TAIWAN GLASS IND. CORP.

2021
ESG Report

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About This Report

Since its foundation in 1964, Taiwan Glass Ind. Corp. (TGI) has committed to the development of the glass industry. It constantly pursued innovation and the development of new products, fulfilling corporate social responsibility as a good global citizen. This is the 9th ESG report that TGI issued, with the first ESG Report published in 2013, which demonstrates to the public and all stakeholders TGI's continued commitment to civic responsibility and the pursuit of sustainable social development as well as sharing the fruits of this sustainable development. The 6 themes of this report, including "Sustainability Communication", "Ethical Governance", "Quality & Service", "Green Operation" "Friendly Workplace" and "Community Care", show TGI’s efforts and results in sustainable development indicators such as the economy, environment, employee care, human rights and product responsibility in 2021, which will be further illustrated with relevant statistics.

TGI created a designated section on the company website for the public and stakeholders to learn more about TGI’s ESG initiatives. In this section, not only can this report be downloaded, but there are also regularly updated sustainable development objectives, strategies, and results. TGI has put in place an online stakeholder feedback form to facilitate communication between TGI and stakeholders.

In this report, "TGI, the Company or we" all refer to Taiwan Glass Ind. Corp.For other key terms, letter abbreviations, or technical terms, used in this report will be noted on the same pages.

Report Coverage and Calculation Basis

This report covers TGI's results in corporate social responsibility from January 1, 2021, to December 31, 2021. Some content also relates to projects in 2021 and beyond, as well as future policies, objectives, and plans, which all form part of the report.

The scope of the 2021 annual report covered TGI's Taipei headquarters and manufacturing facilities in Taiwan (Taoyuan Factory, Hsinchu Factory, Taichung Factory, Lukang Factory, Lukang Flat Glass Factory, and Changpin Factory). The 2021 data is presented in international generic indicators. If the index relates to other regions, these are separately described in the report. All financial figures have been audited and confirmed by Ernest & Young and are all in NT dollars. This report's coverage is similar to that of the same report in 2020.

Report Writing Principles and Programme

The content and structure of TGI's 2021 ESG Report are in line with international standards by following Global Reporting Initiative's Standards (GRI Standards) Sustainability Reporting Guidelines which was formally published by Global Sustainability Standards Board (GSSB) on October 19, 2016. It uses substantive analysis to identify the sustainability issues that stakeholders are concerned about, decide priorities and analyze sustainability issues, related strategies, objectives, and measures, and related initiatives:

- Global Reporting Initiative's Standard Sustainability Reporting Guidelines
- United Nation Sustainable Development Goals (SDGs)
- Earth Charter and OECD Guidelines for Multinational Enterprises
- Accountability's AA1000 Series of Standards (2008 version)
- International Standard on Assurance Engagements 3000 (ISAE3000)
- United Nations Global Compact
- ISO 26000 Social Responsibility Guidance Standards
- TWSE Corporation Rules Governing the Preparation and Filing of Sustainability Reports by TWSE Listed Companies

- Task Force on Climate-related Financial Disclosures, TCFD
- Sustainability Accounting Standards Board, SASB

Report Editing

This report was edited by the TGI ESG implementation group which was also responsible for the overall planning, communication, integration, information compilation, and editorial revisions. The ESG implementation group was composed of executive team members as well as those from the company and relevant sectors in the factories.

Information and Data Quality Management

All materials and data in this report were collected by every department and a draft of the report was submitted to the ESG group. The individual team members will proofread and revised their particular areas of data and content afterward. After finalization, an impartial third party verified the final content. It was then sent to the Chairman for final review prior to publication.

Report Assurance

The Ernst & Young accounting firm, an independent and credible accounting firm, was commissioned to conduct limited assurance in accordance with the provisions of the Joint Standards Publication on verification of non-historical financial information or review on TGI's 2021 ESG Report, which was compiled according to the Global Reporting Initiatives Standards (GRI Standards) Sustainability Reporting Guidelines. Once the assurance was done, we have communicated with the governance units over the result. For the scope and detailed conclusions of the independent assurance, please see the independent assurance report in the appendix of this report.

Issuing Period and Cycle

TGI regularly publishes the ESG Report each year

ESG Current version: Published in July 2022

CSR Previous version: Published in July 2021

Contact

We hope that through this report the general public and relevant stakeholders can learn more about TGI's efforts in the promotion of sustainable development. If you have any questions and suggestions on TGI's '2021 ESG Report, please contact us as follows:

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Scan for the TG website.

Message from the Chairman

Chairman Lin, Por Fong

Looking at the performance of Taiwan Glass in 2021, the strong demand for raw materials and application products, and the gradual slowdown of the COVID-19 epidemic have propelled the strong demand of the industry. The Group's consolidated revenue is NT$ 56.07 billion, and the profit before tax is NT$ 13.93 billion. The outstanding operational performance can be credited to the efforts of the directors, independent directors, company officials, and all of the employees.

With the increase in the coverage of the COVID-19 vaccines, countries around the world are gradually opening up their borders as the global economy is expected to recover and grow significantly. However, issues with shipping, the impact of the Omicron variant, and the Russian-Ukrainian war have resulted in higher prices for crude oil, natural gas and raw materials; inflation, pressure on the global supply chain, and the uncertainty towards the economic outlook of 2022 cannot be overlooked.

In terms of flat glass, the situation of the COVID-19 epidemic in Taiwan has been well controlled, and the operations and production orders of all Plants have remained normal. Taiwan Glass continues to reduce production costs, increase the added value of its products, enhance its industry-university research and development cooperation, and create product customization and differentiation. In view of the transformation to Taiwan's energy structure and reduction of carbon emissions, newly-built and old buildings should meet more stringent energy conservation standards for external walls. Taiwan Glass' Low-E energy-conserving glass can effectively block at least 60% of outdoor heat sources and reduce air conditioning energy consumption by 35%, thus reducing energy load. It has been our goal and responsibility to continue promoting the adoption of eco-friendly and energy conservation building products by all walks of life.

The flat glass market in mainland China maintains high demand and price, and has achieved good overall performance. However, during the second half of the year, the power rationing measures for energy consumption and intensity dual control system along with the construction industry crisis have impacted the entire industry chain. In order to implement the goal of emission peaking and carbon neutrality, the Chinese Government has continuously elevated energy conservation standards for buildings, and the use of high-performance/energy conservation/smart glass has already become the trend of the industry. Overall, the supply and demand in the glass market has calmed down to aim towards achieving steady progress. Taiwan Glass has developed low-dielectric glass fabric to meet the needs of high-speed/high-frequency transmission and long-distance business opportunities. In terms of the Company's food container brand, the short-

age of shipping containers and increase in delivery fees resulted foreign orders being slightly affected. Taiwan Glass has increased its bidding for various tenders in the domestic market, and its heat-resistant container and kitchen appliance production lines were merged into one production line, and strategically increased unit prices to maintain existing profits. All of the products and packaging designs for Taiwan Glass brand "TG" won the 2021 Red Dot Design Award, which was very beneficial to the promotion and sales of the products.

Taiwan Glass invested in 43.99% shares of Shilian Chemical Co., Ltd. In 2021, the supply and demand pattern of the sodium carbonate improved and the market prices of its products reached all-time record prices. The price of ammonium chloride also benefited from the constant increase in the price of urea in the fertilizer market, and reached an annual record price. The consolidated operating revenue of Shilian Central Control was US$ 472 million, and the consolidated net income was US$ 77 million as the industry's boom is expected to continue and maintain profitability.

Considering the domestic/international economic and financial situations along with the changes to the trade environment, Taiwan Glass has constantly been thinking about the optimization of the organizational structure and operations of the Company to adapt to the rapidly changing international market. The current issue of climate change and global net zero carbon emissions by 2050 has already become a global trend. Taiwan Glass has established environmental protection, social responsibility, and corporate governance (ESG) management policies and performance goals to create a circular economy. The Company won the Silver Award for Conventional Industries of the Taiwan Corporate Sustainability Awards (TCSA) for 7 consecutive years. For the practice of corporate strategies, we continue to improve water-conservation technology, use recycled water to replace tap water, and reduce water consumption to achieve the spirit of having sustainable water resources. Solar photovoltaic systems of 8,700kw are being installed on the roofs of the Plants at Taoyuan, Hsinchu, Taichung and Lukang. The installations are expected to be completed in Q4 of 2022 to realize our vision of vision of sustainable energy conservation and green management. Use AI smart production to save energy and improve quality.

We continue to enhance the Company's operating structure, steadily pursue sustainable growth, and thank all of our shareholders, customers, partners and employees. In the future, we will closely keep up with the trend of international sustainability, make use of our core businesses as a foundation and integrate the Group's business development model to continue diversifying and innovating the value of the industry, and get a head start to adapt to new changes.

Chairman of TAIWAN GLASS

Key Achievements of the Year

FTSE4 Good	TGI was again selected to FTSE4 Good in Taiwan Index Plus, which shows our performance of practicing ESG.
Silver Award	TGI has been awarded Silver Award for the past seven years among "Traditional Manufacturing" companies in Corporate Sustainability Report Award.
100%	100 % of flat glass products passed EU CE, US ANSI, Taiwan CNS and other relevant standards.
100%	Fiberglass products were 100% compliant with RoHS and REACH specifications.
100%	100% of glass food container products met Taiwan food container and packaging hygiene standards, and all factories met FSSC 22000 certification for environmental protection and food safety.
240 million	In 2021, the investment expenditure in environmental protection is nearly 240 million dollars.
48%	The average recovery and reuse rate of food-holding glass products reached 48%.
-12.5%	Lightweight bottle technology reduces 12.5% of product weight and is 100% recyclable.
94.44%	94.44% of employees that applied for parental leaves in 2020 retained in 2021.
19.1 hours	In 2021, the average hours of education and training for general personnel of TGI are 19.1 hours, which is 2.3 hours more than that of last year.
155%	The average salary of TGI personnel is 155% higher than the local minimum salary.
100%	In 2021, TGI adopted the <New Staff Counselor System> and the in-service rate is 100% by December 31st, 2021
53.2 million	TGI donated NT$53.2 million in 2021, mainly for vaccines and syringe.
2,693 people 31.05 million	Since 2000, the Taiwan Glass Culture and Education Foundation has rewarded 2,693 college students and awarded a total of 31.05 million in scholarships.
52 bags	In 2020, all factories of TGI donated a total of 52 bags of blood in response to the “ Give blood, save lives” principle

CH1 Sustainability Communication

1.1 TGI Sustainable Management
1.2 Stakeholder Communication
1.3 Identification of Material Issues

ENVIRONMENT SOCIETY GOVERNMENT

Achievements of Sustainable Operation in 2021

FTSE4 Good
Taiwan Glass was again selected as a constituent of the Taiwan Index Company's Perpetual Index, demonstrating our performance in practicing ESG.

Silver Award
TGI has been awarded a silver price for the past seven years among "Traditional Manufacturing" companies in the ESG Report Award.

8 categories
TGI identified eight categories of stakeholders, including shareholders/investors/financial institutions, employees, business customers, suppliers, contractors, sub-contractors, dealers and government/authorities.

8 Material Issues
In 2021, we identified a total of 8 material issues and an effective management policy was assigned to each of these perspectives.

1.1 TGI Sustainable Management

TGI has set sustainable development as our core value. When planning business strategies, we've simultaneously paid attention to the issues related to the economy, the environment, and the society. As the glass industry continues to steadily grow, we also look to protect the rights and interests of our stakeholders, create social welfare, and reduce environmental impact to meet the Company's long-term goals and create value.

The Board of Directors, exercising care as good administrators, supervises, and assists the management to fulfill their social responsibilities. The results are reviewed and action plans are formulated immediately to eliminate any deficiencies to make sure that the corporate social responsibility policies are implemented. When it comes to TGI's corporate social responsibilities, the Board of Directors is responsible for the following：

a. Propose the ESG mission and vision; formulate ESG policies, systems, or relevant management guidelines.

b. Include ESG in the company's business activities and development and formulate concrete ESG action plans.

c. Ensure that the company is disclosing accurate ESG information on a timely basis.

TGI's CSR Principles which supervises and implements the concept of sustainable management is divided into four major parts:

Conducting our business with integrity

Integrity management is the core value of TGI and its commitments and responsibilities to shareholders, employees, and all stakeholders. The Board of Directors and managers all strictly abide by the code of honest business, avoidance of conflict of interest, anti-corruption, and conduct comprehensive risk management.

Strengthening sustainable environment

TGI complies with environmental protection laws and regulations, continuously improving its work environment, reducing environmental pollution, and carbon reduction. To achieve the goal of sustainable environmental management, TGI pays attention to renewable energy issues, innovate green products, and promote the reuse of resources.

Caring for social charity

TGI upholds the commitment to civic responsibility, cares and contributes to the society, and takes participation in social charity activities. TGI enhances community development and interactive friendship and provides scholarships for employees and dealers' children.

Building an inclusive workplace

TGI focus on the industrial relation which includes employer-employee relation, employee benefits and welfare, and a comfortable and safe workplace environment. Also, TGI cares for employee rights, physical and mental health, respects human rights and gender equality, promotes the cultivation and development of talents, and establishes diversified communication channels between employees and the company and TGI Association. TGI aims to build a win-win culture for both the employees and the company.

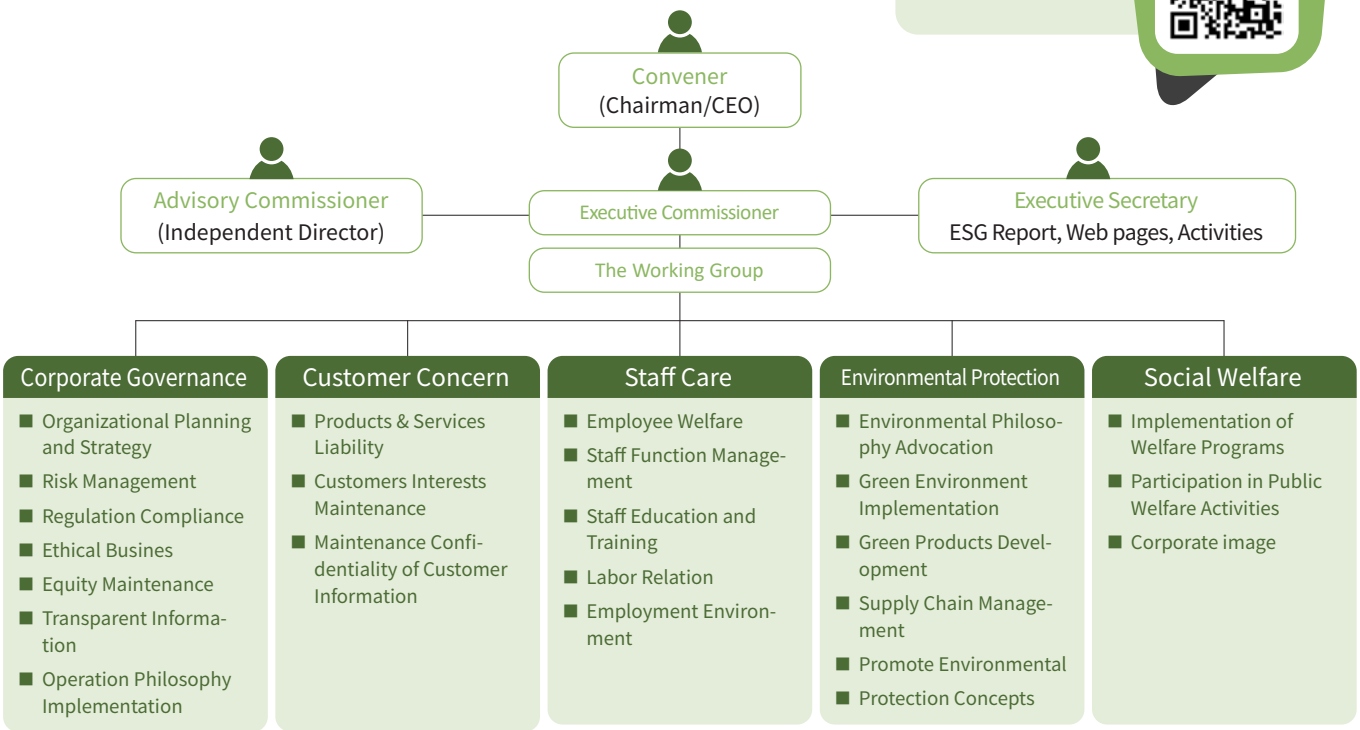
Sustainable Development Committee

To fulfill the implementation of ESG policies, TGI has established the "Sustainable Development Committee" (ESG Committee), with our chairman and president as coordinators, independent directors as advisers, and several executive committee members.

TGI ESG Committee is held every six months. It can be adjusted flexibly if necessary, but it should be held at least once a year. In 2021, two meetings have been held. The agenda includes motion discussion on the progress of applying Green Factory Certification, the ESG performance of the subsidiaries in this year, and the project of applying for Green Building Certification.

Committee Structure

Go to TG website



Committee Members

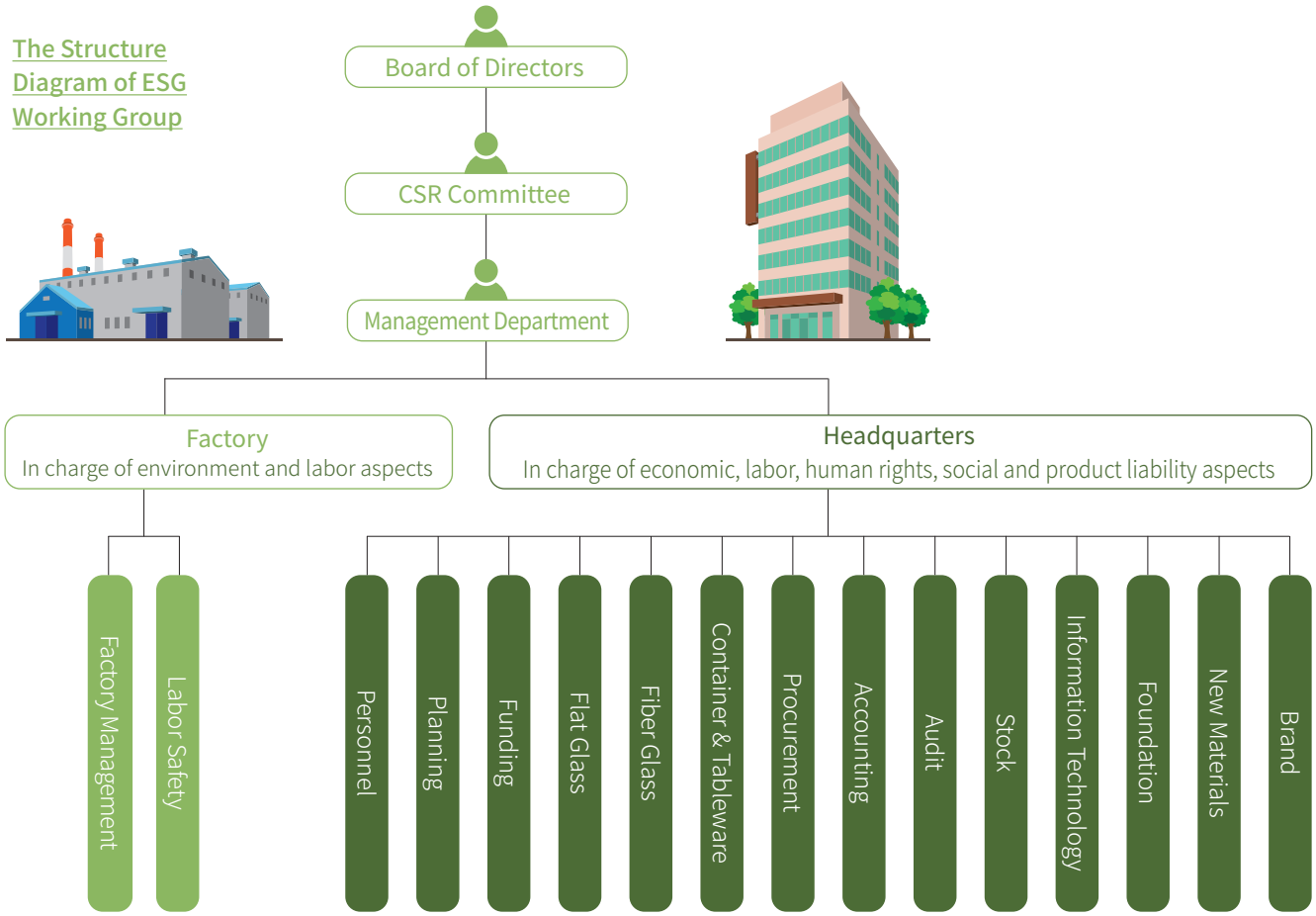
TGI ESG Committee Members

Title	Name	Gender	Concurrent position at TGI
Convener	Lin Por Fong	Male	Chairman
Convener	Lin Por Shih	Male	CEO
Advisory Commissioner	Wang Yu Zhe	Male	Independent director
Executive Commissioner	Su Yu Te	Male	COO of Fiberglass Business Department
Executive Commissioner	Hong You Qin	Male	Vice President of Management Department
Executive Secretary	Pan Ya Lun	Female	Manager of Secretary

Responsibilities of ESG Working Group

We build up a "ESG working group" responsible for the overall planning, communication, data integration, and the implementation of economic, social, environmental performance. The management department is responsible for the implementation of the integration, and the members include representatives from relevant departments of the company and the factory.

Structure Diagram of ESG Working Group



In addition to preparing the report, the groups also actively participate in ESG related courses offered by the Center for Corporate Sustainability (CCS) courses, Industrial Resources Integration and Development Association, etc. Through these courses they exchange information about sustainable development measures and recent trends with many different industries, enhancing practice knowledge of editing to raise awareness of risk management.

