilities need to comply, at the minimum, with the criteria prescribed by the Securities and Exchange Act and the Stock Exchange of Thailand requirements. The Audit Committee needs to serve any other assignment as given by the Board of Directors or required by applicable laws. There shall be at least one of the Audit Committee Members who has adequate expertise and experience to review the credibility of the Company's financial reports.
- 2.2 The members of the Audit Committee shall hold office for a term of three years each. The expiration of the term of office includes the termination as Director of the Board, resignation, or removal.
- 2.3 The member of the Audit Committee who completed a term may be re-appointed by the Board of Directors.
- 2.4 If the member of the Audit Committee wishes to resign before the expiration of the term of office, he or she shall give notice of resignation in advance, including the reason for resignation to the Company. The Board of Directors shall appoint a person who is fully qualified as a substitute member of the Audit Committee within three months so that the number of members of the Audit Committee remains in full and the continuity of the Committee's work is ensured. The appointed member shall retain office for the remaining duration of the full term of the member whom he or she replaces.
- 2.5 The Board of Directors is to select one of the Audit Committee members to be the Chairman of the Audit Committee. The chief Internal Audit executive shall also hold the position of Secretary to the Audit Committee.
- 2.6 The Audit Committee shall receive relevant information related to the scope of duties, responsibilities of the Committee and the Company's operations, including techniques, continuous learning, and new development for internal audit which will increase the Audit Committee's efficient capabilities.

3. Scope of Duties and Responsibilities

The Audit Committee has the duty to support corporate governance which promotes sustainable development especially in the process of financial reporting, internal control, risk management, corporate governance, and compliance with relevant laws and regulations with the following details:

3.1 Financial Reports and Audit

- Review financial reporting of the Company with management and the external auditor to ensure that the financial status of the Company is correctly, credibly, and sufficiently illustrated and that the Company complies with the Thai Financial Reporting Standards and other relevant laws.
- Consider, select, and propose the appointment of the Company's external auditor, recommend remuneration of such auditor in order to acquire a qualified, experienced, and independent auditor, recommend the removal due to lack of ability to perform duty, dereliction, or malpractice, and assess the quality of the audit to support the external auditor's efficient operation.
- Consider and approve other non-audit services of the Company's External auditor to ensure that this service will not affect the independence of auditor
- Promote the independence of the external auditor and give opinions on the suitability of the auditor.

3.2 Internal Control, Risk Management, and Corporate Governance

- Review to ensure that the Company's internal control, risk management, and corporate governance are efficient, effective, encompassing all important aspects, as well as compliant with international standards.
- Review the Company's anti-corruption procedures to ensure efficient compliance with the guidelines of governing bodies, beginning with raising awareness, risk assessment, preventive systems, auditing, whistleblowing procedures, and others, to ensure that the Company exercises appropriate and efficient anti-corruption systems.

3.3 Internal Audit

- Review to ensure that the internal audit is sufficient and efficient and that Corporate Internal Audit complies with the professional standards for internal audit, and support an internal audit quality assessment to ensure conformance to international standards.
- Promote the independence of Corporate Internal Audit by providing recommendations in respect to the appointment, the transfer, and the merits of the chief audit executive and review with management and the chief audit executive to ensure an appropriate internal audit function in an organizational structure and internal audit resource sufficiency for the performing of duties in efficient and effective practices. If there are personnel limitations or if it is necessary to resort to specific knowledge and expertise, an external auditor can be hired as appropriate.
- Review and approve the Internal Audit Charter
- Review and approve the annual audit plan that is consistent with the risk types and levels to support the Company's strategy.
- Review the audit report with the internal auditor.
- Promote collaboration among the Audit Committee, management, Corporate Internal Audit, and the external auditor to ensure unified direction and mutual assistance.
- Supervise other operations and activities beyond the internal audit by Corporate Internal Audit that will not impact the independence of the internal audit or the integrity of the internal auditor.

3.4 Compliance with Relevant Laws and Regulations

- Review the compliance process to ensure that the Company complies with the Securities and Exchange Act, Stock Exchange of Thailand requirements, and other rules, regulations, and laws relating to the Company's business.
- Review related transaction or possible conflicts of interest to ensure compliance with the laws and the requirements of the Stock Exchange of Thailand and to ensure that such transactions are reasonable and to the utmost benefit of the Company.
- Conduct an inspection upon being informed by the external auditor of suspicious circumstances that a director, manager, or any person responsible for the operation of the Company may have committed an offense as prescribed by the Securities and Exchange Act Section 281/2 paragraph two, Section 305, Section 306, Section 308, Section 309, Section 310, Section 311, Section 312, or Section 313, and report the result of preliminary inspection to the Securities and Exchange Commission and the auditor within thirty days after being informed by the auditor.

3.5 Anti-Corruption and Prevention of Conflicts of Interest and Other Corruption-Related Actions

- Review and ensure that the Company sets up measures for external parties, stakeholders, and its staff who can provide relevant information, clues, whistleblowing on corruption and other corruption-related behaviors.
- Review and ensure that the Company has appropriate measures against conflicts of interest and other corruption-related issues such as undue acceptance of assets or other benefits.
- Monitor the progress of the actions following the whistleblowing policy and acknowledge the correction and prevention procedures set up by management.

3.6 Other Duties

- Seek the advice of an external consultant or expert when necessary, at the expense of the Company.
- Review and revise the Audit Committee Charter at least once a year and propose any change to the Board of Directors for approval.
- Engage in any other duty as assigned by the Board of Directors in agreement with the Audit Committee.

4. Responsibilities

The Audit Committee is directly responsible to the Board of Directors in accordance with the assigned duties and responsibilities. In addition, the Board of Directors is responsible to third parties for the operation of the Company.

5. Meetings

- 5.1 The Audit Committee should meet at least six times a year. Members of management, relevant employees of the Company, or the external auditor may be invited to join the meetings to provide information or submit documents deemed relevant or necessary.
- 5.2 In every meeting of the Audit Committee, a quorum will be met with the presence of at least two-thirds of all Audit Committee Members in position at that time.

- 5.3 Any Audit Committee Member who may have conflicts of interest on the issue of consideration must report them to the meeting. After reporting and answering questions, he or she must be excluded from that session to allow the rest of the Audit Committee Members to continue with their suggestions and vote freely. If the meeting resolves to secret voting and two-thirds of the Members view that the issue at stake does not make the Member lose his or her neutrality, then the Member can continue his or her task. But if the meeting resolves that the issue at stake will make the Member lose his or her neutrality, then the Member with conflicts of interest cannot vote. The Secretary to the Audit Committee shall report such conflicts of the Member in the minutes of the meeting.
- 5.4 Each member of the Audit Committee is entitled to one vote and the Decision in the meeting shall be made by a majority vote. The Secretary to the Audit Committee does not have the right to vote. In the case of a tie, the Chairman is to cast a Deciding vote.
- 5.5 The Audit Committee shall organize a meeting at least once a year with the Company's Managing Director and a meeting at least once a year as well with the external auditor without the attendance of management.

6. Reporting

- 6.1 An Audit Committee report must be prepared and published in the annual report, indicating the items required by the Stock Exchange of Thailand and signed by the Chairman of the Audit Committee.
- 6.2 The Audit Committee must quarterly and annually report to the Board of Directors the outcome of their performance, significant matters related to the audit report with impact on the Company's performance, as well as their opinions and important recommendations.
- 6.3 While performing duty, if the Audit Committee detects a questionable transaction or action with potentially significant impact on the Company's financial status and performance as follows:

- (1) Transaction with conflicts of interest
- (2) Fraud, abnormality, or significant deficiency in the internal-control system
- (3) Violation of laws and regulations on securities and exchange, requirements of the Stock Exchange of Thailand, or other laws pertaining to the Company's business,

In these cases, the Audit Committee is to report to the Board of Directors for improvement or rectification within the timeframe deemed appropriate by the Audit Committee.