The execute steps of the working group as follows:

Execute Steps of the Working Group

01 The basis for the compilation of the CSR report was by identifying stakeholders and Material Topics

02 By analyzing Material Topics the working group evaluated the current execution and counterstrategies.

03 All the economic, environmental and social issues arising from TGI's business activities were disclosed in the ESG report

04 Members of the working group reviewed and amended the content and data that they were responsible for respectively in the first draft.

05 After the first draft of the revised version was completed, the ESG report was ultimately reviewed and checked by the supervisors in various departments.

06 The final draft was verified by an independent third party.

07 The ESG report was submitted to the chairman for final review before being published.

2021 ESG Initiatives and Achievements

TGI has been awarded "Silver Award"in TCSA (Taiwan Corporate Sustainability Award) among the traditional manufacturing enterprises for 7 consecutive years. TGI looks forward to working with every field to promote the spirit of sustainable corporate development. CSR and SDGs will be incorporated into management guidelines and performance goals to create ESG Management policy and performance goals , towards sustainable development.

Alliance for Sustainable Development Goals, SDGs

TGI is dedicated to integrating SDGs into its business and development strategies, complying with the regulation of Sustainable Development Goals Alliance, utilizing the business powerto influence the industry. Therefore, TGI joined Alliance for Sustainable Development Goals (A・SDGs), an organization founded in August 2018 by the Taiwan Sustainable Energy Research Foundation and the Taiwan Enterprise Sustainability Research Center with multi-disciplinary stakeholders such as enterprises, government agencies, academic institutions, and non-governmental organizations.

The alliance has seen "globalization", "integration", "partner relationship", "business engagement" and "education"as its development strategies. Through SGDs, a universal language of the world, TGI hopes that Taiwan can strive for sustainable development and cultivate core competitiveness, making a commitment to building a good society and a new sustainable environment with all stakeholders.

Green factory promotion and Certificate of Cleaner Production Assessment

TGI values the development of the environment. As a part of the manufacturing industry, we emphasize saving energy and resources and reducing waste output. Since 2018, we have successively applied for the "Certificate of Cleaner Production Assessment" of the Industrial Bureau at Lukang Factory and Taoyuan Factory. The improvement assessments of green buildings are implemented simultaneously. In 2020, Taoyuan Factory took the lead applying for the green building assessment to improve the old plant and successfully obtained the EEWH in May 2021 to fully comply with both the "internal" and "external" of the green plant and practice TGI's vision of sustainable energy-saving and green operation. It is prominent to show our sustainable leadership in the glass manufacturing industry.

Green Factory Certificate – Taoyuan Factory

桃園廠

▶ 綠建築標章

▼ 清潔生產評估系統合格證書

Cleaner Production Assessment – Taoyuan Factory

FTSE4Good TIP Taiwan ESG Index

FTSE4Good TIP Taiwan ESG Index

Partnered with FTSE Russell, Taiwan Index Plus (TIP) Corporation created the FTSE4Good TIP Taiwan ESG Index, an investment index covers environment (E), society (S), governance (G) and financial index. Since 2019, Taiwan Glass was continuously selected as a constituent of FTSE4Good TIP Taiwan ESG Index and awarded an exclusive logo in recognition of the ESG dedication of the selected constituents for three years. Taiwan Glass will keep communicating with stakeholders to fulfill corporate social responsibility, promote environmental sustainability, contribute to Taiwan's economy, and lead the better development of the industry.

1.2 Stakeholder Communication

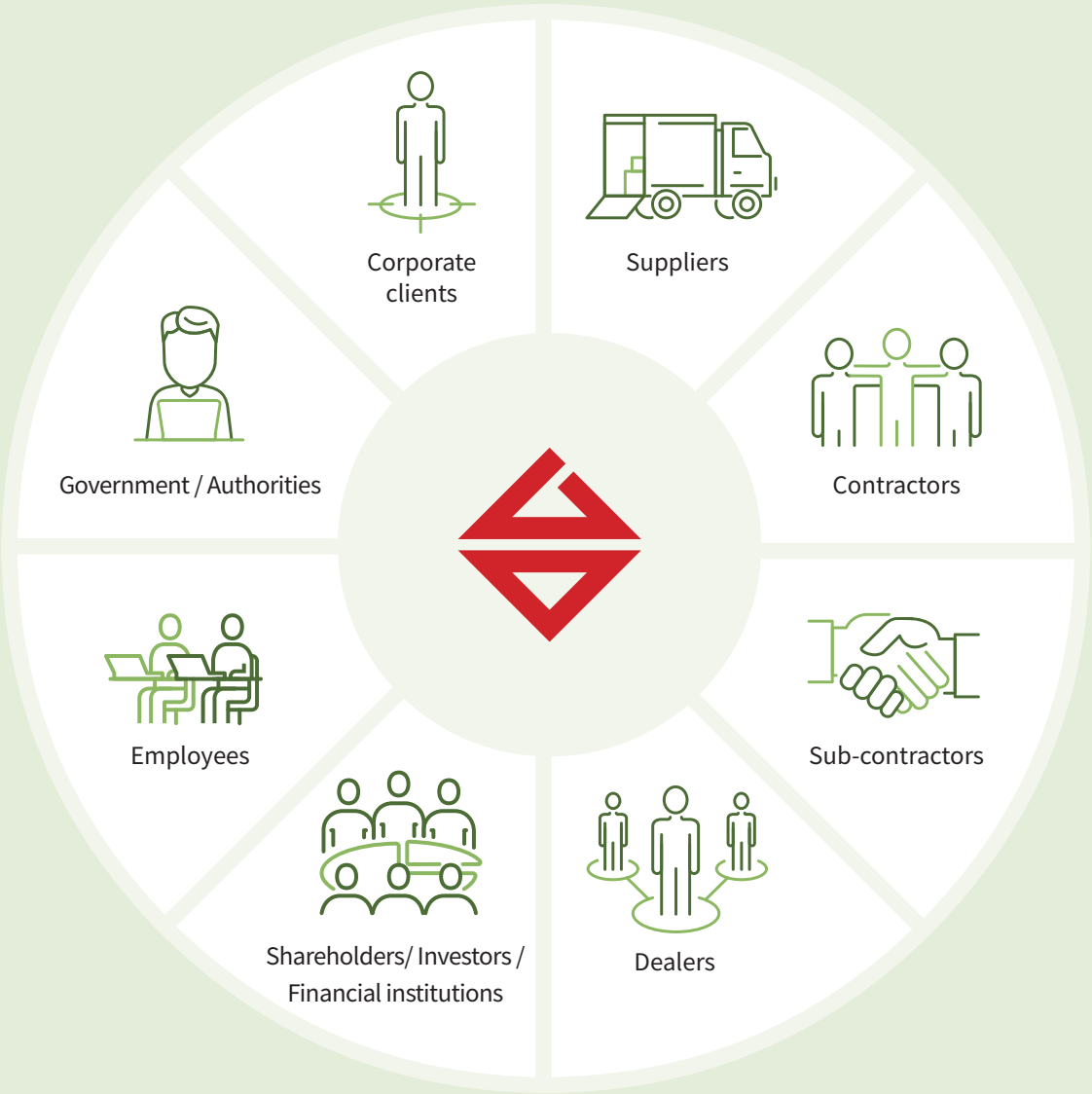
Stakeholder Engagement & Prioritization of Sustainability Issues

Through multiple communication channels, TGI analyzes stakeholder groups and their individual concerns, develops management policies based on selected material issues, effectively allocates and manages resources, plans sustainable development strategies, and regularly reviews effectiveness in implementations, to ensure response and meet the needs and expectations of stakeholders.

TGI analyzes and screens sustainability issues on a wide range of topics, conducts stakeholder and material issues analysis in accordance with the GRI Standard issued by the Global Reporting Initiative's Standards. The stakeholders' engagement process is as follows:

Identification	Analysis	Reference	Planning	Response
Organize and select stakeholders According to the AA1000 SES Stakeholder Engagement Standard, a group of important stakeholders is drawn. Collect and organize sustainability issues	Collect feedback from communication channels such as the official website, e-mail, visits, conferences as well as seminars to conduct the annual ESG questionnaires to analyze economic, environmental, social issues along with other sustainability issues for stakeholders in order to identify 2020 material issues.	Refer to the required disclosure items of material issues in the GRI Standards,and consolidate the management guidelines formulated by each department.	Confirm the sustainable development direction and international sustainable governance framework, develop a sustainable strategy and incorporate annual material issues to adjust the sustainable development items.	Disclose sustainability management policies and performance on the official website, Market Observation Post System and CSR reports.

TGI Stakeholders



Stakeholder Communication Channel

TGI has set up various channels for communications and appeals to implement the principle of honesty, immediate processing, and direct response. The Board of Directors authorizes the ESG Committee to periodically review the progress and effectiveness of various corporate social responsibility related businesses, and propose strategic planning and measures in response to performance appraisal to achieve effective two-way communication with stakeholders.

TGI cares about the voices of our stakeholders and immediately reviews and handles stakeholders' concerns to meet the expectations of all parties and maintain a harmonious relationship. The material issues, stakeholders' communication channels and frequency are as follows:

The main contents of TGI and every stakeholder:

- product information
- business opportunities
- investor relationship and services
- job opportunities
- corporate social responsibility

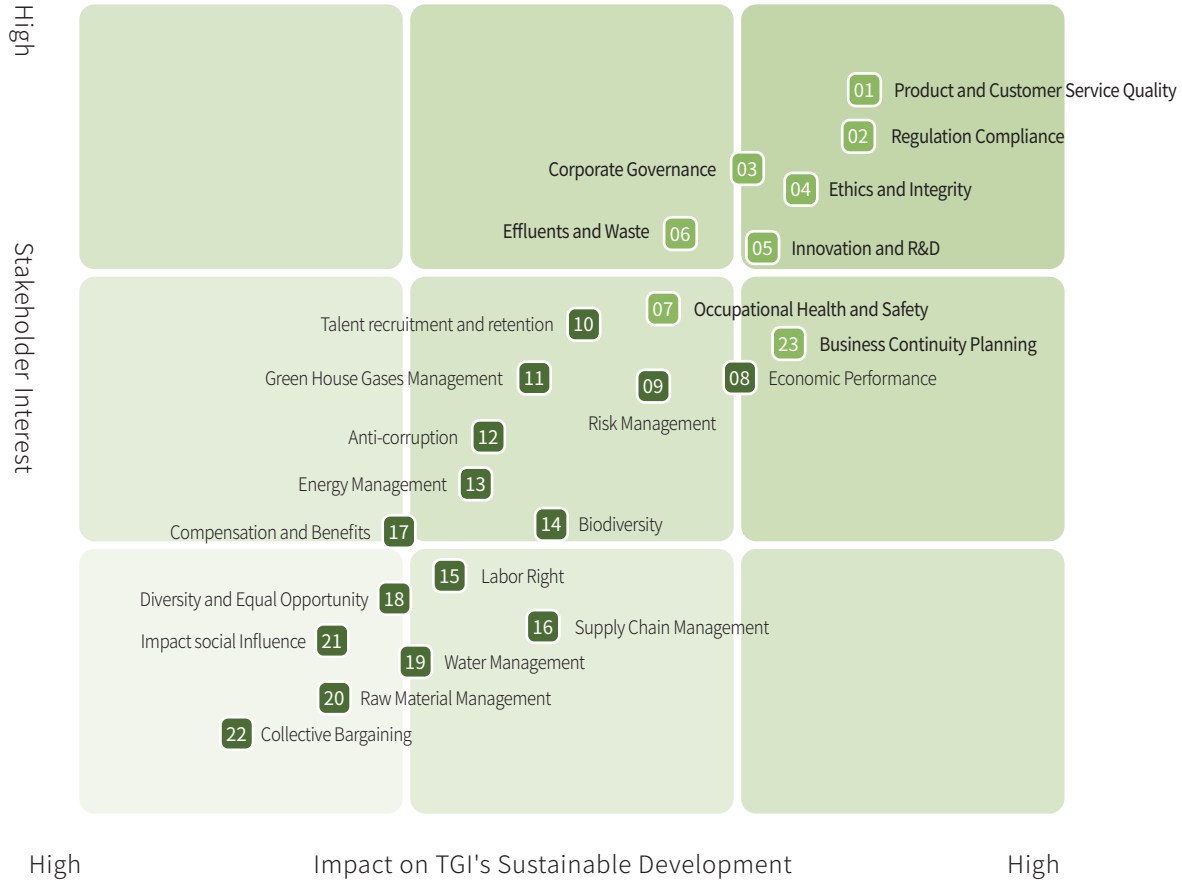
Stakeholders	Significance for TGI	Key concerns	Methods of communication	Corresponding section	Communication frequency
Shareholders/investors/financial institutions	Shareholders, investors and financial institutions are the foundation of TGI's operations, and TGI's steady growth is its best response	Economic Performance Anti-corruption Corporate Governance	Reports business revenue information	2.2 Integrity TGI 5.1 Talent Structure and Benefits	Every month
			Annual financial statement and individual financial statements		Once a year
			Convene general shareholder meeting		Once a year
			Select a spokesperson or a deputy spokesperson		Aperiodic
			Financial reports, statements, annual report, stock affairs, audits and major announcements in the "Information Disclosure" section on the TGI website		Every Year/aperiodic
			Institutional investors conference		Aperiodic
Employees	Talent is the driving force of TGI's operations. Caring for, and nurturing employees is the responsibility of TGI.	Compensation and Benefits Talent recruitment and retention Labor Right	Internal information system, ex. internal network, announcement	2.1 About TGI 5.1 Talent Structure and Benefits 5.2 Employee Care & Development 5.3 Safe Workplace and Health Promotion	Aperiodic
			Occupational Safety and Health Committee		Once every 3 months
			Management and Labor Council		Once every 3 months
			Advocate complaint phone number, fax, and email for reporting sexual harassment incidents during training. All reports are handled by dedicated staff		Aperiodic
			Face to face communication between the management and the union representative		Once a year
Clients/Customers	To meet the needs of customers/ consumers for products is the goal of TGI's business and innovation	Product and Customer Service Quality Innovation and R&D Innovation and R&D	Questionnaire	2.1 About TGI 2.2 Integrity TGI 3.1 TGI Product 3.2 Product Quality 3.3 Research and Innovation 3.4 Customer Service	Once every 6 months/Once a year
			Customer service email		Aperiodic
			Customer satisfaction survey		Once every 6 months/Once a year
			Participate in product exhibitions to gain direct insight into the clients and market trends. For example, every two years the Flat Glass Business regularly attends Taiwan and Germany Building Materials Exhibition; every year the Fiberglass Business participated in China Composites Expo, France JEC Exhibition; Container & Tableware Glass Business took part in the Hong Kong Housewares exhibition and infant supplies exhibition in Shanghai		Once every 2 years/ Once a year
			Customer visits, on-site surveys, audits, questionnaires or irregular meetings		Aperiodic

Stake-holders	Significance for TGI	Key concerns	Methods of communication	Corre-sponding section	Communication frequency
Dealers	TGI maintains good relations with distributors to ensure the quality of products and services	▌Product and Customer Service Quality ▌Innovation and R&D ▌Innovation and R&D	▌Act as a good communication platform between the clients and TGI. Understand the clients' need and assist them with issues via personal visits, phone calls and emails	2.2 Integrity TGI 2.3 Risk Management 3.2 Product Quality 3.3 Research and Innovation 3.4 Customer Service	Aperiodic
			▌Give project presentations, determine wind load deflections, glass strength design, plan types of glass and review of the standards		Aperiodic
			▌Assist with orders, samples, complaints, QC, equipment maintenance, technical service and so on		Aperiodic
			▌Customer satisfaction survey		Once a year
			▌Attend Taiwan and Germany Building Materials Exhibition		Once a year/ once every 2 years
			▌Attend France JEC Exhibition and China Composites Expo		Once a year
Suppliers	Suppliers are important business partners of Taiwan Glass, and their operations affect the products and shipments of Taiwan Glass. Therefore, assisting our suppliers in paying attention to risk changes and reducing operational risks is an important goal for Taiwan Glass	▌Effluents and Waste ▌Product and Customer Service Quality ▌Raw Material Management	▌Designated units communicate with suppliers and contractors via phone, fax or Email to help them deal with issues after receiving messages	2.1 About TGI 2.2 Integrity TGI 2.3 Risk Management 3.2 Product Quality 3.3 Research and Innovation	Aperiodic
			▌Supplier audit		Quarterly evaluation
Contractors	TGI communicates closely with contractors to ensure that both parties attach importance to engineering and industrial safety	▌Occupational Health and Safety ▌Economic Performance ▌Effluents and Waste	▌Questionnaire survey	2.1 About TGI 2.2 Integrity TGI 5.1 Talent Structure and Benefits	Once a year
			▌Interview/ phone calls and communications		Aperiodic
			▌Contractors are required to fill out Letters of Safety Commitment and Notions About Working Environment Hazards. All contractors are required to understand and countersign the letters		Every time a contractor enters a factory for construction work
			▌Contractors'job safety and health training		Aperiodic
Sub-contractors	The sub-contractors are a partner of TGI. Ensuring that its quality is consistent with ours is the requirement of TGI for our products	▌Occupational Health and Safety ▌Effluents and Waste ▌Talent recruitment and retention	▌Questionnaire	2.1 About TGI 2.2 Integrity TGI 2.3 Risk Management 3.2 Product Quality 5.3 Safe Workplace and Health Promotion	Once a year
			▌Sub-contractor evaluation		Aperiodic (Taichung Factory-once every quarter)
			▌Sub-contractor complaint number, fax, online platform or Email. Communicate with related parties to help them deal with issues after receiving complaints		Aperiodic
Government / Authorities	As a leading enterprise of glass industry, it is the duty of TGI to maintain good relations with the competent authority, and cooperate with and abide by the laws and regulations of the competent authority	▌Biodiversity ▌Effluents and Waste ▌Regulation Compliance	▌Maintain a good interaction with the competent authorities and attend public hearings held by the competent authorities	2.2 Integrity TGI 4.3 Green Production Management 5.3 Safe Workplace and Health Promotion	Aperiodic
			▌Mailroom staff will sort through the letters and distribute them to responsible units		Aperiodic
			▌Each factory has a dedicated department to handle documents and discussions with the local competent authorities		Aperiodic
			▌Invite government/ competent authorities to visit TGI factories and energy-saving product launch press conferences		Aperiodic

1.3 Identification of Material Issues

Based on the major issues in the 2020 CSR report, TGI's major issues in 2021 will be adjusted according to global sustainability trends and industry benchmarks, and will be analyzed and integrated after feedback from supervisors. A total of 8 major issues will be listed in 2021.