If the Board of Directors or management fails to improve or rectify it within the timeframe, the Audit Committee Members may report to the Securities and Exchange Commission or the Stock Exchange of Thailand.

7. Performance Evaluation

The Audit Committee must evaluate and report their performance to the Board of Directors to assure stakeholders of the duties of the Audit Committee based on complete responsibilities and efficiency.

Effective from 29 April, 2022.



(Mr. Kongkrapan Intarajang)
Chairman of the Board

Nomination and Remuneration Committee Charter

Global Green Chemicals Public Company Limited

1. Objectives

The Board of Directors has deemed it appropriate to prescribe a Nomination and Remuneration Committee Charter to compile details relating to composition, qualifications, duties, responsibilities, and guidelines for the discharge of duties as assigned by the Board of Directors. This allows the Nomination and Remuneration Committee to fairly, appropriately, and transparently act in accordance with the corporate governance code to forge confidence and credibility for the Company's stakeholders.

2. Composition and Qualifications of Nomination and Remuneration Committee Members

- 2.1 The Nomination and Remuneration Committee is comprised of at least three (3) Directors and more than half of whom must be Independent Directors. The Chairman of the Nomination and Remuneration Committee must be an Independent Director.
- 2.2 The Nomination and Remuneration Committee serves a term of three years. A Nomination and Remuneration Committee Member completing a term may be reappointed by the Board of Directors.
- 2.3 If the position of a Nomination and Remuneration Committee Member becomes vacant for a reason other than completion of term under 2.2, namely termination as Director of the Board, resignation, or removal, reducing the number of the committee members but still more than half, the remaining members of the committee may continue their duty. The Board of Directors shall appoint a person who are fully qualified to maintain the required number of the members at the first opportunity of a meeting of the committee in order to submit it to the Board. If the remaining members of the committee are fewer than half, making it impossible to hold a meeting, the Board shall appoint a Director with full qualifications as a committee member to maintain the required number of the members. In this case, the member will serve only the remaining term of the committee member whom he or she replaces.

3. Scope of Duties

- 3.1 Select and nominate a fully qualified candidate to fill in the position of a Director of the Board due to expired tenure or reasons other than tenure expiration. The procedure must adhere to the transparent screening and nomination criteria, including the consideration based on experience, profession, board skill matrix, and expertise necessary to the Company's business operation. This is to achieve a balance of different career fields and for the utmost benefit of the Company. The list of nominees may be selected from the Directors' Pool from trusted organizations, which will be presented at the Board of Directors' meeting and/or the Shareholders' meeting for approval.
- 3.2 Nominate Directors with appropriate qualifications as Directors of the Company's Sub-Committees and submit the nomination to the Board of Directors' meeting for approval.

- 3.3 Consider the guidelines and determine the remuneration of the Directors of the Board and Directors of Sub-Committees based on fair and reasonable criteria for further submission to the Board of Directors and the Shareholders' Meeting for approval.
- 3.4 Provide remuneration guidelines and criteria for annual performance of the Board of Directors based on the Board KPIs and prepare the performance evaluation form of the Board of Directors and the performance evaluation form of the Nomination and Remuneration Committee.
- 3.5 Select and nominate a Director of the Board with appropriate qualifications as the Managing Director, based on the criteria of transparency, experience, knowledge, leadership, and skills necessary to the Company's operations to accomplish its objectives and goals before submission to the Board of Directors for approval.
- 3.6 Consider the guidelines and determine the remuneration of the Managing Director by determining the topics and the criteria of the Managing Director's annual performance evaluation and evaluating the performance to determine appropriate remuneration before submission to the Board of Directors for approval.
- 3.7 Annually review the adequacy of the Nomination and Remuneration Charter. Any improvement or rectification shall be submitted to the Board of Directors for approval.
- 3.8 Engage in any other duty as assigned by the Board of Directors.

4. Responsibilities

The Nomination and Remuneration Committee reports directly to the Board of Directors in accordance with the duties and responsibilities ascribed to it, while the Board is responsible for the Company's business to third parties.

5. Meetings

- 5.1 The Nomination and Remuneration Committee should meet at least once a quarter. Member of management, executive, relevant employee of the Company, or another person may be invited to participate in the meeting to give opinions, or submit documents or information deemed relevant or necessary.
- 5.2 For all meetings of the Nomination and Remuneration Committee, a quorum will be met with the presence of at least two-thirds of all Nomination and Remuneration Committee Members in position at that time. In case the Chairman cannot attend the meeting, the Committee Members attending the meeting shall select a member of the Committee to act as the chairman of the meeting.
- 5.3 The Nomination and Remuneration Committee Members with a connected transaction on any matter being discussed must be excluded from voting on that matter, except for the determination of remuneration for the entire Board of Directors.
- 5.4 Resolution is passed by means of majority votes where one Nomination and Remuneration Committee Member has one vote. In the case of a tie, the Chairman of the Nomination and Remuneration Committee is to cast a Deciding vote.

6. Reporting

The Nomination and Remuneration Committee must report the outcomes of their performance to the Board of Directors and prepare a Nomination and Remuneration Committee report signed by the Chairman of the Committee and disclose the report in the Company's 56-1 One Report.

7. Performance Evaluation

The Nomination and Remuneration Committee shall evaluate its performance and submit the findings of their annual evaluation to the Board of Directors.

Effective from October 14, 2022.



(Mr. Kongkrapan Intarajang)
Chairman of the Board

Corporate Governance and Sustainable Development Committee Charter

Global Green Chemicals Public Company Limited

1. Objectives

The Board of Directors has deemed it appropriate to prescribe a Corporate Governance and Sustainable Development Committee Charter to compile details relating to its composition, duties, responsibilities, and guidelines for the discharge of duties as assigned by the Board of Directors. This allows the Committee to formulate the policies, supervise, and promote sustainable development, and give advice and determine the guidelines according to the Company's corporate governance code and sustainable development appropriately and transparently, with the balance of Environmental, Social, and Governance (ESG) to create value of the Company's business growth, and sustainably create confidence and credibility of the stakeholders.

2. Composition and Qualifications of Corporate Governance and Sustainable Development Committee Members

- 2.1 The Corporate Governance and Sustainable Development Committee comprises at least three (3) Directors and at least one (1) being Independent Director. The Chairman of the Corporate Governance and Sustainable Development Committee must be an Independent Director.
- 2.2 The Corporate Governance and Sustainable Development Committee serves a term of three years. A Corporate Governance and Sustainable Development Committee Member completing a term may be reappointed by the Board of Directors.
- 2.3 In the case where the position of a Corporate Governance and Sustainable Development Committee Member becomes vacant for a reason other than completion of a term under 2.2, namely termination from Directorial position, resignation, or removal, and the number of Committee Members is reduced but more than half, the remaining Committee Members shall continue their duties. In case the number is fewer than half, thus making it impossible to hold a meeting, the Board of Directors may appoint another person with fitting qualifications to maintain the required number of Corporate Governance and Sustainable Development Committee Members as per this Charter. The replacement Member will serve only the remaining term of the Committee Member whom he or she replaces.

3. Scope of Duties

3.1 Corporate Governance

- (1) Prescribe directions and recommend policies or practices concerning the code of business conduct and ethics, as well as anti-corruption policies and measures in accordance with the Corporate Governance system to the Board of Directors and management for use as standardized proper practices of the organization.
- (2) Recommend and review the policies and practices on the responsibilities towards the Company's stakeholders and supervise, offer advice, and monitor the progress of operations concerning the Company's corporate governance, the effectiveness of which will also be evaluated.
- (3) Promote the organization's integrated management and supervise effective Governance, Risk Management, Internal Control, and Compliance (GRC).

3.2 Sustainable Development

- (1) Prescribe and review policies, strategies, and improve the Company's sustainable development goals with the Environmental, Social, and Governance (ESG) balance, in compliance with corporate governance based on national and global standards.
- (2) Offer advice and encourage the determination of the principles, policies, and strategies as well as the Company's operations in compliance with sustainable development principles to accomplish success, and encourage Directors, executives, and employees to effectively comply with the Company's sustainable development guidelines.
- (3) Supervise, monitor, assess, and disclose information on the practices of sustainable development to ensure balance, efficiency as well as maximum benefit for the Company and the stakeholders.

3.3 Others

- (1) Engage in any other duty as assigned by the Board of Directors.
- (2) Review the adequacy of the Charter annually and propose amendments to the Board of Directors for approval.

4. Responsibilities

The Corporate Governance and Sustainable Development Committee is responsible directly to the Board of Directors in accordance with the duties and responsibilities assigned to them. Additionally, the Board of Directors is responsible to third parties for the operation of the Company.

5. Meetings

Regularly report the execution by Independent Directors and any other report that are deemed important to the Board of Directors.

- 5.1 The Corporate Governance and Sustainable Development Committee should meet at least once a quarter. Members of management, executives, employees of the Company, or other relevant persons may be invited to participate in the meeting to provide opinions or submit documents or information deemed relevant or necessary.
- 5.2 For all meetings of the Corporate Governance and Sustainable Development Committee, the quorum will be met with the presence of at least two-thirds of all Committee Members in position at that time. In case the Chairman of the Corporate Governance and Sustainable Development Committee cannot attend a meeting, the Committee members who attend the meeting shall select a Member of the Committee to act as chairman of the meeting.
- 5.3 The Corporate Governance and Sustainable Development Committee Members with a vested interest in any matter being reviewed must be excluded from the voting on that matter.
- 5.4 Resolution is passed by means of majority votes where one Corporate Governance and Sustainable Development Committee Member has one vote. In case of a tie, the Chairman of the Corporate Governance and Sustainable Development Committee is to cast a Deciding vote.

6. Reporting

The Corporate Governance and Sustainable Development Committee must report its operations to the Board of Directors and prepare a committee report, signed by the Chairman of the Committee, in the 56-1 One Report.

7. Performance Evaluation

The Corporate Governance and Sustainable Development Committee must evaluate its performance and submit the findings of the annual evaluation to the Board of Directors.

Effective from October 14, 2022.



(Mr. Kongkrapan Intarajang)

Chairman of the Board

Risk Management Committee Charter

Global Green Chemicals Public Company Limited

1. Objectives

The Board of Directors has appointed the Risk Management Committee for prescribing the risk management policy that shall cover the entire Company. The Committee shall also oversee that the Company has in place systems or procedures of risk management to appropriately mitigate impacts on the Company's business. The composition, scope of duties, and responsibilities are set forth to ensure that the Risk Management Committee can discharge their duties effectively as delegated by the Board of Directors.

2. Composition and Qualifications of Risk Management Committee Members

- 2.1 The Risk Management Committee shall be comprised of at least three (3) Board Members appointed by the Board, of whom at least one (1) shall be an Independent Director. A Corporate Strategy Department executive shall act as the Secretary to the Committee.
- 2.2 A member's regular term of appointment shall be three years. The member's expiration of the term of office includes termination as Director of the Board, completion of tenure as member of the Risk Management Committee, resignation, or dismissal.
- 2.3 If the tenure of a member of the Risk Management Committee is vacant due to other reasons than regular tenure completion, and if the remaining members of the committee are reduced but still number more than half, the remaining members of the Committee may continue their duty. If the remaining members are fewer than half or half, making it impossible to hold a meeting, the Board shall appoint a new member with all required qualifications to maintain the required number of members stipulated in this charter. The appointed member shall retain office for the remaining duration of the full term of the member whom he or she replaces.

3. Scope of Duties

- 3.1 The Committee shall consider and review the policy, objectives, and risk management framework consistent with the goals and strategies of the Company's business, including a risk mitigation plan to ensure the continuity of the Company's business operations. The policy, objectives, and risk management framework are subject to annual review.
- 3.2 The Committee shall identify risks via scrutiny of internal and external factors that may prevent the Company from achieving its objectives. The Committee shall ensure that the impact and likelihood of identified risks are assessed and prioritized and that suitable risk mitigation strategies are used for the Company's efficient operations.
- 3.3 Provide opinions and recommendations on the corporate risk and investment risk management.
- 3.4 Monitor and evaluate the performance against the risk management framework.
- 3.5 Review the adequacy of the Charter annually and propose improvement and rectification to the Board for approval.
- 3.6 Discharge any other duty or responsibilities delegated to the Committee by the Board.
- 3.7 Provide opinions and recommendations on the GRC procedures.

4. Responsibilities

The Risk Management Committee reports directly to the Board of Directors in accordance with the duties and responsibilities ascribed to it while the Board is responsible for the Company's business to third parties.

5. Meetings

- 5.1 The Risk Management Committee should meet at least once a quarter. A member of management, executive, relevant employee of the Company, or another person may be invited to participate in the meetings to give opinions or submit documents or information deemed relevant or necessary.
- 5.2 For all meetings of the Risk Management Committee, the quorum will be met with the presence of at least three-quarters of all Risk Management Committee Members in position at that time. In case the Chairman cannot attend the meeting, the Risk Management Committee Members attending the meeting shall select a member of the Committee to act as the chairman of the meeting.
- 5.3 The Risk Management Committee Members with a connected transaction on any matter being discussed must be excluded from voting on that matter.
- 5.4 Resolution is passed by means of majority votes where one Risk Management Committee Member has one vote. In the case of a tie, the Chairman of the Risk Management Committee is to cast a Deciding vote.

6. Reporting

The Risk Management Committee shall report its undertakings to the Board of Directors on a quarterly basis. The report shall be signed by the Chairman of the Risk Management Committee and disclosed in the 56-1 One report.

7. Performance Evaluation

The Risk Management Committee shall annually conduct its own performance evaluation and report the results to the Board of Directors at least once a year.

Announced on December 14, 2022



(Mr. Kongkrapan Intarjang)
Chairman of the Board

GGC Policy and Practices of Corporate Governance and Business Code of Conduct

Global Green Chemicals Public Company Limited (GGC) operates its business responsibly, transparently, accountably, fairly, ethically and with due regard to all of its stakeholders by adhering to the principles of good corporate governance. GGC recognizes that its adherence to the principles of good corporate governance will contribute to the operational and management efficiency of GGC and a company under GGC. GGC also bolsters its credibility and fosters sustainable growth, not only for GGC itself but also for the society and the nation as a whole in order to achieve its vision “To be a Leading Green Chemical Company by Creating Sustainable Value”

GGC is committed to conforming to the Good Corporate Governance principles, which are in compliance with the Principles of Corporate Governance of the Organization for Economic Co-operation and Development (OECD), the Securities and Exchange Commission (SEC), and the Stock Exchange of Thailand (SET).