Prioritization of Material Issues



01	Product and Customer Service Quality	09	Risk Management	17	Compensation and Benefits
02	Regulation Compliance	10	Talent recruitment and retention	18	Diversity and Equal Opportunity
03	Corporate Governance	11	Green House Gases Management	19	Water Management
04	Innovation and R&D	12	Anti-corruption	20	Raw Material Management
05	Innovation and R&D	13	Energy Management	21	Indirect Economic Impactsocial Influence
06	Effluents and Waste	14	Biodiversity	22	Collective Bargaining
07	Occupational Health and Safety	15	Labor Right	23	Business Continuity Planning
08	Economic Performance	16	Supply Chain Management		

Material Issues and their impacts on stakeholders

Prioritization	Material Issues	Corresponding	Responding GRI specific topic	Internal	External				
				TGI	Suppliers	Contractors	Corporate	Dealers	Sub-contractors
1	Product and Customer Service Quality	12	GRI 416 GRI 417	●	▲		▲	▲	▲
2	Regulation Compliance	12	GRI 307 GRI 419	●	▲	▲	▲		▲
3	Corporate Governance	8	-	●	▲	▲			▲
4	Innovation and R&D	12	GRI 205 GRI 206	●	▲		▲	▲	▲
5	Innovationand R&D	9	-	●	▲		▲	▲	
6	Effluents and Waste	6, 13	GRI 303 GRI 306	●		▲			
7	Occupational Health and Safety	8, 3	GRI 403	●	▲	▲		▲	▲
8	Business Continuity Planning	13, 3	-	●	▲		▲	▲	

Material Issues & Management Policy

Topic	Significance for TGI	Policies and Commitments	Target	2021 implementation results	Corresponding chapter
Product and Customer Service Quality	TGI has a high-quality brand image, is committed to providing customers with excellent and reliable product quality, and protecting consumer rights and interests are the primary task. Therefore, all products have obtained relevant certificates or passed various quality, manufacturing safety and food safety certifications at home and abroad.	To achieve prosperous economic growth, environmental sustainability and social co-prosperity, reduce the probability of risk and reduce the impact of its impact, we actively introduce management systems such as product quality, product safety, environmental safety and health, transportation safety systems as continuous improvement products Quality and risk countermeasures.	1 Continuing implementation of quality management of each product line and complying with CNS standards, and ANSI standards. 2 Promote electronic grade flat glass to pass various product certifications.	1 Continue to pass the ISO 9001 quality management system. 2 Passed the ISO 45001 occupational safety and health management system and obtained the resource regeneration green product certification of the Bureau of Industry.	3.2 Product Quality 3.4 Customer Service

Topic	Significance for TGI	Policies and Commitments	Target	2021 implementation results	Corresponding chapter
Regulation Compliance	As a multinational company, TGI's operations are throughout the Asia-Pacific region. Therefore, TGI must comply with the laws and regulations of many countries, confirm the most important regulatory compliance issues for TGI, and establish corresponding compliance systems to avoid company risk. In addition, it is more important to be able to protect the most basic labor rights of employees.	TGI has a legal affair and audit department to ensure that each department comply with environmental regulations, labor safety regulations, Labor Standards Act, product regulations and related regulations, and provides employees with relevant education and training to ensure that everyone understands the relevant agreements. We are also committed to complying with the government's environmental protection policies.	1 There will be no major violations (the fine exceeds NT$1 million). 2 Annual labor-management meeting and training for new employees are held regularly.	1 No violations occurred. 2 Labor-management meeting and training for new employees are held as scheduled, effectively proclaiming the concept and awareness of the prevention and control of laws and regulations. 3 Two cybersecurity seminars are held in 2021, and employees of all factories can recognize the importance of cybersecurity and personal information protection. 4 Hold the "2021 Corporate Corruption Prevention and Personal Data Protection Publicity Seminar" to make employees aware of relevant laws and regulations related to corporate corruption and personal data protection, and discuss with	2.1 About TGI 2.2 Integrity TGI
Corporate Governance	TGI adheres to the concept of sustainable management, pays attention to shareholders' rights and interests, takes care of employees, and gives back to society. It effectively manages and executes the board of directors and improves the foundation of corporate governance. Corporate governance focuses on operational development, continuously improves the competitiveness of TGI transparent information for stakeholders to understand and reference, and self-improving the company's operating value.	Integrity management is the most basic commitment and responsibility that TGI gives all stakeholders. Transparent management creates stable profits and sustainable operation.	1 Through methods such as interest avoidance, anti-corruption, and complaint mechanisms, we hope to achieve risk management, compliance with laws and regulations, and integrity management to protect shareholders' rights and implement business philosophy. In addition, a complete performance assessment system to the Board of Directors has been established to enhance its effectiveness of operation, thereby intensifying corporate competitiveness and building investor confidence. **Short-term Goals** 1 Advocate the concept of interest avoidance. 2 Educate new and incumbent personnel in anti-corruption. 3 Continue to improve complaint mechanisms. 4 Complete the annual board of directors' self-assessment based on the law. **Long-term Goals** 1 No incident of interest avoidance occurs. 2 No circumstance of corruption violation. 3 Ensure the complaint mechanism is transparent and unblocked. 4 Incorporate functional committees into the scope of self-assessment, and evaluate the corporate's board of directors and functional committees by an external professional organization.	1 When the audit committee in 2011 considers the audit plan for 2022, the attendees abstain from the meeting and are approved by the independent directors. 2 No corruption, bribery or extortion occurred in 2021. 3 All the appeal cases of the interested parties have been dealt with in the first time, and the appeal contents have been properly coordinated. 4 The score of the 8th Corporate Governance Evaluation is 77.20 points, ranking 36%~50% among listed companies. 5 The Board of Directors has passed the "Regulation of Board Self-assessment or Peer-assessment" and issue a self-assessment questionnaire for performance evaluation of directors at the end of the year. The evaluation results are expected to be reported to the Board of Directors in March 2022.	2.1 About TGI 2.2 Integrity TGI

Topic	Significance for TGI	Policies and Commitments	Target	2021 implementation results	Corre-sponding chapter
Ethics and Integrity	Based on a clean, transparent and responsible business philosophy, TGI has formulated relevant policies based on integrity and established a good corporate governance and risk control mechanism to strengthen the integrity of corporate culture and create a sustainable business environment.	In the rules of the procedure of the board of directors, TGI sets out the clauses for avoiding the interests of the directors. For matters of the board of directors, who have an interest in the directors themselves or their legal representatives and cause harm to the interests of the company, they may present their opinions and answers in person. Join the discussion and voting, and must avoid during the discussion and voting, and shall not act on behalf of other directors to exercise their voting rights. TGI has a "Ethical Corporate Management Best Practice Principles", "Handling Measures for Reporting Cases of Illegal and Unethical or Dishonest Conduct" and a "Guidelines for Integrity for Employees in Performing Duties."	1 We strictly abide by the code of good faith management and abide by relevant laws and regulations to maintain a clean corporate image.	1 TGI has planned a complete education and training for new employees, and signed the "Employee's Guidelines for Conduct for Performing Duties". It regularly organizes education, training and promotion for relevant personnels, and employees can fully understand the importance of maintaining the company's integrity. 2 In 2021, there was no corruption, bribery or extortion among the employees of TGI. TGI's external donations or sponsorships are handled in accordance with relevant laws and the company's internal regulations to prevent giving or taking bribery and illegal political donations.	2.2 Integrity TGI
Innovationand R&D	TGI's technological process continues to breakthrough innovation, maintains industry-leading standards in the fields of environmental protection, energy-saving, photoelectricity, thinning and diversification, and actively develops high-quality environmentally friendly glass products related to green building materials. In order to ensure food safety for consumers, we are committed to obtaining various food safety certifications; various electronic product processes are towards lighter development, expanding the application of glass fiber composite materials, coupled with mature applications of technology and Internet of Things, Netcom equipment, mobile devices, and emerging unmanned driving The automobile and other industries will drive the growth of the demand for industrial fiberglass and electronic-grade fiberglass cloth.	We are committed to the improvement of technology and the research and development of new products, reducing pollution in the production process and mitigating the impact on the environment, and are more oriented toward the development of environmental protection and energy-saving related products as the main axis. In addition to establishing an internal innovation sharing mechanism and continuously strengthening the innovation vitality of the organization, it also assists customers and industries in cross-disciplinary innovation, including product innovation in cooperation with customers and green innovation in cooperation with suppliers.	1 Promote ultra-thin cloth, obtain ISO 50001 certification, cooperate with the Industrial Research Institute and United University, improve the recycling rate of broken glass, communicate with customers and technicians, absorb new ideas and integrate into their own know-how. 2 Improve the production capacity and quality of ultra-thin glass. 3 Cooperate with the advent of the 5G era, research and develop Low DK fiberglass cloth for printed circuit boards (PCB) for Netcom equipment.	1 Due to the COVID-19 epidemic in 2021, the outsourced recycling of waste glass was insufficient and the annual average recycling rate of broken container glass was 48% and the Company will continue to increase its recycling rate 2 Taiwan Glass developed a variety of new products to enhance brand competitiveness, and will continue to enhance its partnership with its clients, by providing customized new products to expand the market.	3.1 TGI Product 3.3 Research and Innovation

Topic	Significance for TGI	Policies and Commitments	Target	2021 implementation results	Corre-sponding chapter
Effluents and Waste	Facing the continuous decline of the global energy resource supply, the demand side has grown year by year; TGI actively promotes the reduction of wastewater discharge and waste generation through the improvement of process efficiency, promotes green process energy conservation, and achieves sustainable operation and environmentally friendly enterprises aims.	We continue to promote environmental improvement programs and are committed to improving the efficiency of energy resources used in glass production. Through specific energy-saving measures, we can reduce operating costs and reduce environmental impact.	1 Continue to promote various measures and projects every year to improve process efficiency and reduce wastewater and waste. 2 Review the recycled water system and water saving measures every year to continuously reduce the discharged water and enhance the use of recycled water.	1 In 2021, the total volume of recirculated water and total volume of recycled water from all Plants was 186,972,903 tons.	4.3 Green Production Management
Occupational Health and Safety	Set up a special management unit by laws and regulations to plan and supervise related operations in the factory to prevent accidents or occupational disasters, so that employees can improve work efficiency and product quality in a safe operating environment.	The objective of the occupational disaster management of TGI is based on the goal of zero disaster, and it is used as an indicator to improve various safety activities in the factory area.	1 TGI takes zero occupational injury as the goal of occupational disaster management, and reduces the Disabling Injury Frequency Rate (FR) and Disabling Injury Severity Rate (SR) by 20% each. 2 Hsinchu Factory, Taichung Factory, and Changpin Factory: Aiming at zero injuries per 100 days, a cumulative number of days without work injuries is set up to encourage employees to prepare daily. 3 Lukang Factory: work injury frequency ≦ 0.2hrs/person*-year. 4 Lukang Flat Glass Factory: work injury frequency ≦ 0.04 hrs/person*year. 5 Taoyuan Factory: work injury frequency ≦ 0.02 hrs/person*year.	1 The whole group will have 2,127 general health check-ups and 2,674 special health check-ups in 2021, for a total of 4,850 person-times. 2 n May and October 2021, the TG Lukang Plant conducted two fire drills with a total of 68 participants. 3 The disabling injury rate and the disabling injury severity rate in 2021 was significantly than the rates in 2020. 4 Due to the COVID-19 epidemic, the online clock-in system and epidemic prevention leave were used to reduce the risk of employees contracting COVID-19.	5.3 Safe Workplace and Health Promotion

Topic	Significance for TGI	Policies and Commitments	Target	2021 implementation results	Corresponding chapter
Business Continuity Planning	To prevent risk during operation or sudden disruption of function, TGI has established a comprehensive risk management operation. Risk management involves lowering the occurrence rate and reducing the impacts of recognized risks. In addition, risk management aims to achieve a sustainable process by strengthening risk management, lowering business risk exposure, and improving crisis management.	In the face of physical disaster risk, each subsidiary of TGI has an emergency response procedure with plans for uninterrupted operations prepared to ensure that the company's overall operating conditions are not in danger. In the future, we will continue to focus on the trend of climate change and plan to improve the level of risk management countermeasures.	1 Regularly examine the updates of laws and regulations, estimate its impacts on the costs of Taiwan Glass, and analyze the possible expenditure and cost reduction. 2 There is a minimum inventory for each raw material manufacturer (2-3 months for foreign products of on-hand inventory, and 2-4 weeks for domestic products). The long-term contracts raise for essential raw materials. Manufacturers make regular and quantitative deliveries according to the demands of each firm to avoid stock out. 3 There is property insurance every year, with the coverage and standard rise annually. 4 Backing up the data daily and setting up various user permissions in the system to prevent data from leaking out and being used by inappropriate people. 5 Each factory owns its "emergency procedure" written by each occupational Safety Section through considering different situations.	1 Product shipments were affected by an insufficient amount of shipping containers due to COVID-19, and Taiwan Glass adjusted its ratio of domestic and foreign sales. 2 The closure of ports and lack of shipping containers have become uncontrollable factors affecting export shipments. In order to counteract the Company's production capacity, we have actively participated in state-owned enterprise tenders and cold repairs of furnaces.	2.3 Risk Management

CH2
Steady operation, Integrity governance

2.1 About TGI

2.2 Integrity TGI

2.3 Risk Management

ENVIRONMENT SOCIETY GOVERNMENT

Achievements of Corporate Governance in 2021

8 times TGI convened 8 sessions of Board meetings in 2021.

Formulate "Standard Operating Procedures for Handling Directors' Requests" to enhance board transparency

0 incidents No TGI employee was involved in corruption, bribery or blackmail, and no political donation in 2021.

TGI Business philosophy, goals and quality policy

Our Philosophy

TGI has upheld its belief in building high performance, laying a steady operation strategy, a global macro perspective, and a solid and sound financial basis.

Our Goal

TGI will provide outstanding qualify, reasonable prices and impeccable services to satisfy customers, reward shareholders, take care of employees and comtribute to society.

Our Qualify Policy

TGI will continue to implement advanced technologies and company-wide quality management to provide our clients with satisfying products.

Founded in 1964, for the last 50 years, TGI has been following the company founder Lin Yu-Chia's business philosophy of honest hard work and focus on our core business of glass. TGI has put Taiwan in an important position in the global glass industry. In the future, TGI will continue to implement advanced technologies and company-wide quality management to provide our clients with satisfying products. We will continue to develop advanced technologies, improve our supply, production, distribution, and service to achieve sustainability, contribute to society, and succeed in the international market competition.

In addition, TGI has worked closely with Japanese companies for many years. Chairman Lin, Por Fong has communicated with the public associations of related industries in Japan for a long time to promote the improvement of the economic and trade relations between Taiwan and Japan. Therefore, in 2019 Chairman Lin received "The Order of the Rising Sun" given by the Emperor of Japan, which laid a solid foundation for the international visibility and friendliness of Taiwan's industry and business community.

Chairman Lin, Por Fong was awarded the " The Order of the Rising Sun " by the Ministry of Foreign Affairs of Japan

2.1 About TGI

TGI Profile

TAIWAN GLASS IND. CORP.	
Market	Oversea Chinese/foreign investment/publicly traded, TWSE listed company
Stock Code	1802, Taiwan Glass Ind. Corp.
Industry	Manufacturing and sale of flat glass
	Manufacturing and sale of fiberglass fabric and reinforced fiberglass
	Manufacturing and sale of glassware
Founded on	August 25, 1964
Date of listing	July 15, 1973
Capital	NT$ 29,080,608 thousand
Turnover	NT$ 13,152,625 thousand
Number of employees	Employees in Taiwan: 4,125
Headquarters	11F., Taiwan Glass Building, No.261, Sec. 3, Nanjing E. Rd., Songshan Dist., Taipei City 105, Taiwan (R.O.C.)

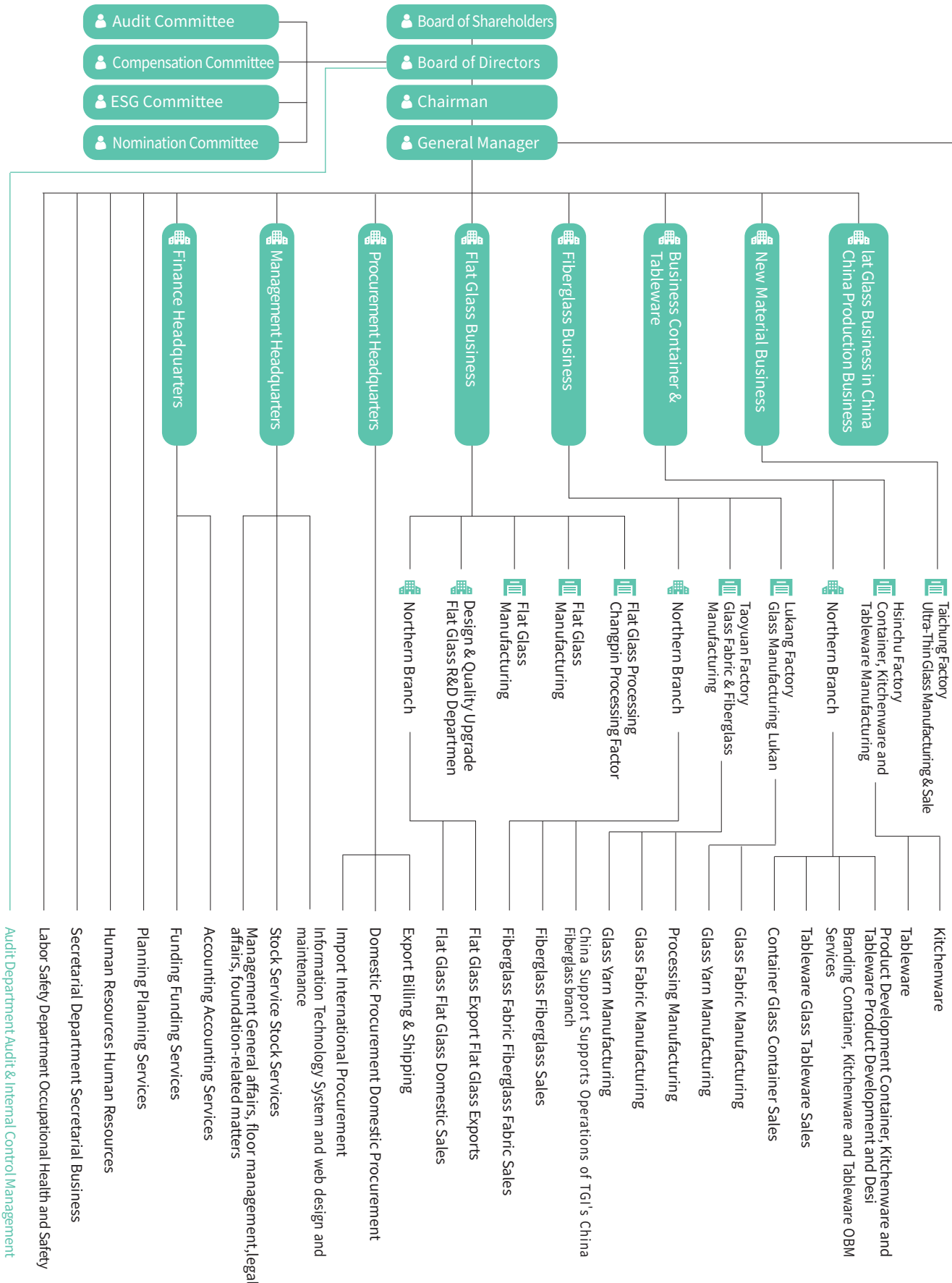
History and TGI Business Philosophy

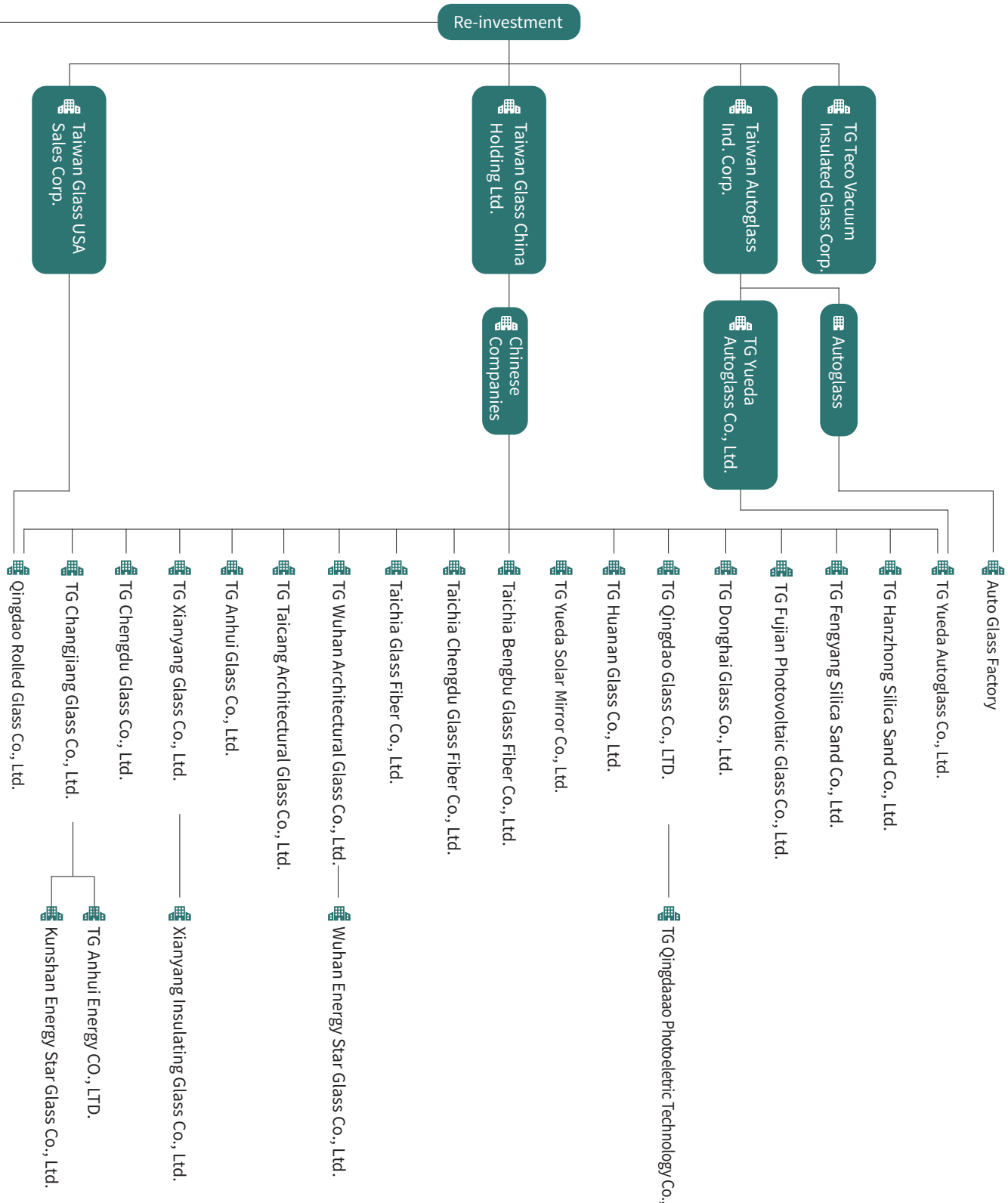
Note：Please visit TGI' sofficial website for the history and TGI business philosophy.