This is to ensure that the GGC Group’s businesses are conducted responsibly, ethically, fairly, transparently and accountably, with a clear focus on the creation of utmost benefits for the shareholders and stakeholders, towards mutual trust and sustainable growth.

GGC disclosed its information via <https://www.ggcplc.com/th/corporate-governance/handbooks>



**Corporate Governance
& Business Code of Conduct Handbook**

Global Green Chemicals Group



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Appendix 6

Sub – Committee Reports

Report of the Audit Committee 2022

Global Green Chemicals Plc's Audit Committee consists of three independent directors who are experts with knowledge, expertise, and diverse experience in law, accounting, finance, information technology and business administration. The directors command sufficient knowledge and experience in accounting and finance to review the credibility of financial statements. The committee also commands the composition and qualifications required by the announcements of the Capital Market Supervisory Board and SET. The Chairman of the Audit Committee does not serve on other sub-committees. The Vice President, Internal Audit, serves as secretary to the committee.

The Audit Committee independently executes its Charter duties in line with the laws, rules, best practices, and current situations, and approved by the Board annually to ensure that the Company and its subsidiaries comply with the CG Code and focus on sustainable development in line with applicable laws and requirements. It also ensures that the Company commands sufficient and effective risk management and internal-control practices. The Audit Committee continues to forge confidence and value-added to GGC and to the stakeholders' best interests.

The Audit Committee seriously and continually advised GGC it to value advocacy of the compliance process more for more robust and efficient compliance. It also advised GGC's operations to align more with the sustainability management code. Incidentally, the Office of the SEC sent a letter to the Chairman of the Audit Committee, requesting clarification about a shareholder's complaint that a GGC executive might have breached the Securities and Exchange Act. The Audit Committee took this seriously and meticulously as well as transparently reviewed facts about this complaint. It responded to the Office of the SEC that no offense had been committed by the executive as claimed by the complainant. The office acknowledged the response without making additional observations.

In 2022, the Audit Committee held 10 meetings, seven of which had been planned and three were requested special meetings to deliberate key activities. All meetings were attended by all members of the committee, with highlights given below.

1. Review of financial statements

The Audit Committee examined key information of the quarterly and annual financial statements and the consolidated financial statements of the Company and its subsidiaries. It reviewed material issues, special items, and received clarification from the external auditor and management to ensure accurate, complete, and credible financial statements, prepared in accordance with financial report standards, including sufficient disclosure of supplementary data, and beneficial to users. Hence, the Company approved these financial statements, reviewed and audited by the external auditor, who expressed no material observations.

Further, the Audit Committee held an exclusive meeting with the external auditor, without management and Internal Audit, to discuss independently the latter's access to audit data, review of material information in the preparation of financial statements and disclosure of information in compliance with financial report standards. The statements and disclosure were beneficial to users, key audit matters, and independence in performing duties. In this context, the external auditor reported management's cooperation for the review and auditing of the financial statements. No significant remarks were made, and no suspicious behavior was detected.

2. Review of risk management process

The Audit Committee followed up on information of corporate risk management, covering the implementation of risk mitigation plans and risk management framework in various areas set by the Company for efficient risk mitigation. This report on the risk management performance was regularly submitted by GGC to the Risk Management Committee, which was responsible for specific and regular supervision according to the defined period to ensure

that the Risk Management Committee could make recommendations to duly improve the process and to be ready to cope with unforeseen circumstances. The review of risk management in the work process according to the audit report of Internal Audit was to ensure the Company's efficient risk management with responsible personnel and appropriate support measures.

3. Review of internal-control system

The Audit Committee reviewed the Company's self-assessment findings according to internal-control adequacy under SEC's assessment form. It also reviewed internal-control practices together with Internal Audit on audit outcomes under the risk-based audit plan. No significant issues or deficiencies were found that could affect corporate goal achievement. It was reasonable to believe that the Company commanded an internal-control system that was sufficient and suitable for business operations and capable of supporting corporate goal attainment.

4. Review of corporate governance practices

The Audit Committee monitored to ensure that the complaint-handling process was efficient and effective by acknowledging the sumMarchy report of GGC's whistleblowing. Further, the Audit Committee advised the Company to propose the non-audit services for the committee's approval to ensure that the external auditor's services would not affect the independence of the audit, which was a good practice in promoting transparency of auditing and certifying the Company's financial statements.

5. Oversight of internal audit

The Audit Committee set the internal audit policy by specifying job description, qualifications of the independence of Internal Audit, and a guideline framework for efficient and effective internal audit practices in accordance with the duties and responsibilities, and international standards, including the annual review of the Internal Audit charter, taking into account the independence and efficiency of Internal Audit's operation to build trust among stakeholders. The Committee also approved the annual internal audit plan embracing key risks and supporting GGC's business plans, considered the audit report, and provided recommendations and monitored corrective actions to ensure corporate governance and development of GGC's more efficient internal control. Moreover, the Committee promoted Internal Audit's freedom under the best practices of listed companies. The Audit Committee, in conjunction with the Managing Director, reviewed the annual performance of the Vice President, Internal Audit, against the KPIs formulated by itself under GGC's performance assessment criteria.

In 2022 the Audit Committee approved the restructuring and manpower of Internal Audit to ensure consistency and growth in line with GGC's long-term strategic plan and enable Internal Audit to maintain its capability of quality auditing, foster confidence among stakeholders, and create value for GGC. The Audit Committee supervised GGC's internal audit operation to ensure that GGC can maintain quality against international standards. The committee monitored the findings of internal-audit risk assessment against GGC's RCSA project. The assessment findings largely agreed with the QAR assessment against international internal-audit practices. It was concluded that GGC's internal audit—embracing annual planning, individual project audit planning, site audit operation, audit findings reporting, and monitoring of corrective actions at the auditor's recommendation—was of an international standard.

6. Review of compliance practices

The Audit Committee reviewed and commented on GGC's engagement in related-party transactions, both acquisition and sale, or those with potential conflicts of interest to ensure compliance with laws and SET's requirements so that such transactions were reasonable, fair, transparent, and in the best interests of the Company and shareholders,

and that disclosure of information might be thorough. The Audit Committee was informed through the external auditor's report that the disclosure of information on connected transactions was complete, without any anomalous items found.

The Audit Committee reviewed the audit report by Internal Audit and found no law infringement or that of regulations with potential impacts on the Company. In addition, the Audit Committee received no report from the external auditor, third parties, or management's information disclosure indicating the Company's infringement of business laws that could significantly affect itself.

7. Appointment of the external auditor and audit fees

The Audit Committee considered, selected, and proposed the appointment and the audit fees of the Company's external auditor, based on independence, qualifications, skills, knowledge, competence, business experience (which were acceptable and under good criteria), and the independence of the external auditor, according to the code of ethics for professional accountants, and SEC's regulations, including appropriate audit fees. The Audit Committee proposed to the Board to seek approval from the AGM for the appointment of KPMG Phoomchai Audit, Ltd. (KPMG) as GGC's external auditor for 2022 and the audit fees.

8. Audit Committee's quality assurance

The Audit Committee regularly reported its performance outcomes to the Board for acknowledgment quarterly and annually. At the end of each year, the Audit Committee conducted group and individual self-assessment and reported the findings for the Board's acknowledgment and useful recommendations on its execution of duties. Moreover, the Audit Committee was regularly informed of the Company's operations in support of the Committee's efficiency.