TGI Group Production Base Layout

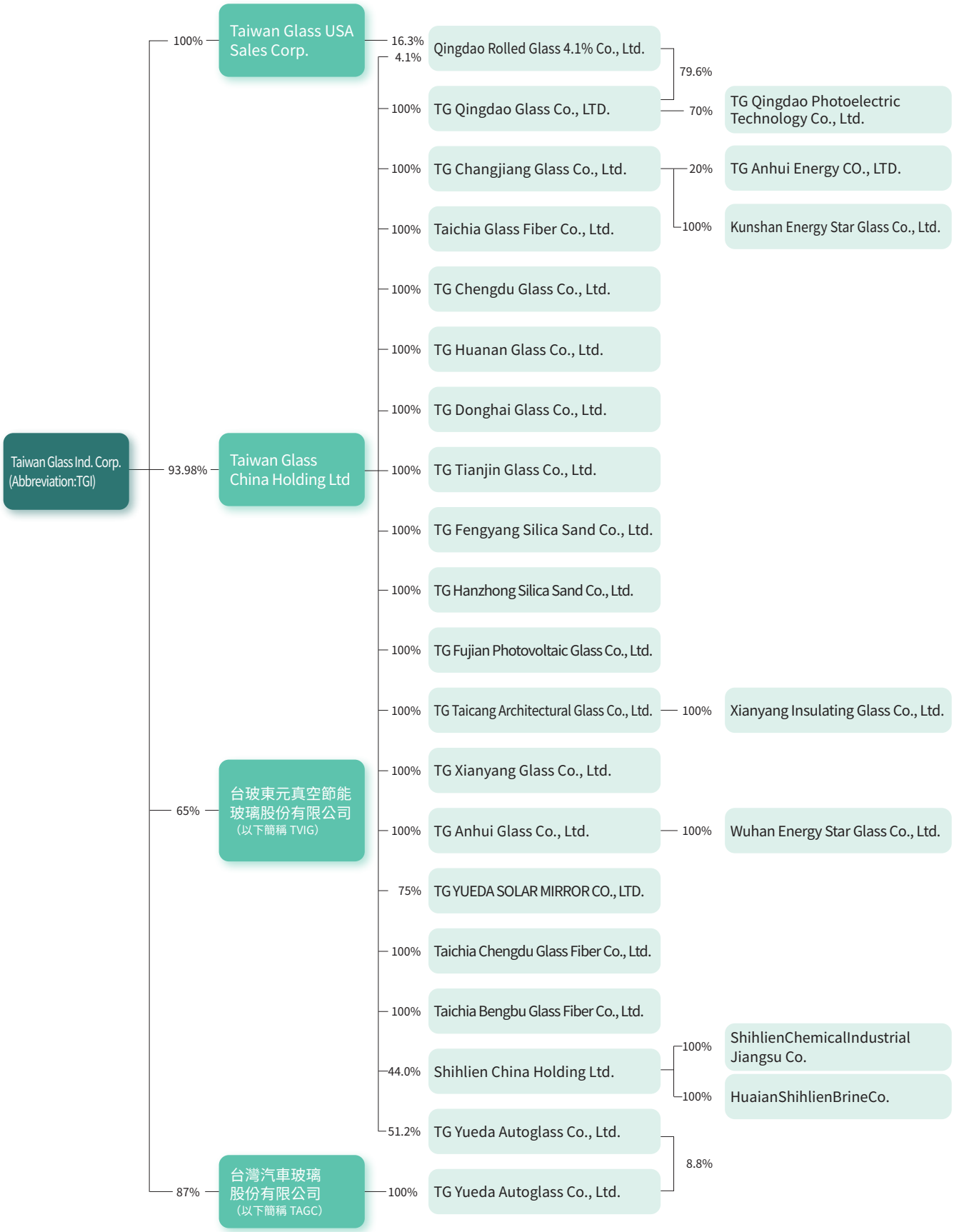
01	TAIWAN GLASS IND.CORP.
	FLAT GLASS
02	TAICHUNG FACTORY
03	CHANGPIN FACTORY
03-1	TG TECO VACUUM INSULATED GLASS CORP.
04	TG QINGDAO GLASS CO., LTD.
05	TG CHANGJIANG GLASS CO., LTD.
06	TG KUNSHAN GLASS CO., LTD.
07	TG CHENGDU GLASS CO., LTD.
08	TG HUANAN GLASS CO., LTD.
09	TG DONGHAI GLASS CO., LTD.
10	TG TIANJIN GLASS CO., LTD.
11	TG XIANYANG GLASS CO., LTD.
12	TG TAICANG ARCHITECTURAL GLASS CO., LTD.
13	TG ANHUI GLASS CO., LTD.
14	TG WUHAN ARCHITECTURAL GLASS CO., LTD.
15	QINGDAO ROLLED GLASS CO., LTD.
16	LUKANG FLAT GLASS FACTORY
	FIBERGLASS REINFORCED，FIBERGLASS FABRIC
16	LUKANG FACTORY
17	TAOYUAN FACTORY
18	TAICHIA GLASS FIBER CO., LTD.
19	TAICHIA CHENGDU GLASS FIBER CO., LTD
20	TAICHIA BENGBU GLASS FIBER CO., LTD.
	ULTRA-THIN GLASS
21	TAICHUNG ULTRA-THIN GLASS FACTORY
	PHOTOELECTRIC GLASS
22	TG FUJIAN PHOTOVOLTAIC GLASS CO., LTD.
23	TG YUEDA SOLAR MIRROR CO., LTD.
	GLASS CONTAINER TABLEWARE & KITCHENWARE
24	HSINCHU FACTORY
	AUTOMOTIVE GLASS
25	TAIWAN AUTOGLASS IND. CORP.
26	TG YUEDA AUTOGLASS CO., LTD.
	SILICA SAND
27	TG HANZHONG SILICA SAND CO., LTD.
	SODA ASH
28	SHIHLIEN CHEMICAL INDUSTRIAL JIANGSU CO., LTD.
29	HUAIAN SHIHYUAN BRINE CO., LTD.

Management Team and Key Function of Departments

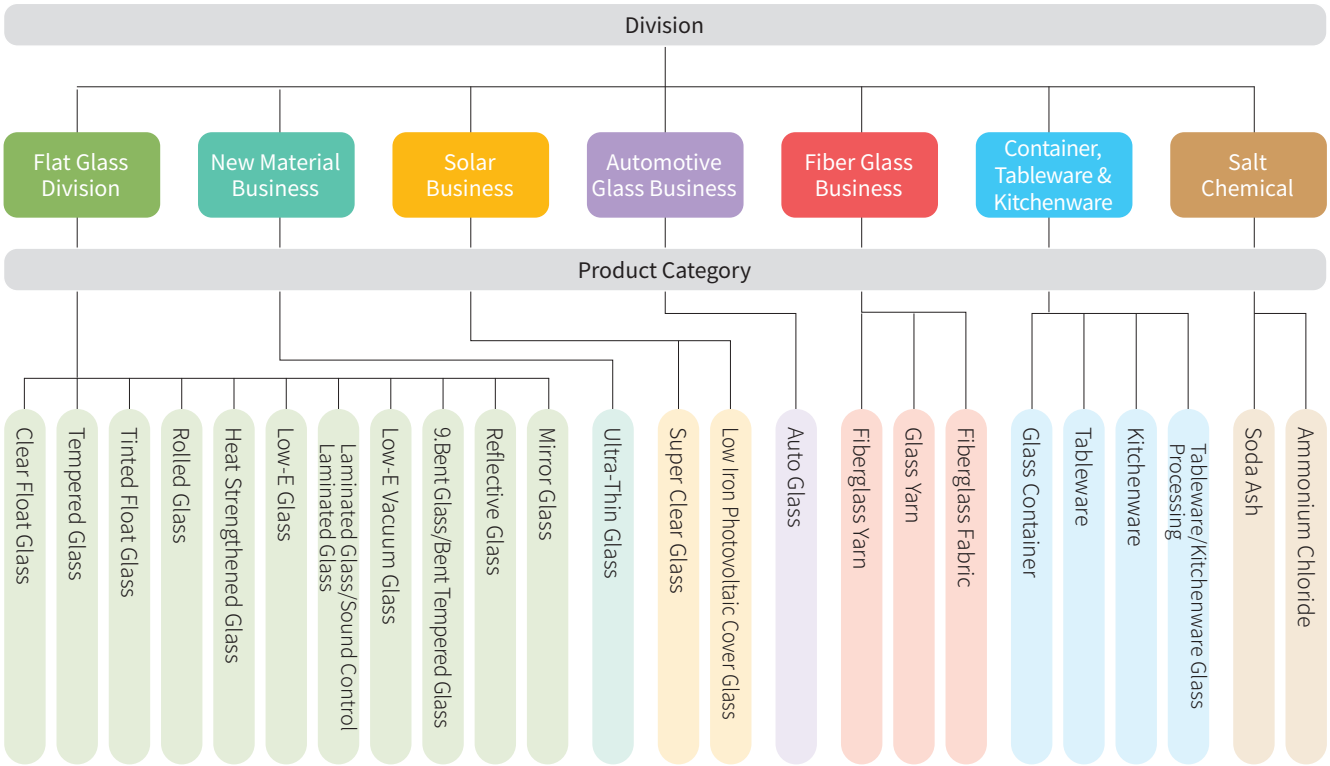



Re-investment
TG Teco Vacuum Insulated Glass Corp.
Taiwan Autoglass Ind. Corp.
Taiwan Glass China Holding Ltd.
Taiwan Glass USA Sales Corp.
Autoglass
TG Yueda Autoglass Co., Ltd.
Chinese Companies
Auto Glass Factory
TG Yueda Autoglass Co., Ltd.
TG Hanzhong Silica Sand Co., Ltd.
TG Fengyang Silica Sand Co., Ltd.
TG Fujian Photovoltaic Glass Co., Ltd.
TG Donghai Glass Co., Ltd.
TG Qingdao Glass Co., LTD.
TG Huanan Glass Co., Ltd.
TG Yueda Solar Mirror Co., Ltd.
Taichia Bengbu Glass Fiber Co., Ltd.
Taichia Chengdu Glass Fiber Co., Ltd.
Taichia Glass Fiber Co., Ltd.
TG Wuhan Architectural Glass Co., Ltd.
TG Taicang Architectural Glass Co., Ltd.
TG Anhui Glass Co., Ltd.
TG Xianyang Glass Co., Ltd.
TG Chengdu Glass Co., Ltd.
TG Changjiang Glass Co., Ltd.
Qingdao Rolled Glass Co., Ltd.
TG Qingdaao Photoeletric Technology Co., Ltd.
Wuhan Energy Star Glass Co., Ltd.
Xianyang Insulating Glass Co., Ltd.
TG Anhui Energy CO., LTD.
Kunshan Energy Star Glass Co., Ltd.

TGI Affiliates



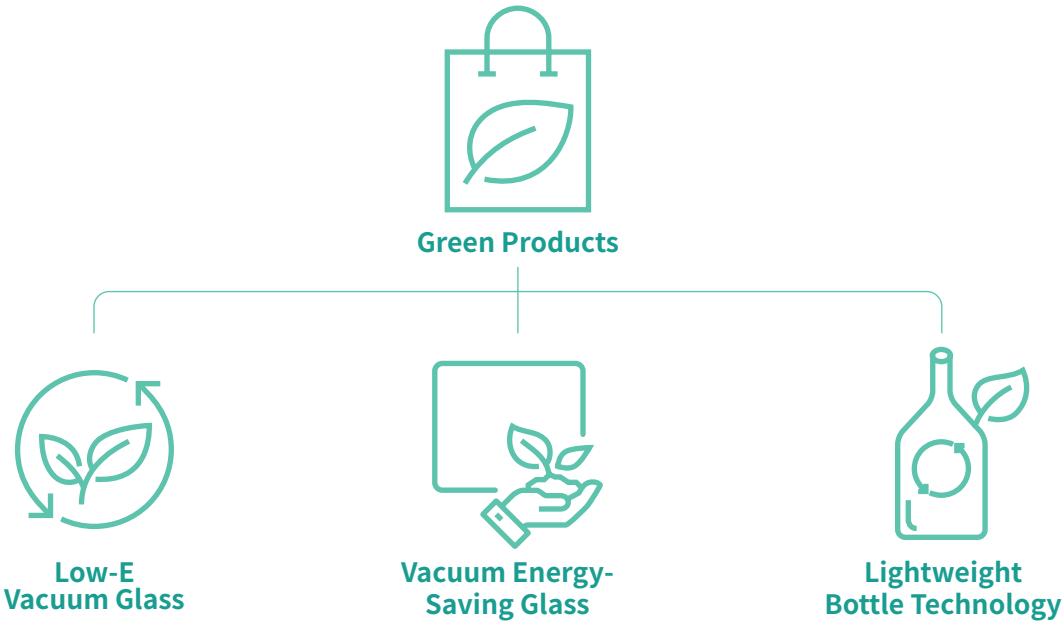
Main Business and Products



Green Products

TGI Group draws on world-class technology and equipment suppliers and accumulates its own R&D experience to make efforts in technology improvement and new product research and development.

In addition to obtaining a number of quality and environmental certificates, in response to global green energy issues, TGI reduces pollution from the production process to mitigate environmental impact and devotes to develop environmental and energy-saving related products.



Participating Organizations

TGI is actively involved in national organizations and commercial enterprises, cross-strait exchanges, regional economic and trade, industry associations and other sustainable and environment-related organizations, hoping to interact with other companies in the industrial and help one another grow by participating in various activities, exhibitions, seminars, multilateral communication meetings.

Organization	Title
1.Industrial and Commercial Enterprise Groups	
Chinese National Association of Industry and Commerce	Chairman
Chinese National Federation of Industries	Director
Taiwan Chamber of Commerce & Industry	Director
The Third Wednesday Club	Vice Chairman
2.Cross-strait Exchange Organizations	
Straits Exchange Foundation	Director
Straits Economics & Cultural Interchange Association	Managing Director
Cross-Strait CEO Summit	Director
3.Regional Economic and Trade Organization	
Chinese East Asia Economic Association	Director
Chinese International Economic Cooperation Association	Member
Taiwan-African Business Association	Member
4.Industry-Related Associations	
Taiwan Glass Industry Association	Chairperson of the Board of Supervisors
Taiwan Green Building Material Council	Member
Chung-Hwa Railway Industry Development Association	Member
Taiwan Fire Safety & Material Association	Member
Taiwan Composites Association	Managing Director
Taiwan Weaving Industry Association	Member
Guanyin Industrial Park for Industrial Technology Advancement	Member
Hsinchu City Industrial Association	Member
Taichung Harbor Related Industrial Park	Member
Lukang Changhua Coastal Industrial Park	Member
Taiwan Printed Circuit Association	Member
5.Environmentally Sustainable Development Related Organizations	
Center for Corporate Sustainability	Advisory Director
Taiwan Green Building Council	Member

Financial Information

Financial Information
(Thousands NTD.)

Items/Year	2019	2020	2021
Financial contribution to the Government	11,702,108	11,758,874	13,152,625
(Taxes, donations, fees)	10,708,502	10,314,282	10,493,131
Gross profit	993,606	1,444,592	2,659,494
Operating expenses	1,915,823	1,936,837	2,553,171
Operating income (profit and loss)	(922,217)	(494,591)	106,323
Non-operating income and expenses	(545,790)	3,023,426	11,444,975
Profit before tax	(1,468,007)	2,528,835	11,551,298
Net income from continuing operations (Net income or loss after tax)	(1,448,450)	2,468,521	11,476,678
Other comprehensive income (loss)	(1,762,559)	1,174,962	213,901
Total comprehensive income (loss)	(3,211,009)	3,643,483	11,690,579
EPS (NT$) (Adjusted retroactively)	(0.50)	0.85	3.95
Salary and Wages	3,124,606	3,044,111	3,526,175
Financial contribution to the Government (Taxes, donations, fees)	109,010	42,753	45,036

Note 1: All figures have been audited and certified by a CPA.
2: The company has adopted the International Financial Reporting Standards since 2013.

Income Tax Information

		2020	2021
Profit Before Tax		2,529	11,551
Income Tax Expense	Current income tax	2	38
	Diferref income tax	58	37
Effective Tax Rate		20%	20%
Pay Income Tax		2	4

Taiwan Glass Group 2021 Annual Capacity for Each Product

Product	Taiwan		China		Total	
	Kilns	Tons	Kilns	Tons	Kilns	Tons
Float Glass	2	340,000	12	2,974,750	14	3,314,750
Fiberglass	1	27,375			1	27,375
FRP Fiberglass Reinforced			1	237,250	1	237,250
Glass container	1	20,000	5	95,000	6	115,000
Glass tableware	1	80,000			1	80,000
Glass kitchenware	6	157,946			6	157,946
Total	**11**	**625,321**	**18**	**3,307,000**	**29**	**3,932,321**

2021 Sales Information

Serial number	Product category	Ratio of domestic sales	Ratio of export sales	Ratio of total sales	Sale areas	Clients
1	Flat glass	90%	10%	0.2819	Asia, Central & South America, Australia, Europe, Africa, and North America.	construction, automotive, furniture, decoration, optoelectronics, sanitary, lighting, gift, electronics industries
2	Fiberglass Fabric and Fiberglass	41%	59%	0.4092	Europe, USA, China, Japan, South Korea, Middle-East, Southeast Asia, New Zealand, and Australia.	Electronics, electrical appliance, communication equipment, fishing boat, yacht, vehicle, pipeline, barrel, building materials, umbrella, golf equipment, equipment, wind power blade industries
3	Glass container	60%	40%	0.2444	USA, New Zealand, Australia, China, and Germany.	Wine, food, pharmaceutical, dairy, home appliance, retail industries
4	Glass tableware	80%	20%	0.0009	India, South Korea, Germany, and Australia.	
	Glass kitchenware	10%	90%	0.0107	China	
5	New material- Ultra-thin glass	5%	95%	0.0411	China	Photoelectric, electronic industries

Market Share in 2021

Serial number	1	2	3	4	5	6
Product category	Flat glass	Fiberglass Fabric	Fiberglass	Glass container	Glass tableware/ kitchenware	New material- Ultra-thin glass
Domestic Market share	65%	35%	55%	35%	10%	10%

2.2 Integrity TGI

Board of Directors

TGI adheres to transparent operations, focusing on shareholders' equity, and believes that a robust and efficient Board of Directors is an excellent foundation for corporate governance. We believe that good corporate governance builds a solid foundation for the operation and development of the market to provide high-quality products and services while enhancing the long-term value of the company. Our corporate governance policies are under the "Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies " and relevant laws and regulations. We divide into six main strategies:

Under these principles, the TGI Board of Directors has authorized to establish the Audit Committee, Remuneration Committee, CSR Committee, and Nomination Committee to assist the Board of Directors in fulfilling its supervisory duties. Articles of Association of the committees are approved by the Board of Directors, the Chairman of each Committee reports its activities and decisions to the Board of Directors regulary.

From 2019, TGI established a new position of Corporate Governance Manager. The duties include hosting and recording meetings of stakeholders and directors, also assist with office taking and advanced studies of directors, data provides, and law consulting. A total of training hours for corporate governance managers in 2021 has reached 12 hours.

During the COVID-19 period, directors keep participating in meetings via emails and phone calls. The attendance rate of Board meetings averaged 97% in 2021.

Board Members

TGI 2021 Board of Directors included 15 directors. Each director, supervisor and legal person/representative has a rich academic or business operation experience. Among them, 3 were independent directors. TGI's sustainability relies on these directors' rich knowledge, insight and sense of business. Each director has a 3-year term, elected by the shareholders' meeting from among candidates with capability. Directors may

be eligible for re-election. Chairman of the Board of Directors shall be elected from among the directors. The Chairman will lead the Board of Directors on behalf of the company, and the Chairman does not serve as the company's CEO concurrently. The board meeting is held at least once each quarter and TGI held 7 board meetings in 2021. Compared with last year there were two additional meetings, the board of directors respectively discussed syndicated loans and fixed assets for activating assets and funds of the company. There are two types of shareholder meetings: regular and special. Regular shareholder meetings are held at least once a year, convened by the Board of Directors based on the law within six months after the end of each fiscal year. Special shareholder meetings are held based on the law when necessary.

TGI Board members

Title	Name	Gender	Job Title/Experience	Concurrent Position at TGI	2021 board of directors Actual attendance
Chairman	Lin, Por Fong	Male	TGI General Manager	None	5
Director	Lin, Por Shih	Male	TGI Managing Director	TGI General Manager	5
Director	Lin, Por Chun	Male	TGI Managing Director	None	5
Director	Lim, Han Ton	Male	Chairman, Bo Chi Investment	None	5
Director	Peng, Cheng Hao	Male	CEO of Meifu Group	None	5
Director	Tai Feng Investment	Female	Sunrise Department Store General Manager	無	4
Director	Hsu, Li Lin	Male	GM, China Prod.	COO, China Prod.	5
Director	Tai Feng Investment	Male	GM, Fiber	COO, Fiber	5
Director	Lin, Chia Hung	Male	VGM, Fiber	GM, Fiber	5
Director	Tai Feng Investment	Male	VGM, Finance	GM, Finance	5
Director	Su, Yu Te	Male	VGM of Purchasing Department	VGM of Purchasing Department	5
Director	Tai Feng Investment	Male	VP of DBS Bank (Hong Kong) Limited	None	5
Independent director	Lin, Chia Yu	Male	Visiting Professor of Chung Yuan Christian University, Department of International Business	None	5
Independent director	Ho Ho Investment	Male	Chairmen of Taiwan Garment Industry Association	None	5
Independent director	Lin, Charles Ming	Male	Researcher of National Policy Foundation	None	5

Note: 11 directors over the age of 50; 4 directors between 30 and 50.
Note: "Actual attendance of the board of directors in 2021" in the table refers to the number of attendance of the new directors in the board of directors in 2021, and the number of attendance should be 5.

Duties of the Board of Directors

The Board of Directors is the center of the company's major decisions. The Board of Directors is responsible for appointing and supervising the company's management as well as the company's overall performance.

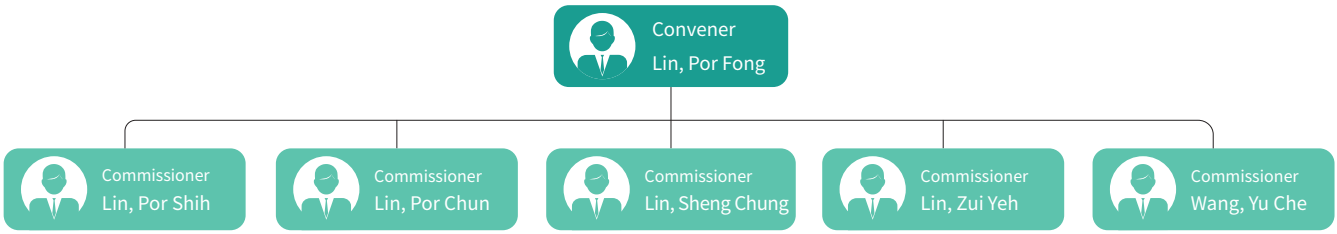
The Board of Directors' second responsibility is guiding the management team. TGI's Board of Directors listens to the management team's reports every quarter, which covers economic situations, environmental protection, and factory management issues. The Board of Directors frequently communicates with the senior management, and the management needs to propose company strategies to the Board of Directors. The Board of Directors evaluates the feasibility of these strategies, keeps track of implementation progress and urges the management team to make adjustments when needed.