The Audit Committee's overall opinion was that GGC commanded financial reports that were accurate and credible under generally acceptable accounting principles. These reports disclosed adequate data and benefited users of financial statements. The Company complied with applicable business laws, corporate governance, risk management practices, and an adequate and effective internal-control system. In addition, Internal Audit successfully executed its plans and conformed to the international scope of the internal audit profession with commitment to the code of conduct and independence, thus enabling the unit to fully support the Audit Committee's duties and generating value added for the Company.

In summary, the Audit Committee performed its duties and responsibilities as specified under the Audit Committee Charter by applying knowledge, capability, caution and prudence, and with sufficient independence, as well as providing opinions and suggestions, taking into account the equitable treatment of all stakeholders and to their utmost interests. In performing its duties, the Audit Committee received excellent cooperation from the Board, management, the external auditor, Internal Audit, and all parties involved.

On behalf of the Audit Committee



(Professor Dr. Kumchai Jongjakapun)
Chairman of the Audit Committee

Report of the Nomination and Remuneration Committee 2022

Dear Shareholders,

The Nomination and Remuneration Committee is chaired by ACM Songtam Chokkanapitag, with Lt. Gen. Titawat Satiantip, and Mr. Varit Namwong as Members.

In 2022 the Committee held a total of nine meetings and performed its duties in accordance with the mission specified in the charter and as assigned by the Board of Directors, with the following highlights:

1. Nomination and selection of directors, sub-committee members, and the Managing Director

- Nominated directors in place of those due to retire at the 2022 AGM for the Board's and the AGM's approval, by giving the opportunity to shareholders to nominate those with complete qualifications within three months, at the end of which no nomination was forthcoming. The Nomination and Remuneration Committee therefore nominated Mr. Thanwa Laohasiriwong to replace the director whose term expired, and proposed the names of the former directors namely Mr. Kongkrapan Intarajang and Prof. Dr. Kumchai Jongjakapun to another term. All of them were fully qualified, without prohibited characteristics under the laws and applicable criteria, with knowledge, competence, and experience relevant to GGC's business strategy. The Board and the 2022 AGM duly approved the proposal.
- Nominated and selected qualified directors in place of those who resigned during the year, namely Mr. Thanakorn Manoonpol and Mr. Kridsada Prasertsuko, and proposed them to the Board for approval. Consideration had been made from their qualifications under applicable laws and criteria, the articles of association, the CG Code, knowledge, skills, and the Board Skills Matrix, in addition to the Directors' Pool of the State Enterprise Policy Office (SEPO) and the Thai Institute of Directors (IOD). The Board duly approved the proposal.
- Nominated to the Board qualified directors to serve as sub-committee members to fill vacant posts due to term completion. To this end, the Committee reviewed the sub-committees' components and individual qualifications against the requirements of SEC, SET, the articles of association, and sub-committee charters as well as the Board Skills Matrix, in addition to specific experience which would benefit their directorship and membership of these sub-committees.
- Nominated Mr. Kridsada Prasertsuko as Managing Director to fill the vacant position by considering his qualifications against the regulations of SEC, SET, the articles of association, as well as knowledge and experience which would benefit his execution of duties.

2. Compensation of directors, sub-committee members, and the Managing Director

- Determined the compensation-setting for the Board and sub-committees for 2022 and bonus-setting for 2021 for approval by the Board and the AGM by reviewing their suitability under the CG Code, namely the Company's performance in comparison with the current economic situations of businesses related to petroleum and petrochemicals in view of the current environment, principles and policies approved by the shareholders, duties and responsibilities, the Board's annual performance assessment outcomes, and the Board compensation data of companies of peer sizes. The findings were tabled for the Board's submission to the 2022 AGM, which duly approved them.
- Determined the 2022 compensation of the Managing Director based on his performance outcomes and assigned responsibility for the Board's approval.

3. Performance assessment of the Board and the Managing Director

- Revised the 2022 Board performance assessment form (overall, individual, and peer assessment) for completeness and timeliness, in line with the CG Code for listed companies, Dow Jones Sustainability Indices (DJSI) assessment criteria, and the ASEAN Corporate Governance Scorecard. The assessment outcomes formed part of the review of the Board's annual compensation, in addition to the Company's performance.
- Defined the criteria for the Managing Director's 2022 performance assessment and proceeded with the actual assessment to December to ensure proper and fair compensation before tabling it for the Board's approval, acknowledgment, and recommendations on his annual performance outcomes.

4. Performance development

- Scheduled six meetings in advance for 2023, with additional meetings as seen fit, to consider and acknowledge the operations and make recommendations to the Board and management.
- Reviewed and improved the Board Skills Matrix to ensure appropriateness and compliance with the CG Code, IOD's best practices for nomination committees, DJSI assessment criteria, Global Industry Classification Standards (GICS), as well as the State Enterprise Policy Office's skills matrix guidelines, for director and sub-committee member nomination to ensure the diverse composition of the Board in knowledge, ability, and experience that were beneficial to business strategy.
- Reviewed the performance assessment form of the committee for 2022 for completeness and compliance with current benchmarks and reported the assessment outcome to the Board.
- Reviewed and improved the Charter of the Nomination and Remuneration Committee under the item Composition and Qualifications by stipulating that more than half of the members of the committee must be independent directors, in order to be able to perform and express opinions independently, in line with the CG Code for listed companies, the CG Code, as well as improved the contents of the Charter, and with the domestic regulators' criteria and international criteria.
- Ensured the disclosure of all nomination criteria for directors as well as their compensation figures in the annual report and at the AGM in fulfillment of CGR criteria.

The Nomination and Remuneration Committee is committed to executing its duties with prudence and transparency and in compliance with the CG Code to foster confidence among shareholders and all stakeholders in GGC's best interests to supplement long-term value to the Company.

On behalf of the Nomination
and Remuneration Committee



(ACM Songtam Chokkanapitag)
**Chairman of the Nomination
and Remuneration Committee**

Report of the Corporate Governance and Sustainable Development Committee 2022

Dear Shareholders,

In 2022, the three members of the Corporate Governance and Sustainable Development Committee, namely Pol. Gen. Suchart Theerasawat, Chairman, Lt. Gen. Titawat Satiantip, and Mr. Thanwa Laohasiriwong, members, fully executed their duties in accordance with the Charter of the Corporate Governance and Sustainable Development Committee and as assigned by the Board of Directors. A total of six meetings were held, with the following highlights:

1. Compliance with requirements, laws, rules, regulations, and best practices

- Supervised and monitored the corporate governance (CG) practices of GGC and GGC Group in compliance with international standards and domestic regulators:
 - Followed up on the Company's corporate governance performance in accordance with the requirements and regulations of domestic regulators and international standards, including the strategy and business direction of the organization, as well as approving the 2023 corporate governance plan to determine the operational guidelines, monitoring, and assessment of the Company's corporate governance performance in a tangible way.
 - Supervised the arrangement of the 2022 Annual General Meeting of Shareholders (AGM) in the form of an electronic conference, under the prevailing Covid-19, to ensure a smooth and efficient meeting that aligned with the law, AGM Checklist practices, and the CG Code. As a result, for 2022, the Company earned an "excellent" rating (perfect score) given by the Thai Investors Association.
 - Followed up and provided recommendations on the review of the Company's compliance with the corporate governance code for listed companies 2017 of the SEC (CG Code) to be presented to the Board of Directors and disclosed the Company's operations in Form 56-1 One Report.
 - Followed up and provided suggestions on the completion of GGC's self-assessment form for participation in the Corporate Governance Report (CGR) Project against the assessment criteria developed from the Organization for Economic Cooperation and Development (OECD)'s CG Code. As a result, for the year, the Company earned excellent rating for the fifth consecutive year from the Thai Institute of Directors (IOD).
- Oversaw the definition of a criterion allowing shareholders to propose meeting agenda and nominate directors ahead of the 2023 Annual General Meeting of Shareholders.
- Promoted integrated organizational management, encompassing Governance, Risk Management & Internal Control, and Compliance (GRC).