In 2019, the Board of Directors has approved"Standard Operating Procedures for Handling Directors' Requests" in order to enhance the efficiency of the Board of Directors and set a good coporate governance procedure.

To enhance the efficiency of the Board of Directors and set an excellent corporate governance procedure, in 2021, the Board of Directors had approved the "Regulation of Board Self-assessment or Peer-assessment" accompanying five aspects of measurement for the board performance evaluation, aiming to implement corporate governance and enhance the functions of the board of directors. We issued self-assessment questionnaires for the performance evaluation of directors at the end of the year. The performance appraisal results would be merged with the review mechanism of directors' remuneration and establish performance targets to enhance the efficiency of the board's operations.

Nomination Committee

To establish a robust nomination system, TGI has established the Nomination Committee in compliance with Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies since 2016. The committee is authorized by the Board of Directors to seek, review and nominate director candidates as well as build and develop the structure of the board to ensure a healthy Board of Directors.

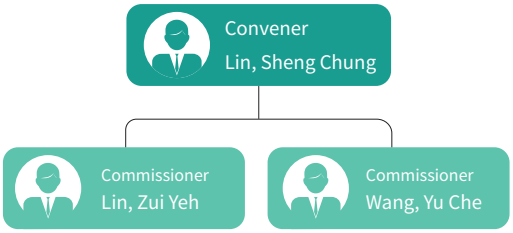


In accordance with the company law and the company's articles of incorporation, TGI has established a method for the selection of directors, adopts a nomination system for candidates and a registered voting method. The names of the electors can be replaced by the shareholders' numbers, and the shareholders are elected from the list of director candidates. To achieve a sustainable and balanced development and an increasingly diversified Board of Directors, we set up a nomination committee to consider various aspects of diversity of board members when setting up a board composition, including but not limited to gender, age, cultural and educational background, ethnicity, professional experience, skills, and knowledge and service terms.

Please refer to the 2021 Annual Report of Taiwan Glass for the self-assessment results.

Audit Committee

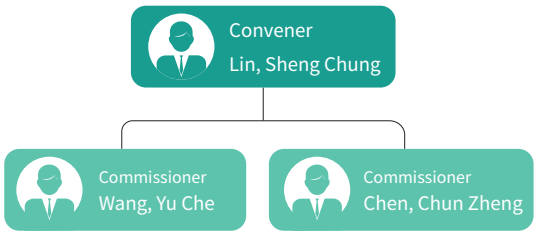
For the establishment of good corporate governance, TGI established the Audit Committee under "Regulations Governing the Exercise of Powers by Audit Committees of Public Companies", with effect from August 2015, all members of the audit committee are independent directors, and at least one of whom must have accounting or financial



Remuneration Committee

To establish a healthy remuneration system for the directors and managers in TGI, the Remuneration Committee was established following the "Regulations Governing the Appointment and Exercise of Powers by the Remuneration Committee of a Company Whose Stock is Listed on the Stock Exchange or Traded Over the Counter". This committee serves to professionally and objectively evaluate the remuneration policy and system of directors and managers and make suggestions to the Board of Directors as needed. The committee regularly reviews its organizational procedure, annual/long-term performance objectives for the directors and managers and their remuneration policy, system, standards and structures, and the performances. The committee will propose the remuneration for each director and manager as a reference in policymaking. In 2021, two Remuneration Committee meetings were held to discuss "Compensation of the Directors and Managerial Officers of TGI in 2020.

The aforementioned salary and remuneration include cash compensation, share options, dividends, retirement benefits or termination payments, various allowances and other measures that have substantial incentives; its scope should be consistent with the guidelines for recordable items in the annual report of public offering companies. The remuneration of directors, supervisors, and managers is the same. TGI has not yet consulted the interested parties on the salary policy in 2021 and will consider the participation of interested parties as future reference.



For more information on the policy and responsibilities of our Nomination Committee, Audit Committee and Numeration Committee, please visit the TGI website

Internal Audit Department

The Internal Audit Department (IAD) of TG is an independent unit under the Board of Directors. IAD has a suitable number of eligible auditors who, in addition to regular presentations during the board meetings, report to the chairman, supervisors and independent directors regularly or when necessary. In 2021, a total of 35 internal audits were conducted and no major anomalies were found.

This company has its own Internal Audit Implementation Rules, based on which the IAD reviews and assesses the company's internal control system, business performance, and efficiency. The IAD then offers timely suggestions for improvement to ensure that the internal control system is implemented continuously and effectively. The scope of audit covers all operations of the company and our subsidiaries. The IAD mainly conducts audits based on the audit plan approved by the Board of Directors. The audit plan is based on recognized risks. The IAD also conducts an audit on a case-by-case base when necessary. The self-inspection results, the internal control flaws and any matters that need improvement discovered by the IAD will be as a reference in the evaluation of the internal control system's effectiveness and the foundation of Management's Reports on Internal Control.

Avoidance of Conflict of Interest

TGI's rules of procedures for meetings of its Board of Directors include clauses for the avoidance of conflict of interest. If any director or a juristic person represented by a director is an interested party concerning to any agenda item, the director may express his/her opinions and answer questions at the meeting but may not participate and shall be excused during discussion or voting on that agenda item, and may not act as another director's proxy to exercise voting rights. Furthermore, this company has professional and unbiased independent directors, who offer objective suggestions based on their expertise and experience as the company formulates strategies. The Board of Directors will fully consider the independent directors' opinions when discussing any agendas. Any reasons or opinions for agreement or objection will be recorded while staying in line with the principle of avoidance of conflict of interest to fully protect the company's interests.

Anti-corruption

TGI has "Honest Business Principles", "Process for Reporting Illegal and Unethical or Dishonest Cases" and "Employees' Honest Principles" and provides training to new recruits to ensure that each employee understands these principles.

1. Meal invitations or gifts offered by manufacturers should be declined.
2. Invitation to meal and other entertainment should be reported; accepting gifts or money should be reported and delivered to the official handling on the same day.
3. The employee shall not exploit their relationship with manufacturers for private business dealings.

All employees signed the “Business Integrity Code of Conduct for Employee Performance of Duties” for the “Business Integrity Code of Conduct” in November 2015.

Employee's Honest Principles

Regulations on Reporting Cases of Illegal and Unethical or Dishonest Conduct

In 2021, 100% of the 186 new Taiwanese employees signed the Code of Conduct. In addition, the Company also conducted training related to Business Integrity in 2021 (Includes issues such as employee handbook and regulations, corporate social responsibility) with a total of 1,066 participants and 1,050 training hours. To implement honest business, TGI established accounting and internal control systems to ensure that all operations in the company stay in line with relevant laws and regulations. Following "Ethical Corporate Management Best Practice Principle" item 20, the Board of Directors passed "Process for Reporting Illegal and Unethical or Dishonest Cases" in 2019, and disclose designated unit, reporting channels, handling process and policy. TGI set up employee appealing email and telephone on the internal website and external email address on the company's website that the public can use to file complaints or provide suggestions.

In 2021, no employee was involved in corruption, bribery or extortion. Any donations or sponsorships from TGI to other parties will be processed according to relevant laws and regulations as well as the company's internal rules to prevent bribery or illegal political donations. TGI did not make any political donations in 2021.

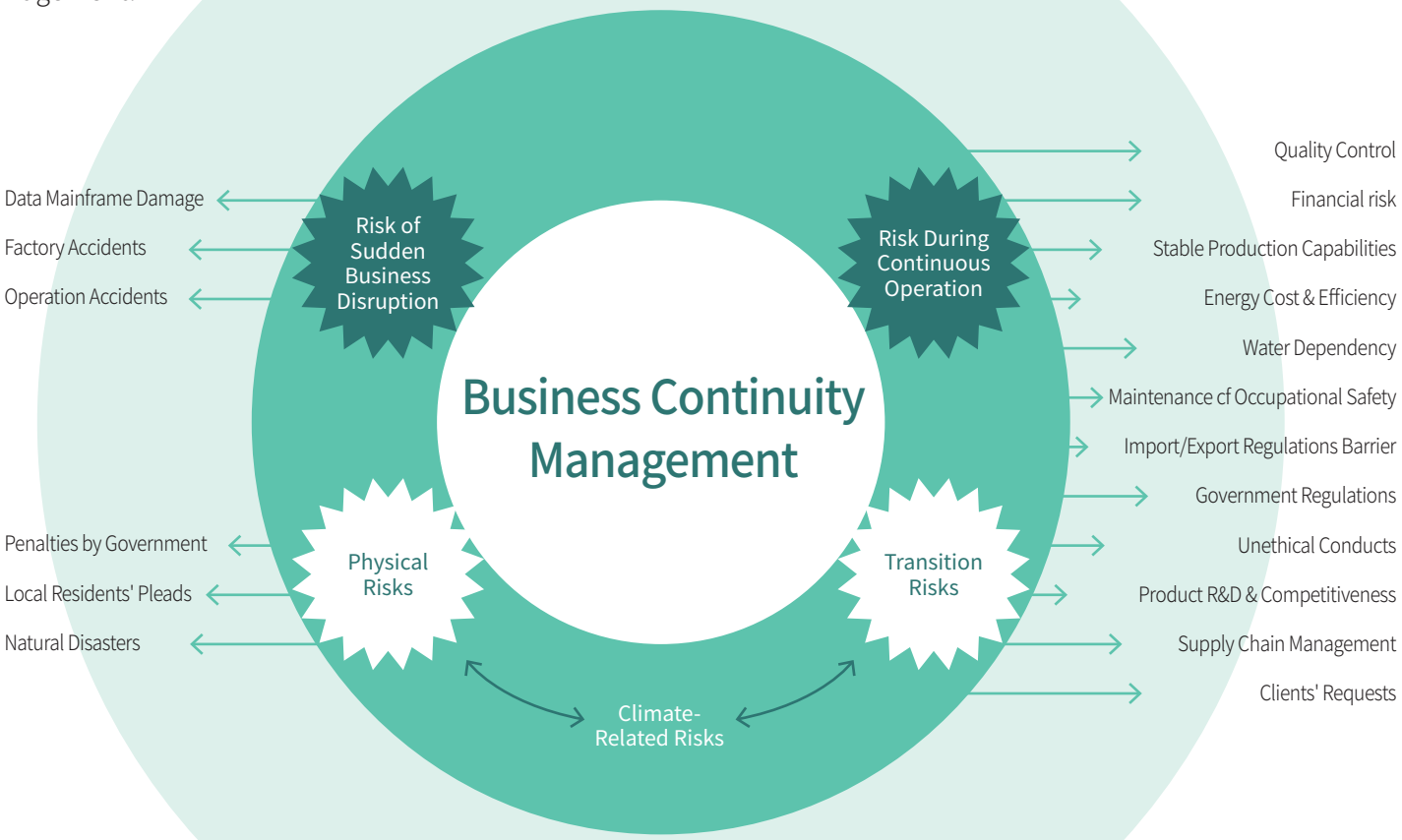
In 2021, Taiwan Glass also held educational events on preventing insider trading to enhance the awareness of Taiwan Glass' employees, and share various cases to prevent insider trading.

Workplace Violence Policy Statement

Please visit the TGI website for the handling process of illegal and unethical cases and TGI Ethical Code of Conduct

2.3 Risk Management

To prevent risk during operation or sudden disruption of operation, TGI has all departments conduct periodically reviews comprehensive risk evaluations, implement various risk management measures for a sound and comprehensive risk management operation. Risk management involves lowering the occurrence rate and reducing the impacts of recognized risks. The goal of risk management is to achieve sustainable operation, by strengthening risk management, lowering business risk exposure and improving crisis management.



Also, in response to the increasingly serious climate change, TGI also began to pay attention to climate-related risks; at present, the assessment of the risks associated with climate change at each factory includes: regulatory risk, raw material/energy cost risk, natural disaster risk, and environmental safety risk. The main effects can be attributed to two major categories:

Transformation risks

Changing market conditions and stricter regulations caused by climate change.

Physical risks

Natural disasters caused by climate change have injured or trapped factory staff or damaged equipment in the factories, which has forced operations to be interrupted.

In response to the transformation risks of climate change, TGI has long paid attention to changes in laws and regulations and responded to relevant regulations in advance; at the same time, it has paid attention to changes in market raw materials and customers' low-carbon transformation demand trends for future sustainable growth. In the face of physical disaster risk, each factory of TGI has an emergency response process, and there are usually plans for uninterrupted operations to ensure that the company's overall operating conditions are not in danger. This year, we've adopted the TCFD Climate Financial Risk Disclosure for climate risk analysis and opportunity identification (please refer to 4.4 Climate Action). We've reviewed our own climate risks according to international standards, and have conducted strategic planning and response preparations in advance to reduce the impact on operations.

Countermeasures for Risk Management

Category	Risk	Impacts and countermeasures/ Response
Financial risk	Funding risk	Prepare bank financing quotas and negotiate with banks for more favorable financing rates to reduce funding costs and maintain the normal operation of the company's funds.
	Liquidity management risk	Increase interest income on liquidity and ensure the profit and integrity of liquidity.
	Interest rate risk	Maintain a robust financial structure as favorable bargaining power when negotiating with financial institutions, and keep close contact with banks to obtain a more favorable loan interest rate.
	Exchange rate change risk	The exchange rate risk arising from the purchase or sale of non-functional currency pricing is mutually exclusive, so the exchange rate risk is not significant.
	Inflation	No significant impact on our Company.
	▌High risk and highly leveraged investment ▌Loans to others ▌Endorsements and Guarantees	In 2021 we had no high risk and highly leveraged investment, and no loans to others. Only the loans and endorsements to our subsidiaries in China were implemented for construction and business turnover.
Operational risk	Regulatory risk	Through the update of monthly inspection on laws and regulations to ensure TGI is in compliance with all the relevant laws and regulations. The legal internal control system was established as internal control requirements became strict, management methods such as contract review were incorporated into the system. After the contract was electronicist, a legal review was passed. For example, GHG emissions reporting and management law, the three regulations of water-saving, labor disputes, and factory safety accidents.
	Procurement risk	▌Set up an Internal Audit system to strengthen inner risk prevention and management . ▌Open the procurement tender information on the website. ▌Legal review the purchasing list and contrast, and verify related laws by legal affair department . ▌nvestigate suppliers' brand, credit, size, achievement, and compatibility. If necessary, meet with the supplier accompanied by quality assurance units and the units that use the materials on-site to check whether its product quality, productivity, technology, and after-sales service meet TGI's requirements. ▌Each factory has a minimum inventory of commodities (2-3 months for foreign products, 2-4 weeks for domestic products). Long-term contracts are signed for important commodities. Cooperative companies must supply their products regularly based on each factory's requirement.
	Cost risk	We estimate the impact of regulations on the cost of TGI and analyze the potential savings in expenditures and costs. For example, the water surcharge, the supply and safety of products and raw materials, and the impact of internationalization on the supply and competition of raw materials. The production department had replaced the original pumped motor water supply to the factory water pressure supply to improve water saving.
	Client complaint risk	There is product insurance every year, and premiums and content are increased year by year. Actively communicate with customers, understand their needs and market dynamics, and check the quality requirements of each product.
	Off-The-Shelf risk	FD's strict standards increase the risk of product removal, we had increased the number of insurance projects in order to reduce the impact of the risk.
	Information security risk	TGI backed up numerous data and confidential documents on a daily basis. Various permissions are set in the system to ensure that information is used by appropriate personnel and is not exposed. Information security seminars are held every six months to equip employees with basic concepts of information security, to avoid being attacked by malware on the Internet, and to reduce the occurrence of information security incidents and the damage caused by security incidents.
	HR risk	▌Provide a starting salary higher than the legal minimum wage, and periodically adjust it based on industry standards. ▌Recruit suitable talents actively through multiple channels. ▌Let the new employees fit in the workplace quicker and increase the retention rate through introducing the "Coach for New Colleague Program". Professional and skillful staff would guide and educate newbies in this co-worker interaction system. ▌Establish a comprehensive training system to develop employees' competency based on organization strategies and demand investigation surveys to adapt to outer environmental changes.
	Production risk	In response to the continuous production demand of the production line, the following policies are made respectively for raw materials, fuels, and energy supplies: raw materials：set safety stock fuel：design backup fuel systemSome Plants have already introduced natural gas combustion system in 2021 to create a dual-fuel supply method with its original fuel systems. energy：The main equipment in the factory is equipped with an uninterruptible power system

Category	Risk	Impacts and countermeasures/ Response	
	Raw material risk	Glass production is very sensitive to a slight change in formula. The materials going into the kiln must be monitored carefully because the incorrect formula will lead to major losses.	Risk Material misplaced in the wrong silo Risk occurred Wrong formulate resulted in unqualified glass Countermeasures -Fully implement material storage control -Enhance staff training -Store raw materials in an isolated and consistent location -Label names and inspection results on the packaging
	Environmental security and health risk	To prepare for any environmental or security emergency, the Engineering Safety Section should formulate an emergency response plan and conduct an investigation when incidents occur. The Factory Affairs Section should plan training sessions and have all departments collaborate with the section. Each factory has its own emergency response drill for incidents such as fires, accidents in the wastewater treatment facilities, air pollution, oil or chemical leaks and explosions. The Engineering Safety Section can revise the plan based on the circumstances in the factories.	level1 Incidents occur ▼ Initiate the contingency plan ▼ Determine if the incident can be contained effectively and immediately N → Y ▼ level2 Operator or security guards will conduct the emergency broadcast and contact the authorities ▼ Establish an emergency response team ▼ which will be in charge of initiating the contingency plan ▼ Determine if the incident can be contained effectively and immediately N → Y ▼ level3 Request for external support ▼ Implement task and management on disaster relief ▼ End the contingency plan as the disaster has been contained ▼ Review

Cybersecurity

The Information Security Department of Taiwan Glass is responsible for formulating, promoting and implementing relevant policies such as information security and risk management, and reviewing the effectiveness of the Company's information security management, information security-related issues, and directions. The Department currently has one information security director, one information security supervisor, one information security officer, and one person to fill an undetermined position.

The Company has built a multi-level information security protection system as we continue to enhance the integration of information security defense technology and control mechanisms to ensure that important operational processes for business, production, procurement, finance, stock affairs, human resources, and documents can operate normally, ensure the confidentiality, integrity, and availability of the Company's important assets.

According to the PDCA management cycle mechanism, the Company reviews the applicability, protection measures, and implementation effectiveness of its information security policies. The Company also timely introduced appropriate information security technologies and equipment in response to relevant laws and regulations, and information security protection needs.

In the future, the Company is expected to introduce the ISO 27001 Information Security Management System to ensure the information security of the Company and its customers, and systematically reduce information security risks.

COVID-19 Anti-pandemic Measures

Taiwan Glass has set up a VPN to allow colleagues in the company to go beyond geological restrictions, and has built security firewalls and anti-virus protection mechanisms to prevent potential loopholes in the network, and enhanced the detection of malicious software and behavior. The Company is allowing employees to work remotely from their homes to reduce the impact of the COVID-19 epidemic on business operations and employee health.

Education and training

The Company recognizes the importance of data security, and uses case reviews to improve the employees' ability to identify information security issues, avoid falling into information security traps, and effectively enhance their awareness of data security protection.

Topic	Course content	Attendance
data security course（Taipei）	1 data security management 2 Communication security 3 Malicious software prevention 4 Private information protection	25
data security course（Taoyuan）		22
data security course（Hsinchu）		33
data security course（Taichung）		21
data security course（Lukang）		23
data security course（TF4）		9
data security course（Zhangpin）		13

Data Security Seminar

CH3
Excellent Service Quality & Innovative Products

3.1 TGI Products

3.2 Product Quality

3.3 Research and Innovation

3.4 Customer Service

3.5 Sustainable Supply Chain

ENVIRONMENT SOCIETY GOVERNMENT

Achievements of Product Performance and Accountability in 2021

0 violations	No violations in the health and safety of products, labeling, and marketing regulations.
100%	100 % of flat glass products passed EU CE, US ANSI, Taiwan CNS and other relevant standards.
100%	Fiberglass products were 100% compliant with RoHS and REACH standards.
100%	100% of glass container products met Taiwan food container and packaging hygiene standards, and all factories met FSSC 22000 standard for environmental protection and food safety.
-30%	Low-E products can reduce 30% of air conditioner usage and energy consumption.
-12.5%	Lightweight bottle technology reduces 12.5% of product weight and is 100% recyclable.
0complaints	TGI did not receive any complaint regarding client privacy violation or loss of client data in 2021.
14 certifications	As for fiberglass as food contact material, 4 products passed FDA regulations. 8 passed EU 10/2011 and Germany’s BfR certification for drinking water and 2 products met France’s CAS requirements for drinking water.
88%	In 2021, the average satisfaction of all departments in customer surveys is 88%, 6% higher compared to last year.

3.1 TGI Products

TGI's main products include flat glass, fiberglass, and glassware. We are also actively dedicated to the invention and production of new products in recent years. With production plants based in Taiwan and China, TGI's major markets reach Taiwan, China, Japan, Korea, North America, Middle East, Australia, Europe, South Africa and so forth. There was no violation of regulations related to product health & safety, labeling and marketing, and no product's sale was prohibited in 2021. TGI was not involved in any anti-competitive behavior, anti-trust and monopoly practices, or legal proceedings in 2021.

TG Our Private Brand-TG

TGI's technique to produce glass container and tableware has been able to compete with international recognized brands. Therefore, we established our private brand, TG. TG targeted the new audiences who pay attention to lifestyle. Besides, in order to create the brand image and build the products style, we invited Fukasawa Naoto, who is a Japanese artist of industrial design, to plan and design with the observation of Taiwanese culture. He merged the feelings such as "kindness", "mild"and "nature" into the design, which breathed new life into the glass products.

It has sold products including water containers, coffee pots, and drinking vessels since 2019 and is also injecting new ideas into Taiwan’s life aesthetics. TGI hopes the new brand could extend into global markets with its base in Taiwan. TG will cooperate with more cross-disciplinary designers and artists in Taiwan to create more classic glass containers that can represent our culture in the future.

SGS
Test Report

TG products include water cup series, coffee series, wine ware, teaware, tableware, home decorations, etc. The materials include glass, ceramic, stainless steel, and Taiwan acacia wood, etc. TGI plans to develop 200 items in the future.

Intellectual Property

At the beginning of its establishment, the TG brand was registered at the Taiwan Intellectual Property Office of the Ministry of Economic Affairs in accordance with the Trademark Act. All announced items have patents corresponding to new models/new inventions. The TG patents include 1 new invention and 13 new models, and the professional legal team conducts smart management for all of TG's products.

Eco-friendly Ink

TG values the sustainable value of its products and uses eco-friendly inks and packaging materials, and also conducts SGS inspections on its products. The Brand does not use heavy metal soy ink to reduce the environmental pollution that may occur throughout the production procedure, and achieve being an eco-friendly brand.

Certificates

The TG brand has won 5 awards during the 2021 30th Taiwan Excellence Awards. Moreover, many of its products were were nominated for the "Best 100" Special Award. All of TGI's utensils and packing used excellent materials and outstanding designs. Winning two Red Dot Design Awards, TGI emphasizes on eco-friendly features, and does not use materials that contain environmental hormones, emit plastic particles, or concealed cladding materials. In 2021, TG was unveiled at Red Dot Design Week and had a permanent exhibition at the Red Dot Design Museum.

Germany Red Dot Design Awards

Certificate
Red Dot Winner 2021

Packaging for TG

Certificate
Red Dot Winner 2021

TG Tableware Series

2021"All products" of the TG Brand and its product packaging designs were given the Dot Design Award

Japan Good Design Awards

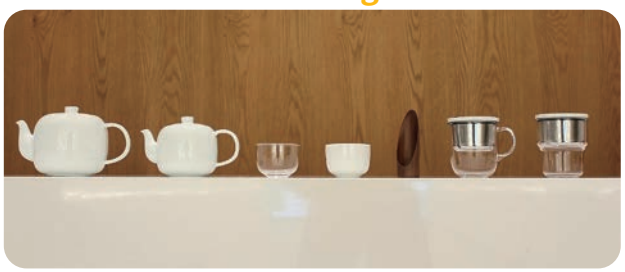
GOOD DESIGN
AWARD 2021
BEST 100

Tableware / TG Tableware Series
TAIWAN GLASS IND. CORP., Chairman, Lin, P F
TG
Naoto Fukasawa, NAOTO FUKASAWA DESIGN

- "All products" were nominated for the 2021 Japan Good Design Award
- Nominated in "Best 100 Special Award"

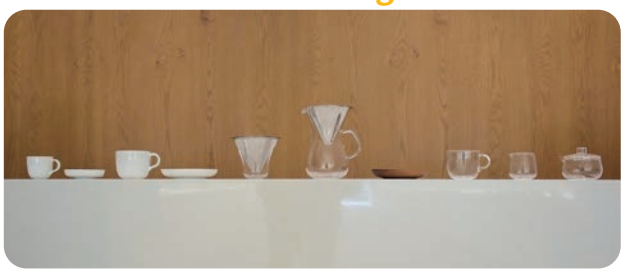
30th Taiwan Excellence Awards

Excellence Design-Coffee



台 灣 精 品 獎
Taiwan Excellence Award 2022
台灣玻璃工業股份有限公司
Taiwan Glass Ind. Corp.
設計精選-咖啡系列
Design selection-COFFEE series

Excellemce Design-Tea



台 灣 精 品 獎
Taiwan Excellence Award 2022
台灣玻璃工業股份有限公司
Taiwan Glass Ind. Corp.
設計精選-茶系列
Design selection-TEA series

Taiwanese Local Culture — Yingge Ceramics

To promote the local culture of Taiwan, TG combined its excellent designs with Yingge's ceramics to launch a series of Yingge ceramic products that includes coffee cups and plates, Chinese rice bowls, salt and pepper shakers, teapots, bouillon cups and plates, and ceramic tea cups. Every ceramic utensil relies on decades of experience and strict standards, and an insistence on using hand fettling to refine the details.

Ceramic Whiteware Espresso Cup and Plate Set:

The unique handlebar design helps relieve weight on the knuckles, making the espresso cub stable and easy to hold.

Ceramic Whiteware Teapot

The heat transfer and heat preservation characteristics of the ceramic whiteware teapot are appropriately achieved, making the occurrence of chemical reactions with the tea very unlikely.

Ceramic tea cup

These cups have a clear and smooth surface, have good heat dissipation and air permeation characteristics, making them suitable for clearly appreciating the color and appreciating the warmth from the tea.

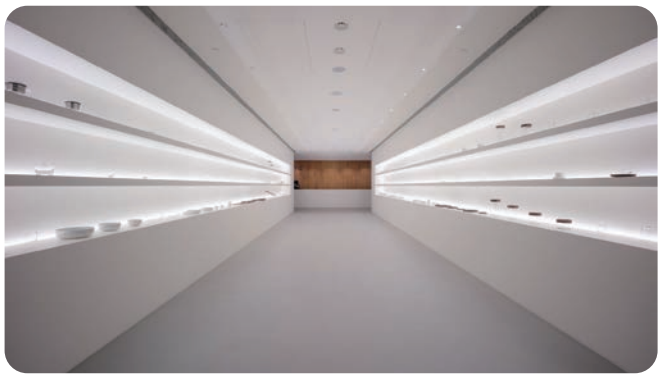
The Company currently has a total of three direct sales counters in Taiwan: the Taiwan Glass Flagship Store, Xue Xue Taste Lab, and Xinyi Eslite. There are approximately 40 domestic and foreign entities and online channels in cooperation with the Company, which includes global e-commerce platform for design products Wallpaper Store, Kaohsiung Museum of Fine Arts and National Taiwan Museum of Fine Arts Stores, Tsutaya Bookstore, Store Marais, Xiaoqi, funfuntown, Everyday ware & co., 30Select, OR Coffee, PEKOE, 61 note, LE CLUB, Pinkoi, momo, and Udesign.

TG also actively collaborated with magazines, TV channels and movies in 2021 by providing gift boxes, printed milk bottles, glass bottles and glass utensils that are showcased in magazines, TV programs, TV series, and movies.

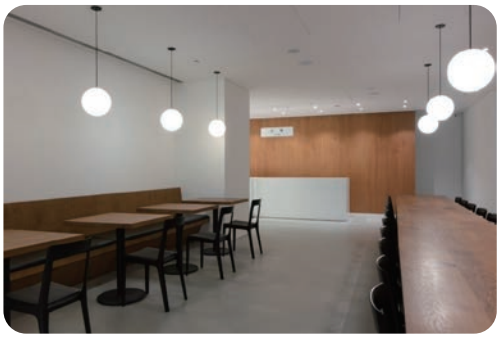
VERSE Magazine annual subscription collaboration project	TG provided the VERSE Annual Gift Box (Diffuser Bottle 300pcs), and an article introducing TG’s products and the design aesthetics of the flagship store will be included when the 10th issue of the VERSE is published.
Interview with Tokyo MX	Tokyo MX cooperated with Taiwan External Trade Development Council to produce and broadcast the program “Amazing Taiwan,” and invited the Company President to share the goals and achievements of the Taiwan-Japan cooperation to build the TG brand.

VOGUE Magazine	TG and VOGUE collaborated in the form of consignment during Taipei Fashion Week, and made an appearance in the October issue of VOGUE No. 301. Movie "Till We Meet Again": TG provided 300 printed milk bottles in exchange for 8 stills containing TG products, official social media posts, and the TG logo at the end credits of the movie.
Movie "Till We Meet Again"	TG provided 300 printed milk bottles in exchange for 8 stills containing TG products, official community posts, and the TG logo at the end of the film.
TV Series "Gold Leaf"	TG provided 32 glass bottles & glass cups. 3 stills, the end credits of the TV series, and official media posts showed the TG logo and its products.

The flagship store was opened on the first floor of the Taiwan Glass Building on Nanjing East Road on December 15, 2020. The interior space was designed by Naoto Fukasawa and Taiwan's architect Hao Chen-Sui. It is also the first business space designed by Naoto Fukusawa, including a new series of glass products, logo, package, and interior design. The shop windows display the TG products photographed by Tamotsu Fujii, a famous Japanese commercial photographer.



The new "Loobah Restaurant" established in 2021 allowed consumers to try out TG tableware, and offered consumers an experience space that combined glass aesthetics and gourmet food. The restaurant uses "have a nice meal" as its core concept with the most familiar national delicacy of Taiwan, braised pork rice, and adds Taiwanese hand-cut pork with skin, shallots, brown sugar, and premium soy sauce to stir fry the rice until it melts in your mouth. It is served with the perfect combination of Chen Sie He Chi Shang Rice's grainy and chewy rice for a satisfying culinary experience. The tableware and the space jointly designed and created by Taiwan Glass brand "TG" and Naoto Fukasawa has a comfortable dining atmosphere that allows people to “have a nice meal” at “Loobah Restaurant,” making the most simple and purest ordinary food as the first step into the aesthetics of life.



Flat Glass

TGI's flat glass has 100% passed the EU CE, US ANSI, Taiwan CNS and other relevant standards. In the production of the flat silver mirror, TGI uses an advanced lead-free copper process to avoid heavy metal pollution. Meanwhile, we actively promote that tempered glass needs to be heat-dipped to reduce the risk of instantaneous glass breakage. Even if it is broken, it will become small pieces to reduce harm. Laminated Glass has the PVB interlayer withstands penetration from an impact. Even if the glass cracks, splinters will adhere to the interlayer and not scatter. In comparison with other kinds of glass, laminated glass has a much higher strength to resist shock, burglary, burst, and bullets. Low-E insulated glass has excellent thermal insulation, and it can effectively block infrared heat from entering the room while maintaining transmittance of visible light, and greatly reducing the energy consumption of air conditioning equipment and creating the most comfortable indoor spaces.

歐盟 CE	美國 ANSI	台灣 CNS	ISO 9001	ISO 14001 / SGS	PASMARK	IGCC

Technical Cooperation

1980 — TAA with Pilkington PLC (UK) for the introduction of float glass production know-how.

1984 — Off-line sputtering coating technology and equipment from Leybold AG (Germany).

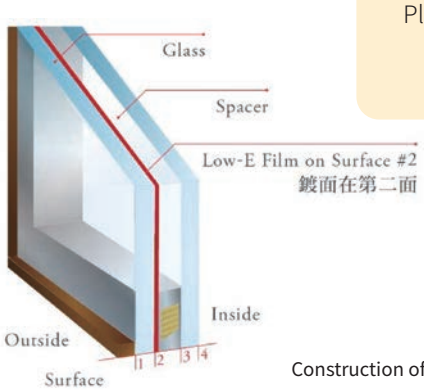
1999 — Off-line sputtering & Double Low-E coating technology and equipment from Applied Films (USA).

2003 — Off-line sputtering & Double Low-E coating technology and equipment from Von Ardenne (Germany).

2012 — Cooperated with TECO to develop continuity Nano vacuum glass manufacturing technology.

2017 — The research and development of three silver low-emissivity glass vacuum ion sputtering technology is expected to start volume production every other year.

2018 — Signed a technology cooperation, manufacturing and supply with Owens Corning US (NYSE: OC)



Construction of Low-E Insulating Glass Unit

Please Scan for more about flat glass, or visit TG websitd

Green Product – Low-E Flat Glass

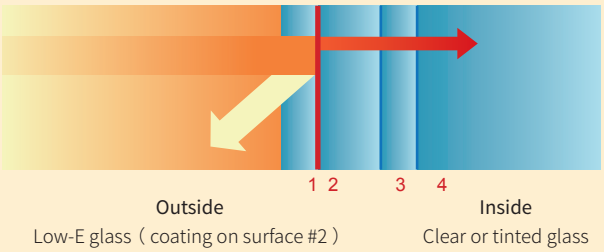
The new generation of energy-saving Low-E glass products can effectively block the radiation from sunlight while allowing most sunlight to enter, which solves the problem of lighting and heat insulation. This product also significantly reduces energy consumption from air conditioners. TGI’s Low-E glass products comply with CNS12681 standard and certified with ISO 9001 standard and IGCC. Currently, the product has been vastly used in buildings.

Taiwan Glass Group uses the most advanced coating technology to develop its single-piece Low-E glass: the Jie Neng (JN) series. Compared to general Low-E coating, the JN series layered structure uses a hard semiconductor nano-glass to greatly reduce the radiance of the glass surface. The JN series has excellent thermal insulation, and the Low-E layer has high hardness, wear resistance, and oxidation resistance for zero oxidation and film deterioration issues when exposed. The creation of the JN series has enhanced the multi-application characteristics for Low-E glass.

The JN series is used with sandwich glass for safety glass properties and excellent thermal conductivity. The JN series is used with Low-E insulated glass to further reduce the U value of Low-E insulated glass, and effectively reduce even more energy consumption and improve indoor comfort.

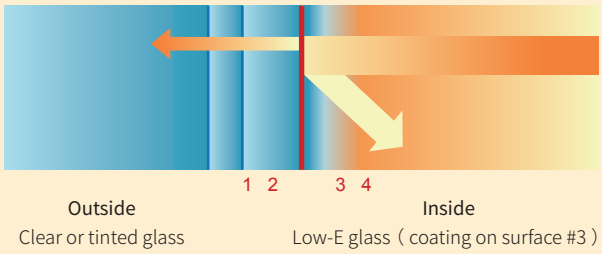
scan QRcode for video instruction of Low-E.

TGI's Information



(Sub)Tropical Zone

Assembly Sequence Suitable for (Sub) Tropical Zone Coating on surface #2 : The heat is reradiated back outdoors, reducing the heat gain potential into the building interior.



(Frigid) Temperate Zone

Assembly Sequence Suitable for (Frigid) Temperate Zone Coating on surface #3 : Low-E insulating;-glass will reflect IR heat from inside the room to help reduce the energy loss.

What is Low-E Glass?

Low-E (Low-Emissivity) glass is the best building material to reduce heat from sunlight as it can deflect most ultraviolet and infrared radiation, preventing the indoor temperature from rising, conserving energy and reducing carbon emission.

Thermal radiation from the sun mainly contains ultraviolet, visible light and infrared radiation. Emissivity (ε value, the lower the value, the higher the effectiveness for heat insulation is) is glass’ ability to emit heat radiation from the sun.

Low-E glass utilizes its coating to block the heat radiation from the sun. According to CNS standards, only coated glass with emissivity (ε value) lower than 0.20can be labeled as Low-E glass.

Note Emissivity value: The value measures an object ' s ability to emit heat radiation after absorbing it. The higher the value, the higher the ability to absorb and emit heat; the lower the value, the lower the ability to absorb and emit heat, which means better heat insulation.

Please scan QRcode for more details

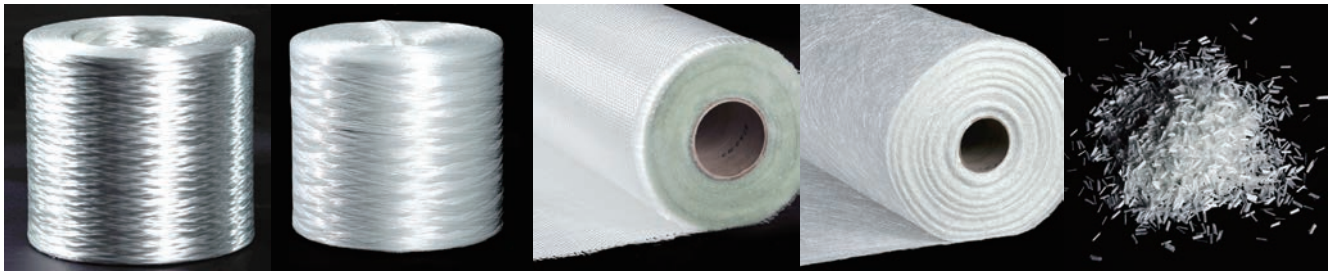
Fiberglass

Compared with metal support materials, fiberglass has excellent corrosion resistance and weather resistance, and at the same time has the advantages of low cost, high strength/weight ratio, and longer service life. According to the different weaving structure and characteristics of the glass fiber cloth, its products are very diverse and diversified, and it is also widely used for heat preservation, heat insulation, fire prevention, and material reinforcement.

TGI ' s fiberglass products all meet RoHS and REACH requirements. For food contact products, a total of 4 meet US FDA standards; 8 meet EU 10/2011 regulation and have Germany ' s BfR approval; 2 meet France ' s requirements for drinking water (CAS). The quality of our products meets CNS national standards. We print the CNS logos on labels according to different customer requirements. The packaging labels of fiberglass fabric and fiberglass yarn are marked with RoHS compliance logos.

With the advent of the 5G era in 2020, global information transmission has entered an era of high frequency and high speed. Printed circuit boards (PCB) for Netcom equipment must use Low DK materials to effectively meet the 5G high-frequency and high-speed performance requirements. Following the United States and Japan, TGI became the third manufacturer to successfully develop Low DK fiberglass cloth for high-end PCBs and has been certified by domestic and foreign terminal manufacturers to be used in 5G equipment. Due to the impact of the outbreak of the COVID-19 pandemic in 2020, the development of 5G was delayed. However, with the continuous construction of 5G in countries, more and more manufacturers invest in electric vehicles, and the demands of glass cloth will enter a rapid development in 2021. Taiwanglass will keep meeting the demands of customers, increase production of Low DK and ultra-thin cloth, and develop thinner, high-value products.

Scan for more detail,or visit TG websiteScan for more detail,or visit TG website



Direct Roving | Conventional Roving | Woven Roving | Chopped Strand Mat | Chopped Strand

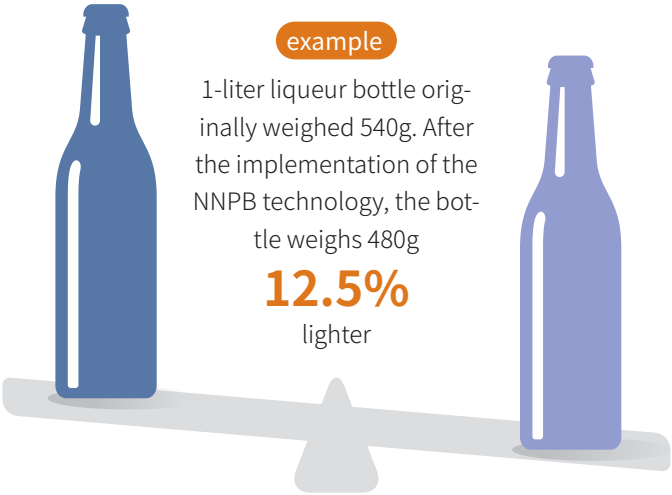
Glass Container, Tableware, and Kitchenware

Glass containers, with excellent transparency, showcase the real color of anything inside containers. Advantages such as easy sealing, long-time storage and suitableness for microwave heating make these containers a necessity for modern people. The manufacturing facility of the container, tableware, and kitchenware has received ISO9001 and FSSC 22000 certification. All products meet Taiwan's Sanitation Standard for Food Utensils, Containers and Packages. TGI can also provide products that meet RoHS and REACH standards based on clients' requests. For our heat-resistant products, all of our baby feeding bottles meet EU's latest EN 14350 standard. Coffee pots come with heat-resistant labeling upon clients' requests.

In 2020, we worked hard in developing the high-priced special-shaped bottle market, continued to deepen its presence the milk bottle market, and expanded towards new customers for heat-resistant containers.

Green Products – Glassware

Taiwan Glass is committed to conserving raw materials and energy, and contributing to environmental protection to meet the market demand for green and eco-friendly products while maintaining product strength, and ensure that the products match the future trends of glass containers. TGI began acquiring German NNPB glass-blowing technology in 1983 in order to meet the needs of the market and enhance environmental protection. This technology produces attractive, lightweight bottles of uniform thickness. More recently, TGI has participated in technological cooperation with Germany's Heye-Glass Group, producing more than 200 million bottles per year. The Company has continued optimizing its lightweight bottle blowing technology in recent years as the 750 ml red wine bottle weighs only 415 grams, and has the ability to compete with other counterparts in the global market industry.



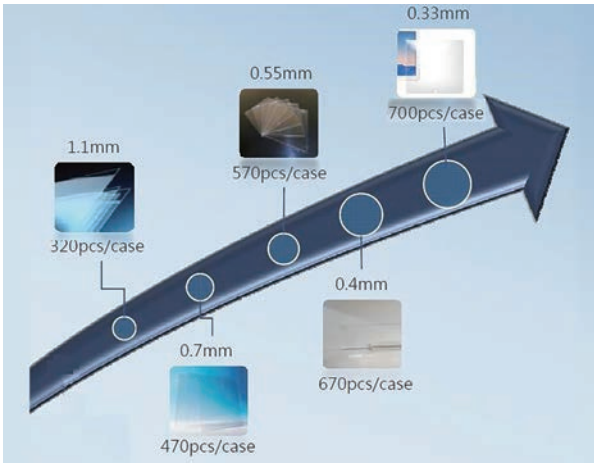
Advantages of Lightweight Bottle:

- Conserves raw materials use
- Reduces energy consumption
- Reduces clients' production costs
- Glass containers are 100% recyclable

Please scan QRcode for more details:

Ultra-Thin Glass

The TGI Taichung Factory is a newly established production line for Ultra-thin touch glass. Introducing the installations of Computerized Automated Production Management System, cleanroom and mechanical arms for collecting glass panes, this line started production in November 2014 with mass production for 0.33~1.1mm glass. In 2020, to produce thinner and stronger devices, the goal is set up to 4%. Taiwan Glass' own AR Coating technology can reduce the reflectivity of the glass to 0.5%~1%, making the visual image clearer and reducing the glare and double shadow phenomena. These products have been used for special medical equipment and display purposes (at art galleries, or department store display windows, etc.). In addition, the 0.55~1.1mm glass product can be applied to the ITO touch panel. The 0.55mm glass products on the other hand sell well in 2020, which mostly go to China and India markets. As for the 0.33~0.4mm glass product, it can be used as a 3C product screen protector. All these products are strictly checked plenty of times to reach high-quality international standards. Then they can be supplied to domestic and foreign electronic manufacturers to produce high-quality products for customers. In 2021, the demand for the 0.33mm glass increases continuously. It is estimated that 0.33mm glass will be produced throughout the year. In the future, despite continue to raise the market share of Mainland China and India, Taiwan Glass will also develop markets in other countries, such as Vietnam, Bangladesh, Malaysia, and Africa.