2. Compliance with the corporate governance and business code of conduct policies

- Approved the revision of the Corporate Governance and Business Code of Conduct Handbook 2022 to be up-to-date and consistent with GGC Group and international standards.
- Ensured that the business commanded stewardship of and responsibility for all stakeholders of GGC Group including customers, suppliers, creditors, employees, communities, investors, shareholders, government, society, the environment, safety and occupational health through report presentation by responsible agencies every quarter. Moreover, it advised and constantly tracked performances to plan responses to the expectations of each stakeholder group.
- Considered and approved the 2023 corporate governance plan to determine the operational guidelines, monitoring, and assessment of the Company's corporate governance performance in a tangible way.
- Supervised the Company's management of complaints through whistleblower channels in accordance with the complaint-handling policy through quarterly report presentation, as well as encouraging GGC Group to have their own complaint-handling system.

3. Pursuit of sustainable development

- Followed up on the Company's sustainable development operations in line with international standards such as the United Nations Charter (UN Global Compact). The Company was in the process of preparing to enter the Dow Jones Sustainability Indices (DJSI), and upgrading the Carbon Disclosure Project (CDP) level from last year, in which the Company commanded action plans for future certification and acceptance. It also approved the 2022 sustainable development plan in line with its strategies, global social situations, and dynamic challenges.
- Advocated and valued stakeholder stewardship: GGC in conjunction with the Thai Red Cross Society and Standard Manufacturing Co., Ltd., a business partner, produced alcohol hand gel with GGC's glycerine product for inclusion in the Covid-19 survival kit, "The stream of kindness saves lives through the Covid-19 crisis", as a preliminary measure to ease the plight of those affected by the pandemic. In addition, the Company continued the Green Health Project by delivering the CHOB alcohol gel to flood victims. As a result, it earned the highest level of "Eco Factory plus Social Value: Eco Factory +SV" Award and "CSR DIW Continuous Award" for the eighth consecutive year from the Department of Industrial Works.

4. Execution of duties, assessment, and development of directors

- Reported the execution and performance assessment (group and self-assessment) of the Corporate Governance and Sustainable Development Committee for the year for the Board of Directors' acknowledgment.
- Reviewed the Corporate Governance and Sustainable Development Committee Charter to ensure alignment with the duties and responsibilities, as well as conformance to relevant requirements, rules, and regulations.
- Monitored and supervised development of directors under the corporate governance code on a continuous basis by encouraging directors to attend various training courses of the Thai Institute of Directors (IOD).
- Reviewed the quality of the Corporate Governance and Sustainable Development Committee assessment form (group and self-assessment) to ensure conformance to the current situation, international standards, and domestic regulators.

- Set the Corporate Governance and Sustainable Development Committee meeting plans in advance throughout the year, at least once a quarter, and arranged additional meetings as necessary to consider and acknowledge the operations, and submitted reports/recommendations to the Board of Directors and management.

The Corporate Governance and Sustainable Development Committee values its supervision of GGC's strict compliance with the CG policy and business code of conduct, as well as the compliance policy in parallel with the laws, rules, and regulations, and sustainable development. It is committed to developing GGC's and GGC Group's CG practices in constant pursuit of parity with international standards. The unanimous view is that CG is the key that renders effective support to the Company's operating efficiency while promoting sustainable development, which will lead to confidence among all stakeholders and international recognition.

On behalf of the Corporate Governance and Sustainable
Development Committee



(Pol. Gen. Suchart Theerasawat)

**Chairman of the Corporate Governance
and Sustainable Development Committee**

Report of the Risk Management Committee 2022

Dear Shareholders,

In 2022, the Company faced challenges from internal and external operational factors that were severely affected by the unrest in Europe between Russia and Ukraine, which directly impacted supply chains and trade. The soaring energy prices drove global inflation, thus causing intense competition in the Market and affecting the Company's competitiveness. Moreover, fluctuations in feedstock and product prices, including other uncertain factors, such as trends in natural and environmental conservation, review and formulation of environmental policies and measures, promotion of alternative energy, and climate change constituted the issues that the Company valued highly so that it could overcome the crisis, seek business opportunities, strengthen competitiveness, and create sustainable growth. In the past year, the Risk Management Committee performed its duties with its full effort by providing opinions, guidelines, and recommendations for risk management measures to address various crises closely, as well as promoting the Risk and Control Self-Assessment (RCSA), which was part of raising awareness of the work process risk management at its process level. With cooperation from both executives and employees at all levels, GGC was able to overcome obstacles and cope with various challenges efficiently, which instilled confidence that it had a strong risk management process that was continually evolved to be in line with the changing business environment.

GGC valued risk management, cultivation of a risk management culture across the organization, supervision of corporate risk management at an appropriate level under the corporate governance code, implementation of an effective risk management process to enable the organization to achieve its business goals, confidence among shareholders, assessment of risks arising from external factors or incidents that might affect the Company's operations, and review of risk mitigation measures, as well as a prudent and efficient risk management framework.

The Risk Management Committee performed its duties within the scope of authority, duties, and responsibilities as assigned by the Board of Directors, which were fully defined in the Risk Management Committee Charter. In 2022 there were nine meetings, which can be summarized as follows:

1. The Committee constantly steered, monitored, provided opinions, and made recommendations on corporate-level risk and crisis management for 2022 to ensure that GGC had adequate measures to deal with risk factors and crises efficiently and timely. This made it possible to maintain the risk appetite. The Committee also provided opinions on the mitigation measures for emerging risks. The performance outcomes of the Risk Management Committee were reported to the Board of Directors on a quarterly basis or whenever facing risks arising from various factors that could significantly affect the short-term corporate goals (corporate indicator) and the long-term corporate goals (corporate business plan).
2. The Committee considered and commented on the improvement, and reviewed the risk management framework in various aspects to be in line with the situations, namely risk management of the volatility of raw- material and product prices, inventory management during the volatility of feedstock prices, risk management of investment in major projects, and risk management of foreign exchange during the volatility of global financial Markets, including interest rate adjustments by the US Federal Reserve during inflation, coupled with concerns about recession in major economies, affecting the global currencies, including the Thai Baht.

3. The Committee monitored, provided comments and suggestions on the biodiesel Market situation and risk management on prices and price differences (hedging), and followed up on quarterly operational results of the inventory risk management framework to closely mitigate the impact of stock loss and exchange rate movements. The Committee also gave advice and monitored the results of engaging in the risk management of prices and price differences (P2F) by using financial tools of commercial banks, such as forward contracts or options to manage foreign exchange risk. To ensure that such measures were flexible, appropriate to the situation, and able to reduce the impact on the Company's operational performance. Moreover, the Committee made suggestions on preparing and seeking guidelines for the use of Green or Carbon Credit, as it would benefit the Company in terms of financial management and investment in future projects.
4. The Committee considered, provided opinions, and recommendations on the development and study of the project investment model, risk management, risk management measures of major projects, and long-term corporate strategies to be in line with the world's major changing trends and the Company's business growth strategies namely (1) Operation of the Nakhonsawan Biocomplex Project Phase one, (2) Operation of the Nakhonsawan Biocomplex Project Phase two, and (3) The risk factors impacting long-term corporate business plans and corporate development for GGC's business transformation to underlie the transition of the energy industry to clean energy.
5. The Committee considered, provided opinions and suggestions for the risk assessment and internal-control self-assessment project (RCSA) to be in line with the Company's guidelines and corporate governance by developing the tool to improve the assessment of the adequacy of internal control at the Company's process level to enable it to achieve the three objectives of internal control, namely Operation, Reporting, Compliance with laws and rules relevant to GGC's operations.
6. The Committee considered, scrutinized and approved the risk factors and the corporate risk management measures for 2023, and suggested guidelines for the preparation of risk mitigation measures in line with economic conditions, industrial trends, and a variety of uncertainties to ensure that GGC was able to achieve its strategic and business goals under volatile and rapidly changing situations, and followed up on the progress of the remaining corporate risk management of 2022 to be effective against the defined plan.
7. The Committee reviewed the risk management policy and the Risk Management Committee Charter to be consistent with the guidelines for risk management throughout the organization (COSO ERM 2017 "Enterprise Risk Management") and reported the evaluation results of the Risk Management Committee to the Board of Directors for acknowledgment and disclosed it in Form 56-1 One Report.

For 2023, the Company still faces challenges and uncertainties from global stagflation. If the situation continues longer than expected, it may cause central banks around the world to raise interest rates more aggressively next year. It may be an impetus to further aggravate the economy. Geopolitical conflicts around the world cause unbalanced or unequal expansion of the global economy, especially developed countries, where growth tends to slow down. This may affect the factors impacting GGC's business, particularly the fluctuation of agricultural produce prices. Furthermore, there are uncertainties and business opportunities arising from other factors such as domestic and international politics, trade war and oil prices, foreign exchange rates, relaxation of measures to prevent the spread of Covid-19, agricultural policies of trading partners/competitors, domestic economic stimuli from the tourism and the service sectors, government policies, consumer behavior that focuses on environmental conservation trends, climate change, as well as policies and measures to promote the transition to a low-carbon economy of various countries, among others. These factors will affect demand for the Company's products, feedstock prices, product prices and product-feedstock price spreads, and the drive of strategic goals for business sustainability in the future. The Risk Management Committee will closely monitor the situations and risk mitigation measures, and will provide comments and recommendations that are appropriate and sufficient to manage such risks.

In summary, for the performance of 2022, the Risk Management Committee fully performed its duties in managing key corporate risks against the duties assigned in the Charter. Both the risk management and the internal-control systems of GGC were developed and improved in line with the standards, economic conditions, industrial competition, and dynamic future trends. In addition, the committee monitored and provided opinions and recommendations on seeking business opportunities and risk management guidelines on an ongoing basis and covering all issues critical to GGC's strategic goals, both short-term and long-term, as well as newly emerging risk factors that might affect its future operations. The committee strived to ensure that GGC had managed risks efficiently, with appropriate standards and control at an acceptable level, which would enable it to achieve its goals and operate business sustainably.

On behalf of the Risk Management Committee



(Mrs. Kannika Ngamsopee)

Chairman of the Risk Management committee

Abbreviations

Abbreviations	Detail
SET	The Stock Exchange of Thailand
The Company	(1) Global Green Chemicals Public Company Limited or (2) Global Green Chemicals Public Company Limited and TFA (as the case may be)
PTT Group, PTT affiliates	PTT and its subsidiaries or associates
GC Group, GC affiliates	GC and its subsidiaries or associates
PTT	PTT Public Company Limited
Securities and Exchange Act	Securities and Exchange Act B.E. 2535 (A.D. 1992) (and its amendment)
SEC	The Securities and Exchange Commission, Thailand
CCSA	The Center for COVID-19 situation Administration
EPPO	Energy Policy and Planning Office
ONEP	Office of Natural Resources and Environmental Policy and Planning
AVT	AGC Vinythai Public Company Limited
Advanced Biochemical	Advanced Biochemical (Thailand) Company Limited
B5	Having a biodiesel content of 5% and diesel 95%
B7	Having a biodiesel content of 7% and diesel 93%
B10	Having a biodiesel content of 10% and diesel 90%
B20	Having a biodiesel content of 20% and diesel 80%
B30	Having a biodiesel content of 30% and diesel 70%
B35	Having a biodiesel content of 35% and diesel 65%
Bangchak Biofuel	Bangchak Biofuel Company Limited
BASF (Thai)	BASF (Thai) Company Limited
BCP	Bangchak Corporation Public Company Limited
BSA	Business Services Alliance Company Limited
Bio Complex	Biochemical Industrial Estate Project
BOI	The Board of Investment Thailand
Cargill	Cargill Incorporated
Chevron	Chevron (Thailand) Limited
Dhipaya	Dhipaya Insurance Public Company Limited
EIA	Environmental Impact Assessment
EFT	Eastern Fluid Transport Company Limited

Abbreviations	Detail
Emery	Emery Oleochemicals (M) Sdn. Bhd. and Emery Specialty Chemicals Sdn. Bhd.
ENCO	Energy Complex Company Limited
EPO	Eastern Palm Oil Company Limited
EPS	Eastern Pipeline Services Company Limited
ESSO	Esso (Thailand) Public Company Limited
GC	Global Chemical Public Company Limited
GC BV	PTTGC International (Netherlands) B.V.
GCEC	GC Estate Company Limited
GCL	GC Logistics Solutions Company Limited
GCM	GC Marketing Solutions Company Limited
GCO	GC Oxirane Company Limited
GCP	GC Polyols Company Limited
GCME	GC Maintenance and Engineering Company Limited
GCI	GC International Corporation
GC Inter	PTTGC International Private Limited
GGC Bio	GGC Biochemicals Company Limited
Glycol	Glycol Company Limited have already registered their dissolutions on August 31st, 2022
GIZ	Deutsche Gesellschaft for Internationale Zusammenarbeit (GIZ) GmbH
GKBI	GGC KTIS Bioindustrial Company Limited
GPSC	Global Power Synergy Public Company Limited
HMC	HMC Polymers Company Limited
HPC	Home and Personal Care products
ICIS	Independent Chemical Information Service, a unit of Reed Business Information Limited, a service provider of intelligence on chemical Market prices and analyses, including those of petrochemicals and oleochemicals
IOD	Thai Institute of Directors
IRPC	IRPC Public Company Limited
KGC	Kuraray GC Advanced Materials Company Limited
KTBE	Ktis Bioethanol Company Limited
KTIS	Kaset Thai International Sugar Corporation Public Company Limited
Linde	Linde (Thailand) Public Company Limited