3.2 Product Quality

To achieve economic prosperity and growth, sustainable living environment and social prosperity, reduce the incidence of risk and its impact, TGI actively introduced systems of product quality, product safety, ESH, transportation security and risk management. Certifications for TGI's factories are listed below:

Course of Action for the Excellent Products and Services of Taiwan Glass

The Three Lines of Defense for Product Safety

Line of Defense 1: Quality System

- All Plants have passed the ISO 9001 Quality management system certification

Flat Glass

- CNS Mark from the Bureau of Standards, Metrology and Inspection of the Ministry of Economic Affairs
- Green Building Material Mark of the Ministry of the Interior
- CSi Safety Glass Certification
- IGCC Insulated Glass Certification
- The Taoyuan Plant ISO16949 Automotive Industry Quality Management System
- The Zhangpin Plant passed the certification of SGCC tempered glass and sandwich glass, and IGCC insulated glass

Glass Fiber

- DNV and GL certification

Line of Defense 2: Product Health and Safety System

- The Hsinchu Plant continues to pass FSSC 22000 Food Safety System Certification
- The Taoyuan Plant obtained Lloyd’s Register Shipbuilding Safety Certification
- The Taoyuan Plant obtained TZW Food Container Manufacturing Safety Certificate

Line of Defense 3: Product Transportation Security System

- As an excellent import and export firm, the Company obtained the Certified Mark in 2014, issued by the Ministry of Economic Affairs Bureau of Foreign Trade, and obtained substantial and convenient customs clearance benefits
- In 2018, the Company once again obtained the AEO Safety Certification from the Ministry of Finance Customs Administration.
- Enterprise approved by the Ministry of Finance that has a Secure Supply Chain with Excellent Contributions

Two-level Sustainable Enterprise

Level 1: Environmental, Health and Safety System

- All Plants have passed ISO 14001 Environmental Management System certification
- All Plants (except the Changpin Plant) have passed ISO 14064-1 Organizational Greenhouse Gas Emission Inspection and Verification
- The Hsinchu Plant passed the ISO 45001 Occupational Safety and Health Management System certification
- Actively introduced the latest version of the ISO Systems and continue to pass certifications
- Hired a UK industrial safety consultant to improve workplace safety

Level 2: Energy Management System

- The Taoyuan, Hsinchu, Taichung and Lukang flat glass plants have passed ISO 50001 Energy Management System certification and continues to make improvements every year

※For more actions on environmental protection and workplace safety of Taiwan Glass, please refer to Chapter 4 and Chapter 5 of this report

The list of factory certifications is as follows:

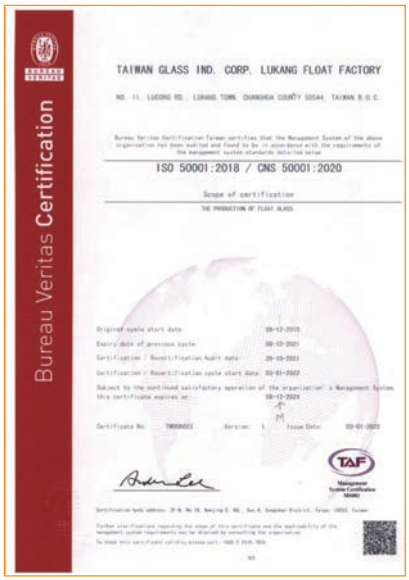
Certification/ Factory	Headquarter	Taoyuan Factory	Hsinchu Factory	Taichung Factory	Lukang Factory	Lukang Flat Glass Factory	Changpin Factory
AEO	●	●	●	●	●	●	●
The expiration date of certification		No expiration dates/perpetual term	2012/04/19 (No expiration dates/perpetual term)	No expiration dates/perpetual term	2012/04/19 (No expiration dates/perpetual term)	2012/04/19 (No expiration dates/perpetual term)	2024/4/19
ISO 9001		●	●	●	●	●	●
The expiration date of certification		2023/07/23	2023/3/22	2022/11/9	2022/4/15	2023/12/8	2024/6/5
ISO 14001		●	●	●	●	●	●
The expiration date of certification		2023/10/14	2023/9/14	2023/9/14	2023/3/18	2022/6/18	2022/5/23
ISO 14064-1		●	●	●	●	●	
The expiration date of certification		Regularly annual examine	Regularly annual examine	Regularly annual examine	Regularly annual examine	Regularly annual examine	
ISO 50001		●	●	●		●	
The expiration date of certification		2023/12/30	2023/11/27	2023/11/20		2021/12/8	
ISO/IATF 16949		●					
The expiration date of certification		2024/5/15					
FSSC 22000			●				
The expiration date of certification			2024/12/23				
ISO 45001			●				
The expiration date of certification			2022/8/31				

Note：「●」refers to the factory has the corresponding certificate

Hsinchu Factory ISO14064 Greenhouse Gas Inventory Certificate

Hsinchu Factory FSSC 22000 Food Safety System Certification

Lukang factory ISO 50001 Energy Management System



3.3 Research and Innovation

In order to strengthen innovation and R&D capabilities, in addition to developing its research and development technologies and equipment, TGI combines external R&D capabilities and resources, such as the cooperation with foreign R&D companies to develop high-aluminum glass to enhance its physical and chemical properties, while also inviting foreign technicians to our factories to teach and introduce new production technologies to us. TGI also cooperated with China University of Science and Technology, Southen Taiwan University of Science and Technology, and Plastics Industry Development Center to research the application program of thermoplastic fiber composite materials.

TGI become a member of Advance Glass Techniques & Manufacturing Associate in National United University, which symbolize the opportunities for attending the academic conference and discussing techniques with other organization. Meanwhile, we offered the glass sample to their Glass Center Exhibition. The key results are as follows:

1. The Company continues to develop new steel and double-silver coating. With double-silver Low-E glass gradually becoming the mainstream product of the market, we've continued to develop and add different types of coating to meet the market demand.
2. We have developed steel and triple-silver products to meet the increasing demand for energy-conserving glass, and are committed to increasing the workability of triple-silver Low-E glass. The development of related products is expected to be completed next year.
3. The manufacturing technology of Vacuum Glass is mature and Vacuum Glass can be futher applied to Low-E Vacuum Glass, by combining Vacuum Glass with Low-E Glass.
4. Silver-free Low-E Glass was successfully made by coating technology. The coating uses a hard semiconductor nano coating to maintain a very low surface emissivity. While having excellent thermal insulation performance, it retains high hardness, wear-resistance and anti-oxidation.
5. We successfully breakthrough and develop low-DK (low-dielectric) fiberglass for high-end PCBs, to effectively meet the 5G high-speed performance requirements, and will be able to consolidate our position in the market and create value.
6. The quality of heat-resistant baby feeding bottles and laboratory bottles is steadily growing.
7. Ultra-Thin Glass has started produciton and the thickness of 0.33mm~1.8mm was made to use as cover plates for electronic products and glass screen protectors.
8. More than 200 of the TG life utensils have almost obtained product patents and are sold in physical stores and on ecommerce platforms.
9. Ultra-thin fiberglass fabric #1017 obtained client certification in 2020 and has hit the store shelves.
10. The Taiwan Glass Group and Chinese companies continue to search for technology, equipment, and build plants TCO glass and ultra-thin plate glass to adapt to the changes and needs of the global market.

To motivate employees to actively provide opinions on production technology, quality, environmental protection, safety, or business administration, TGI provides a bonus for proposal improvement suggestions. For major research and development program, TGI will award project members bonuses as encouragement based on the research contribution and achievements. These improve employee identification and solidarity, reduce costs, upgrade the working environment, and enhance productivity and quality standards. Special contributions to the production technology or business management are rewarded by giving credit.

3.4 Customer Service

Customer Service Management Policy

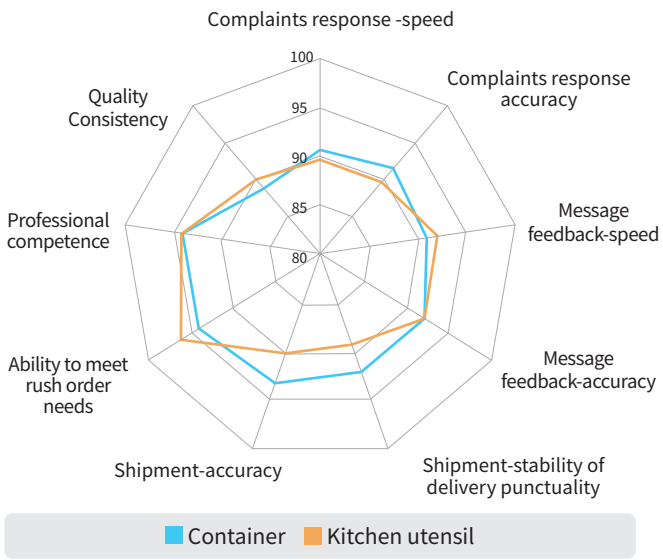
For more than 50 years of operation, TGI has attached great importance to the opinions of its customers. For each service, we are committed to enhancing the trust and satisfaction of our customers, hoping to create a professional image. We are convinced that trust and satisfaction are based on good products and quality. Therefore, TGI commits to and proposes related policies for new materials, flatglass, containers and fiberglass business, including establishing customer interaction channels, improving production conditions, strengthening education and training, measuring customer satisfaction, etc. to maintain market competitiveness and customers' support.

TGI regularly implements a "Customer Satisfaction Survey" every year. The content covers 7 topics, which are "complaints response speed", " message feedback - correctness", " message feedback - promptness", " attitude of sales representatives", "ability to meet rush order needs", "professional competence" and "quality consistency". Based on customer responses, the indicators are reviewed and analyzed for follow-up meetings about improvement measures and implementation issues raised in customer feedbacks.

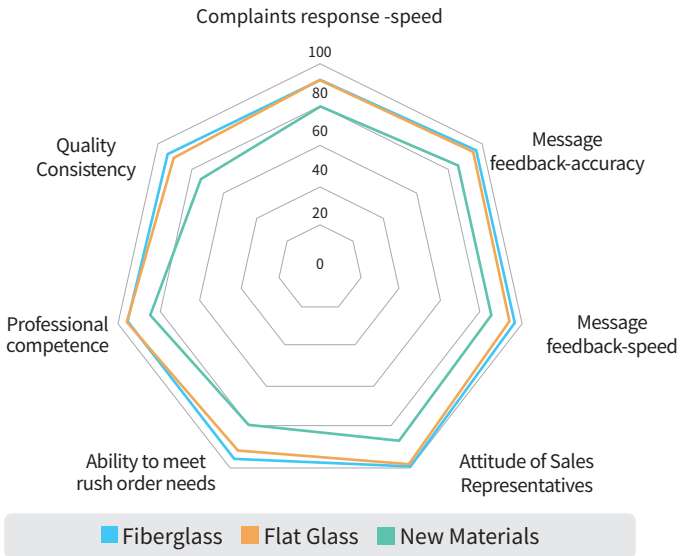
Customer Satisfaction Survey

In 2021, the Company conducted a customer satisfaction survey on various products from different, and the food container business department collected a total of 90 customer responses. We also improved and enhanced the communication with customers on our shortcomings, and look forward to improving customer satisfaction in 2022.

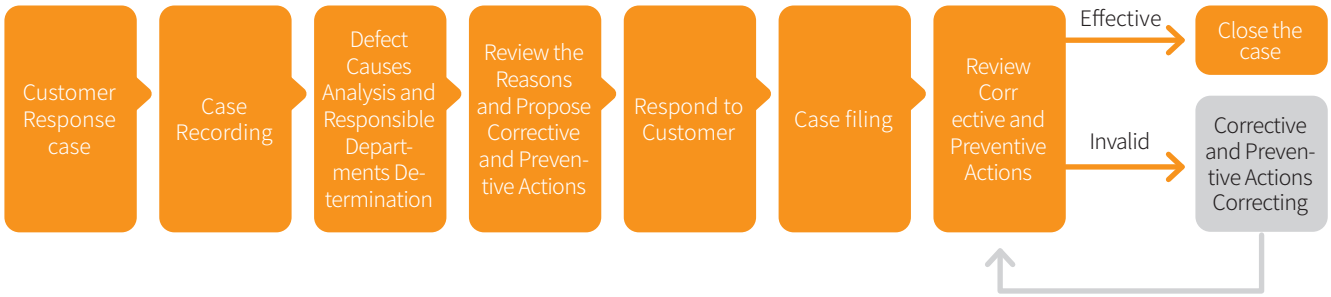
Analysis of 2021 Customer Satisfaction



Analysis of 2021 Customer Satisfaction



Customer Response Process



Protecting Confidential Customer Information

To practice personal data security management, TGI enacts "Personal Data Protection and Management Approach" in compliance with "Personal Data Protection Act". We provide new staff education and training in personal data protection to strengthen awareness. Every six months, staff from each department will be assigned to education and training of personal data protection. This is to reduce possible legal risks for the company and employees, protect the interests of customers and enhance colleagues' handling capability of information security.

We turn to use the online learning platform called "Online school for Small and Medium Enterprise" this year, hoping that while increasing learning efficiency, transportation cost and carbon footprint of lectors can also decrease to contribute to the environment.

Personal Data Security Course

The Company invited people from the Ministry of Justice Investigation Bureau to explain insider trading cases to avoid challenging the law, and promoted the importance of personal data security. Personal data managers need to be careful to avoid breaking the law by leaking personal data, and the seminar was attended by a total of 32 people.

In addition, we are also committed to protecting customers' confidential information. To prevent data leakage, our information equipment has strict access control, and all employees are required to protect customers' confidential and proprietary information carefully and prevent illegal collection of clients' proprietary information. TGI provides information security training for its staff regularly and urges the staff to lock their computers with passwords, in compliance with Item 3 of Article 11 of Regulations Governing the Certification and Management of the Authorized Economic Operators. In 2021, TGI did not receive any complaints regarding client privacy violations or loss of client data.

Improve Customer Ordering Experience and Service Efficiency

In 2021, Taiwan Glass launched an online ordering APP on the two major platforms for Taiwan Glass Flat Glass Dealers. Dealers will be able to place orders online through mobile devices instead of using phones, faxes or e-mails, reducing the occurrence of manual ordering input errors, and increasing order processing efficiency and fast shipping.

Meanwhile, the Company has added the options for the sales of customized products, clamping and PE cloth wrapping to meet customer ordering and shipping needs, and provide dealers with higher service quality.

Customer Relation Management and External Sales

In 2021, Taiwan Glass continued to participate in the country's largest Nangang Taipei Building Show The Company exhibited its products online due to the COVID-19 epidemic, and took part in the "Taiwan Online Expo" organized by the Taiwan External Trade Development Council (TAITRA) to communicate and promote products with potential buyers from Malaysia, Vietnam, India, Indonesia and other countries. Meanwhile, the Company also participated in the touring exhibition held by Good Design in Tokyo, which allowed more people see the innovative concepts and ingenious designs of our award-winning products.

Europe M&O Paris

Known as the one three major consumer goods exhibitions in Europe, there were 120,000 visitors during the exhibition. Participating in the exhibition was the Company's was the first step in expanding to the European and American channels, and TG got in touch with a total of 152 companies during this exhibition with the nature of their businesses including retailers, design companies, wholesalers, and construction.

Nangang Taipei Building Show

The entire exhibition was planned to include 9 areas for "Green Building and Green Building Materials," "General Building Materials," "Bathroom and Kitchenware," "Illumination and Lighting," "Floor & Wall Materials and Decorative Materials," "Door & Windows and Door and Hardware & Building Materials," "Smart Buildings," "Overseas Exhibitions," and "Furniture and Home Furnishings." The 2021 annual exhibition implemented booth load reductions in accordance with the central epidemic prevention instructions and safeguard the health and safety of the exhibitors and visitors. However, there were still lots of people attending the exhibition as more than 400 companies took part in Taiwan’s largest and most professional international building materials exhibition of the year.

Good Design Exhibition Tour

TG won the BEST100 award of the Good Design Awards, and the selection committee member Masami Kawaguchi invited TG to participate in the tour of the winners.

CREATIVE EXPO TAIWAN.

Exibition in Huashan 1914 Creative Park

Taiwan Plus exhibition @Taiwan Festival in Yokohama

InYokohama

<Flat Glass>2020 Nangang Constructional Material Exhibition.

3.5 Sustainable Supply Chain

Taiwan Glass has set up a CSR Code of Conduct for Suppliers and pays high attention to labor rights, environmental protection, occupational safety and health, ethics, business management systems. The Company expects suppliers to abide by the relevant standards, and sign a letter of commitment. The Company also has a sustainable supply chain management policy to drive suppliers to improve their economic, social and environmental performance by integrating counseling mechanisms, and assist suppliers in their sustainable development.

Purchasing Policy

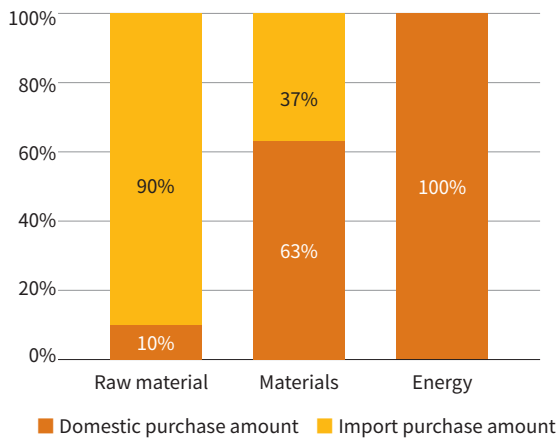
Purchasing Policy & Supply Chain Social Responsibility Management

Procurement tender information had published on the TGI official website since 2020. In line with a fair, just, and transparent procurement policy, TGI provides materials with authorized quality, reasonable price, supply chain security, low pollution, and away from public hazards to the suppliers' factories. Every quarter TGI evaluates the prices, delivery punctuality, and quality of suppliers that might affect our product quality for the reference of future procurements.

Taiwan Glass hopes to work with suppliers to stimulate ESG performance in the future by using sustainability-related specifications such as the “Supplier Evaluations” and “CSR Code of Conduct for Suppliers,” and require them to pass the aforementioned standard inspections, take on CSR and create sustainable value in the supply chain.

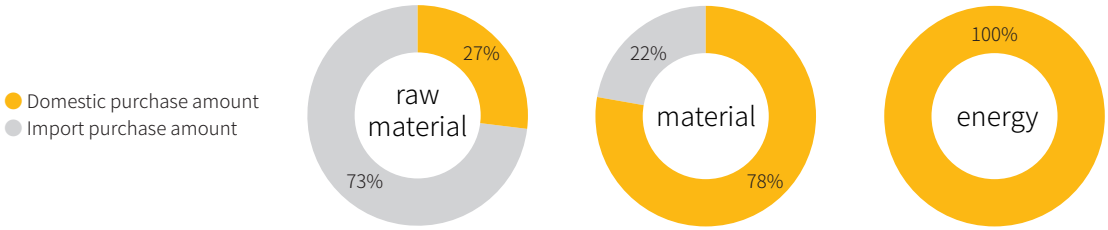
The supplier is one of the most important partners for the sustainable management of TGI. TGI is committed to enhancing the overall level of the supply chain in line with international standards. We hope to cooperate with suppliers to create a win-win situation and to enhance the sustainable development of society together.

Raw Materials Procurement Ratio(%)



In 2021, TGI worked with a total of 1,937 suppliers in Taiwan and 234 suppliers from overseas. TGI mainly works with local suppliers in Taiwan. Currently, the limestone and a portion of dolomite used in the factories come from Hualien. Other major materials (silica sand, sodium carbonate, and kaolinite) are imported since Taiwan does not have mines for such minerals. Except premium diesel (from Formosa Petro), TGI purchases fuel oil, natural gas and LPG from CPC Corporation. Electricity is 100% supplied by Taiwan Power Company. This can create job opportunities, boost regional economic developments, conserve energy consumption in transportations and enhance the suppliers'quality, green awareness and skills.

Procurement ratio of energy materials



Suppliers / Sub-contractors Qualified Job Evaluation and Audit

The performance of suppliers in 2021 is excellent, 92% of them are in A class, and 8% of them in B class

Each quarter, Taiwan Glass uses supplier evaluation form to evaluate the prices, punctualities, and qualities of suppliers that might affect our product quality. The result serves as a reference for future procurements.

For supplier evaluations, our procurement units evaluate the suppliers' prices; material units evaluate the suppliers' punctuality and the quality assurance units evaluate the suppliers' product quality. The evaluation results are recorded for reference for future procurements.

Our company's suppliers are required to conduct regular evaluations on a quarterly basis to ensure that they continue to meet our requirements and maintain high-quality long-term cooperative relationships. There were no C-level suppliers in 2021 as they all met the Company's requirements and Taiwan Glass requires its suppliers to continue improving their quality management, and low-risk high-quality suppliers (A-level or B-level) are listed as priority procurement suppliers for the Company.