Abbreviations	Detail
LMC International	LMC International Limited
MD&A	Management discussion and analysis
NatureWorks	NatureWorks LLC
NBC (Nakhonsawan Biocomplex)	Nakhonsawan Biocomplex Project
NPC	NPC Safety and Environmental Service Company Limited
NPCSG	NPC S&E Security Guard Company Limited
OR	PTT Oil and Retail Business Public Company Limited
PTTAC	PTT Asahi Chemical Company Limited (PTTAC)
PTTEP	PTT Exploration and Production Public Company Limited
PTTT	PTT International Trading Pte Ltd
PTT Digital	PTT Digital Solutions Company Limited
PTT MCC	PTTMCC Biochem Company Limited
PPCL	PTT Phenol Company Limited
Shell	The Shell Company of Thailand Limited
SPRC	Star Petroleum Refining Public Company Limited
SUN	Solution Creation Company Limited
TEX	Thai Ethoxylate Company Limited
TETSO	Thai Eastern Top Seeds Oil Company Limited
TFA	Thai Fatty Alcohols Company Limited
TOP	Thai Oil Public Company Limited
TOS	TOP Solvent Company Limited
TOP Solvent Vietnam	TOP Solvent (Vietnam) Limited Liability Company
TS	Top Solvent Company Limited
TTT	Thai Tank Terminal Limited
Uhde	Uhde GmbH Germany, now known as ThyssenKrupp Industrial Solutions
Unilever	Unilever Thai Holdings Company Limited
UN (United Nation)	United Nation
VNT	Vinythai Public Company Limited

Glossary

Glossary	Detail
Palm Fatty Acid Distillate (PFAD)	By-product of the RBD Palm Oil refining process and the Methyl Ester process.
Palm Kernel Fatty Acid Distillate	By-product of the Crude Palm Kernel Oil refining process.
Free Fatty Acid (FFA)	Fatty acid that is not a molecular composition of Triglyceride.
Hydrogenation	Process of adding hydrogen to precursors, part of the Fatty Alcohols process.
Trans-esterification	Chemical reaction between fat or oil with alcohols to obtain Methyl Ester and Glycerine in the presence of catalysts.
Crude Glycerine	By-product of the process for Methyl Ester and Fatty Alcohols.
Refined Glycerine	Refined Crude Glycerine that is a precursor of personal care products.
Yellow Glycerine	Refined Crude Glycerine with impurities and a low boiling point.
Fatty Alcohol Residue	Product derived at the bottom of the Fatty Alcohols distillation tower, with a higher boiling point than those of C ₁₈ Fatty Alcohols.
Methyl Ester Residue	Product derived at the bottom of the Methyl Ester distillation tower, consisting of partially reacted oil, Methyl Ester with longer molecules than C ₁₈ , and other impurities.
Debottlenecking	Processes designed to solve problems or limitations for a given piece of machinery or equipment or a given procedure, resulting in greater capacity.
Nameplate Capacity	The maximum production rate when running at full capacity.
Base Diesel Fuel or Petroleum Diesel Fuel	Diesel obtained from Crude Oil (Petroleum) refining.
High-Speed Diesel or Retail Diesel or Diesel	Diesel meant for domestic retail sale, a blend between base diesel and Methyl Ester at a proportion announced by the Department of Energy Business for use in high-revolution diesel engines, including passenger cars, trucks, tractors, and heavy machinery with over 1,000 revolutions per minute.
Crude Palm Oil (CPO)	Oil obtained from the pressing of fresh fruit bunches, a raw material for Methyl Ester or RBD Palm Oil.
RBD Palm Oil or RBDPO	Oil obtained from CPO refining, a raw material for Methyl Ester.
Crude Palm Kernel Oil (CPKO)	Oil obtained from Palm Kernel Extraction, refinable into RBD Palm Kernel Oil.
RBD Palm Kernel Oil (RBDPKO)	Oil obtained from RBD palm kernel refining, a raw material for Fatty Alcohols.
Lauric Oil	Oil whose main composition contains lauric acid, a saturated fatty acid with 12 carbon atoms, commonly found in Crude Palm Kernel Oil and coconut oil.

Glossary	Detail
Biodiesel	Fuel obtained from natural products like vegetable oil and animal fats, whether used or new, for use in diesel engines. Biodiesel bears similar physical characteristics to petroleum diesel, but is classified as an alternative energy. As a rule, it may include Methyl Ester (called B100).
Palm Stearin	Edible palm fat derived from the Septemberation of grease from the Palm Oil process, used for consumption.
Potassium Sulfate	Inorganic compound with formula K ₂ SO ₄ , a white water-soluble solid. It is commonly used in fertilizers, providing both potassium and sulfur.
Fatty Acid	Basic Oleochemicals that are acidic, a precursor for many downstream industries, including food and personal - care industries (like soaps and cosmetics) and the rubber industry.
Fatty Alcohols	Basic Oleochemicals that are alcohol, a precursor of surfactants and personal-care products.
Pre-Cut Fatty Alcohols	Fatty Alcohols with short molecule chains, consisting of C ₆ - C ₁₀ Fatty Alcohols, that are not yet refined into grades of pure Fatty Alcohols.
Main-Cut Fatty	AlcoholsFatty Alcohols with C ₁₂ - C ₁₈ molecule chains, consisting of C ₁₂ - C ₁₄ (medium - long) and C ₁₆ - C ₁₈ (long), that are not yet refined into grades of pure Fatty Alcohols.
Short-Chain Fatty Alcohols	Refined Fatty Alcohols containing short molecule chains. Upon refining, they yield C ₆ , C ₈ , and C ₁₀ Fatty Alcohols.
Mid-Chain Fatty Alcohols	Refined Fatty Alcohols containing Medium - long molecule chains. Upon refining, they yield C ₁₂ - C ₁₄ Fatty Alcohols.
Long-Chain Fatty Alcohols	Refined Fatty Alcohols containing long molecule chains. Upon refining, they yield C ₁₆ , C ₁₈ , or C ₁₆ - C ₁₈ Fatty Alcohols.
Methyl Ester	Also called B100, Methyl Ester can blend with basic diesel into retail diesel as announced by the Department of Energy Business, and canbe processed into downstream Oleochemicals.
Main-Cut Crude Methyl Ester	Medium - long and long - molecule Methyl Ester (C ₁₂ - C ₁₈), an intermediate product group derived from Methyl Ester distillation for Fatty Alcohols.
Methanol	Chemical used in the Trans-esterification process.
Raw Materials	Palm product, including Crude Palm Oil, RBD Palm Oil, Palm Kernel Oil, Crude Palm Kernel Oil, or RBD Palm Kernel Oil for production processes. Raw materials include chemical precursors, namely Hydrogen and Methanol.
Catalyst	Chemical used in the Methyl Ester process, namely Potassium Hydroxide or Sodium Methylate, designed to speed up Trans - esterification, and used in the Fatty Alcohols process, namely Hydrogenation Catalysts to speed up Hydrogenation.

Glossary	Detail
Trans-esterification Unit	Methyl Ester production unit, where Palm Oil or Palm Kernel Oil reacts with Methanol in the presence of catalysts (Potassium Hydroxide or Sodium Methylete).
Utilization Rate	Actual capacity in percent of the nameplate capacity.
Oleochemicals	Chemicals derived from oil or natural fats (plant and animal fats).Oleochemicals, including Methyl Ester and Fatty Alcohols, can be converted into assorted downstream products.
Ethanol	Alcohols naturally produced by the fermentation process of agricultural such as sugar cane, sugar, molasses, bagasse, etc. Ethanol has a high Octoberane which can be used to blend with gasoline to be gasohol which is a volatile and flammable.
RSPO (Roundtable on Sustainable Palm Oil)	Standard for sustainable palm oil production that is environmentally friendly and responsible to communities.
TOPSA (Thailand Oil Palm Smallholder Academy)	Thai smallholder development course for sustainable palm oil production
SPOPP (Sustainable Palm Oil Production and Procurement)	Sustainable and Climate – Friendly Palm Oil Production and Procurement in Thailand



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