We categorize our suppliers as A, B and C classes.

A	B	C
Continue cooperation	Acceptable	Teerminate
≧ 90 points	70-89 points	≦ 69 points

Evaluation Details

Evaluation Schedule:

- Annual evaluations are conducted at the end of every December and are completed by the 20th of the following month.
- Quarterly evaluations are conducted every March, June, September, and December and completed before the 15th of the following months.

Quality assurance units (and the units that use the materials) are responsible for evaluating quality items; units that submit purchase requisitions or the material units are responsible for evaluating the delivery; procurement units are responsible for evaluating prices and calculating the total numbers in the surveys. Quarterly evaluations will be reported to the Chairman or President of the Company.

Supply Chain ESG Management

Aside from the management of existing suppliers, TGI also extends the concept of sustainable development to the supply chain. We introduced the "Supply Chain CSR Management Evaluation" in 2015, assessing the environmental impact, labor conditions, human rights, social impact and product liabilities of part of the new suppliers and current suppliers. The evaluation aims to encourage our suppliers to improve their methods and fulfill their corporate social responsibility voluntarily.

In addition, Taiwan Glass has set up the "CSR Code of Conduct for Suppliers" that regulates labor rights, environmental protection, and occupational safety and health. This includes prohibiting the use of child labor and paying attention to employee wages and benefits. Suppliers should also obtain Environmental Impact Assessment (EIA) permits; avoid the use of harmful and dangerous substances; and control solid pollutants, wastewater and exhaust; and ensure the occupational safety of their employees through preparing an emergency response and designing safety procedures.

Taiwan Glass looks forward to improving ESG performance through the influence of the supply chain, and upstream and downstream suppliers to create sustainable value for the enterprise.

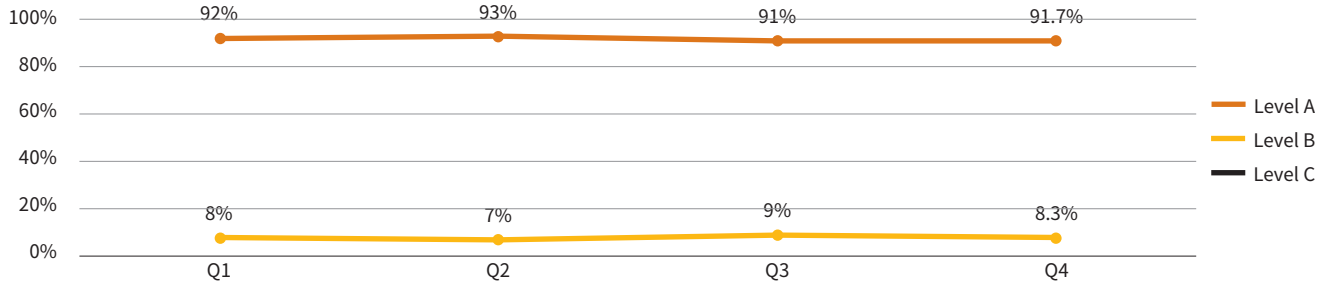
Analysis of ESG Evaluation Results

The Taiwan Glass Supplier CSR Implementation Evaluation uses information disclosure surveys as a basis for evaluating the CSR performance of its suppliers to analyze and obtain an overall score. The evaluation results of the overall CSR for 16 suppliers indicated that 69% were excellent suppliers, 31% were qualified suppliers, and 0% of suppliers needed to make improvements. Based on the aforementioned analysis results, it can be seen that the environment and laborers require more attention. Therefore, Taiwan Glass will review the scoring and analysis methods, and continue to track and improve on areas with lower scores. The results of the analysis are as follows:

2021 Taiwan Glass Supplier Evaluation

Taiwan Glass had no C-level suppliers in 2021, and hopes that its suppliers will continue to strictly maintain their quality, deliver on time, and do their best to provide more favorable prices.

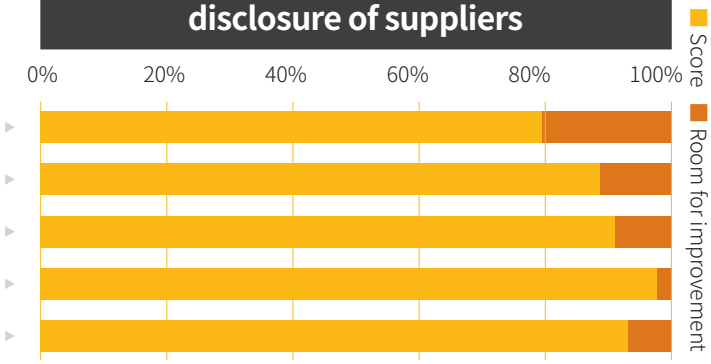
Number of Suppliers Evaluated Every Quarter					Number of Suppliers Evaluated Every Quarter				
	1Q	2Q	3Q	4Q		1Q	2Q	3Q	4Q
Level A	170	165	160	155	Level A	92%	93%	91%	91.7%
Level B	15	13	15	14	Level B	8%	7%	9%	8.3%
Level C	0	0	0	0	Level C	0%	0%	0%	0.0%
Total	185	178	175	169					



Aspect ratios of suppliers (%)

Aspect	Score (%)	Opportunity for improvement (%)	Total Score (%)
Environment (EN)	78.47	21.53	100
Labour (LA)	87.2	12.8	100
Human Rights (HR)	90.1	9.9	100
Social aspect (SO)	95.83	4.17	100
Product (PR)	92.08	7.92	100

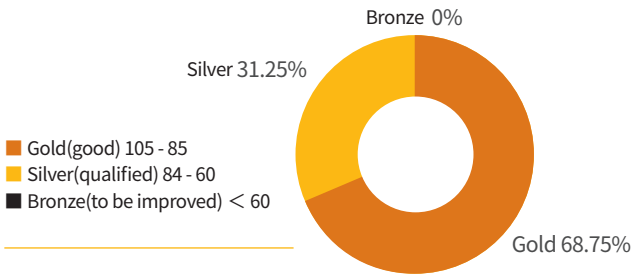
Aspect scores for information disclosure of suppliers



Score analysis for the 16 suppliers Analysis

Classification	Score	Number of suppliers	Percentage
Gold (good)	105~85	11	68.75%
Silver (qualified)	84~60	5	31.25%
Bronze (to be improved)	<60	0	0.00%
Total		16	100%

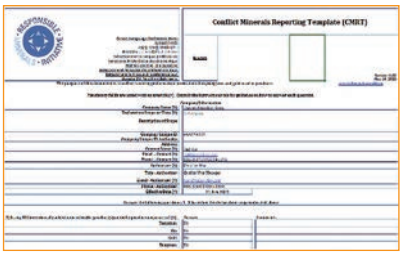
Analysis of supplier evaluation result



TGI is also the supplier of glass processing products of international brands. The code of conducts of the supply chain from customers is included in key management issue. For example, Flat Glass produced by Taichung Factory was sold to Taiwan Mirror Glass Enterprise LTD, the dealer taking orders of IKEA, in2016. TGI issued a statement of prohibition for child labor in response to the request of human rights from IKEA and we were committed to not employing child labor and complying with relevant regulations.

Guildeline for suppliers protecting labors under 18 and supporting their employment(IWAY)

TGI complies with IWAY



Taiwan Glass declares that it does not use conflict minerals

With regards to issues for the management of conflict minerals, Taiwan Glass has cooperated with suppliers to issue relevant declaration documents for conflict minerals such as gold (Au), tantalum (Ta), tungsten (W), cobalt (Co) and tin (Sn). The Company also promised not to purchase conflict minerals mined with the abuse of human rights or armed coercion, and avoid using conflict minerals from the Democratic Republic of Congo and its surrounding countries and regions.

Environmental Sub-contractor Qualifications and Evaluations

Every year TGI environmental subcontractor evaluation form to evaluate these subcontractors. During the evaluation cycles, if a subcontractor commits a severe violation of any environmental, labor safety and health regulations, it will be reported to the chairman or president and the said contractor will be disqualified as a TGI contractor. Based on TGI's requirements, subcontractors should have necessary licenses/certifications or receive training in order to have smooth cooperation with TGI.

During the initial contract signing, the factory affairs representatives from all factories will head to the environmental subcontractors' facilities to understand how they operate and their working environments. The representatives will verify their licenses and ensure that the waste-collecting and disposal process is intact and sign the 3-way contract afterward.

Environmental subcontractor evaluation form

CH4 Sustainable Operation

4.1 Sustainable Environment Strategy

4.2 Sustainable Resource Management

4.3 Green Production&Management

4.4 Climate action

ENVIRONMENT SOCIETY GOVERNMENT

Taiwan Glass is committed to promoting the concept of sustainable management of coexisting with the environment, and firmly understands the importance of environmental protection and sustainable development. Therefore, TG encourages the implementation of energy conservation and water conservation strategies at each Plant every year, and uses a good management model to continuously carry out the management of energy resources.

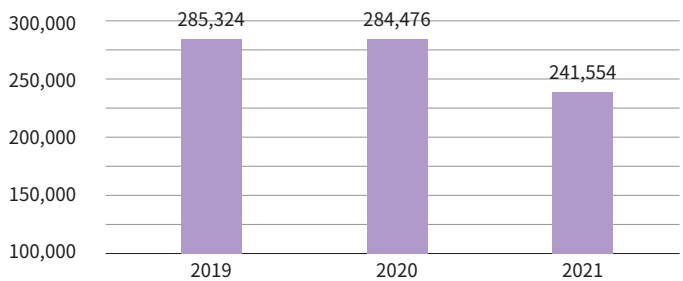
Achievements of Green Production in 2021

24 million	In 2021 invested a total of 24 million in the plan to promote environmental policy.
184,000 tons	Recycled 184,000 tons of scrap glass in 2021.
-4%	In 2021, direct greenhouse gas emissions fall by about 4% compared to 2020.
-5%	In 2021, Indirect greenhouse gas emissions fall by about 5% compared to 2020.
5.2 million kWh	With the elevation of equipment and procedure's energy efficiency,including Windmill Engine, lighten device, TGI reduce 5.2 million kWh of electricity consumption
187 million tons	In 2021, there are 187 million tons of the cycle water and total recycle water.
-33%	In 2021, the Hsinchu Plant increased its use of recycled water to significantly reduce the use of groundwater by 33% compared to 2020, and installed proportional valves in the water plants to reduce groundwater extraction.
-64.99%	In 2021, Taichung Flat Panel Plant's wastewater discharge will be reduced by 64.99% compared to 2020

4.1 Sustainable Environment Strategy

In 2021, TGI spent more than 240 million NTD on environmental protection expenditures. We continue to invest in equipment, regardless of deficit or profitability of the year, to improve energy or reduce pollution. In 2021, TGI started solar panel implementation plan, and is expected to achieve a power capacity of approximately 7,085 KWH. We also invest in environmentally relevant management systems and conduct environmental education and training for relevant personnel to achieve compliance with environmental regulations, environmental pollution and sustainable environmental management.

Environmental Expenditure（NTD thousand）



Environmental Sustainability Strategy

Taiwan Glass adheres to ethics and awareness of environmental protection, and especially invests in protection measures to combat the impact and challenges of climate change. Taiwan Glass believes that enterprises should take responsibility for mitigating environmental impact, and actively calls for members of the supply chain to join the cause. TGI’s Factories (Taoyuan, Hsinchu, Taichung, Lukang, Lukang flat glass, and Changpin Factories) operate with sustainable development of the environment in mind, and the top priority of our production and products is not to cause major impact on the local ecological environment.

Climate Action

Response to water shortage

In 2021, the total circulating water volume and total recycled water volume of each plant will total 186,972,903 tons

Recycle crushed glass

The use of crushed glass theory for the heat of fusion only requires about 50% of raw materials, which can effectively save energy and reduce the GHG emissions.

Energy conservation and carbon reduction

TGI constantly takes inventory of greenhouse gas emissions at all factories to understand the actual situation and take measures to reduce emissions accordingly. By continuing reducing our energy consumption in manufacturing, we are able to lower our energy consumption intensity.

Each Plant continues to conducts certifications for its energy management systems, and established carbon reduction targets every year to improve its energy efficiency. They have also proposed numerous advancement measures with the sustainable development of the Group as the goal.

Energy-saving products

We continue to develop and manufacture Low-E glass and vacuum insulated glass. And the use of materials in the process of product packaging, shipping and recycling can be minimized, such as the use of product labels and pallets.

Green procurement

Taiwan Glass conducts priority procurement of energy-saving products.

Renewable Energy

Taiwan Glass is committed to promoting the implementation of solar panels in all plants in 2021, and will continue to increase the energy capacity in the future. Meanwhile, the feasibility of the natural gas process is evaluated, as it is expected to reduce the dependence on fossil fuels and transform into a low-carbon energy economy.

Environmental Input and Output

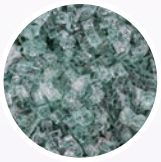
Raw Materials (Tons)

Silica Sand
312,988

Dolomite
81,517

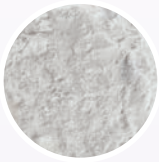
Limestone
30,860

Sodium Carbonate
84,037



Cullet
(including those purchased from external sources)
184,017

Kaolinite
33,549



Calcium borate
3,354

Energy Consumption

Heavy Crude Oil
89,511
Kl

Diesel
684,245
L

Natural Gas
54,070,693
M^3

LPG
4,636
Kg

Electricity
527,276,704
KWh

Water Consumption
2,428,240
tons

Production capacity

Sum 545,657 tons

Greenhouse Gas Emissions

Scope 1
476,650 tons
CO2e

Scope 2
266,455 tons
CO2e

Air Pollutants Emissions

NOx
699,064
Kg

SOx
274,066
Kg

VOCs
70,023
Kg

Particulate pollutants
53,589
Kg

Processing Waste

Unwound Yarn
12,055
tons

Sludge
2,262.97
tons

Garbage
408.02
tons

Wastepaper
697.57
tons

Scrap Iron
364.62
tons

Waste wood
404.6
tons

Wastewater Discharge
1,134,710
tons

Solution

Recycle

Heat treatment or Curing

Incineration

Recycle or Incineration

Recycle

Recycle

Reclaimed water：186,972,903 tons

Main Production Procedure and Value Chain of Taiwan Glass

The value chain of Taiwan Glass covers five major categories of upstream raw materials such as silica sand, limestone, dolomite, soda ash and recycled cullet; the midstream covers the processing and manufacturing, and the downstream covers the products and diverse applied fields. Taiwan Glass is committed to examining the impact and effects of the product value chain on the environment and society, and is working towards sustainable development by working closely with its suppliers. Meanwhile, Taiwan Glass expects to continue offering high-quality products that meet market demands through the R&D and innovation of products and technology, and long-term cooperation with its partners in the upstream and downstream value chain to drive the sustainable competitiveness of Taiwan Glass' manufacturing industry chain.

Upstream

Raw Materials (regardless of Plant)
Silica sand, limestone, dolomite, nepheline, feldspar, soda ash, flat glass, target material, aluminum strips, structural adhesives, PVB film, and recycled cullet

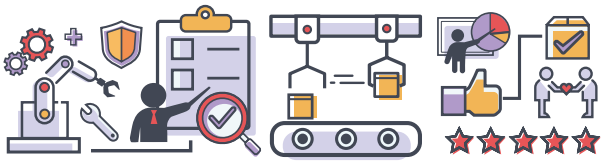
Midstream: Production Procedure	Downstream: Products and Applied Field	
Melt → High-speed winding → Dry → Combine	Conventional Roving	Car and Bodywork
Melt → High-speed winding → Dry → Chop Strands → Apply Glue → Dry	Chopped Strand Mat	Wave board, table and chairs, hull, bathtub
Melt → High-speed winding → Chop Strands → Dry	Chop Strands	Auto parts, mechanical parts, electrical parts
Melt → High-speed winding → Dry	Direct Roving	Fishing rods, profiles, pipe fittings, water towers
Melt → High-speed winding → Dry → Creel → Weave	Woven Roving	Hull, barrel tank, houses
Mix raw materials → Melt and clarify → Flatten and form → Cool off → Inspect and Chop → Collect and store	Flat Glass	Auto glass, plate glass
Melt → Mold → Anneal → Package	Glass Containers	Food containers or packaging (wine bottles, beverage bottles, feeding bottles)
Melt → Form → Anneal → Cut openings → Apply nozzle → Anneal → Package	Glass Kitchenware	Food utensils (coffee maker, water kettle)
Wash → Blow-dry → Vacuum sputtering-coating → Inspect	Plated Glass	Architectural Glass
Wash → Apply PVB film → Combine → Pre-press → High-temperature Press	Sandwich Glass	Architectural Glass
Wash → Apply aluminum strip → Combine and pre-press → Apply glue	Insulated Glass	Architectural Glass
Glass Fabric Cloth → Dress → Weave → De-size → Apply treatment → Inspect	Glass Fabric	Material for Electronic Products

Compliance with Environmental Regulations

Taiwan Glass' goal is "zero pollution and zero disasters," and its compliance with government laws and regulations is an important business foundation as the Company's principle is "environmental protection first, and industrial safety first."

TGI believes in honesty and hard work and always complies with governmental regulations. Under the"environmental protection and occupational safety first" principle, TGI pursues the objective of "zero pollution and occupational hazards" by complying with the government's environmental protection policies while ensuring occupational safety to fully fulfill the company's corporate social responsibilities. In 2021, the violation of environmental law are as follow, and there is no significant violation in 2021.

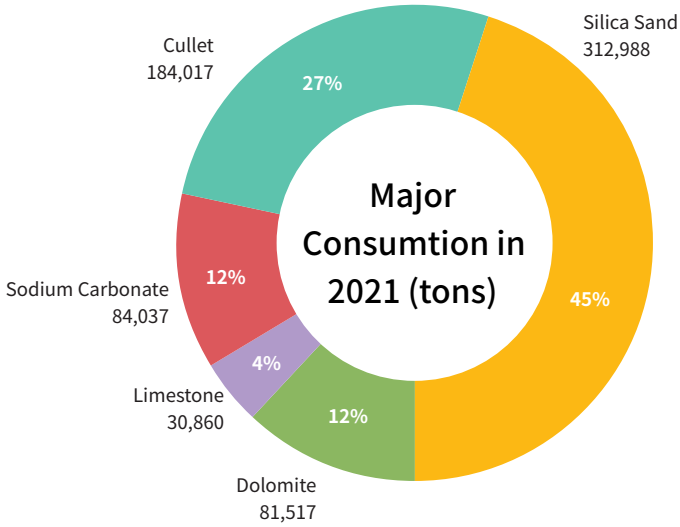
Plant	Violations of Environmental Regulations	penalty amount(NTD)	Improvement Measures
Taoyuan Plant	Violation of Article 24, Item 2 of the Air Pollution Control Act: human negligence resulting in the lack of operational data of air pollution control equipment.	100,000	A new supervision unit was added, and the operator is required to make actual records and submit them to the supervision unit for safekeeping on a daily basis.
Changpin Plant	Violation of the Waste Disposal Act, storage and disposal declaration error	60,000	Correction of declaration errors, and regular follow-up of improvements.



4.2 Sustainable Resource Management

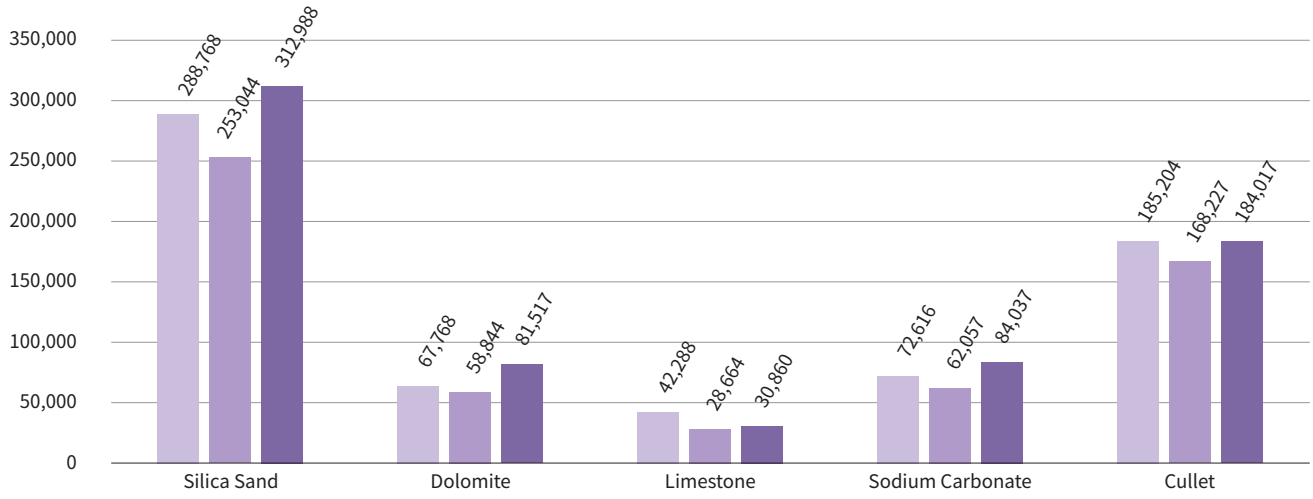
Raw Material Management

TGI's main products include flat glass, fiberglass, and glassware. The major materials used in production include silica sand, limestone, dolomite, soda ash and recycled scrap glass (cullet). In 2021, TGI used approximately 312,000 tons of silica sand, more than any other material. The consumption of these materials is listed below:



Note：Other material including kaolin, colemanite, and nepheline was only used in an insignificant amount and therefore was not listed above.

Major Material Consumption (tons)



Note：Other material including kaolin, colemanite, and nepheline was only used in an insignificant amount and therefore was not listed above.

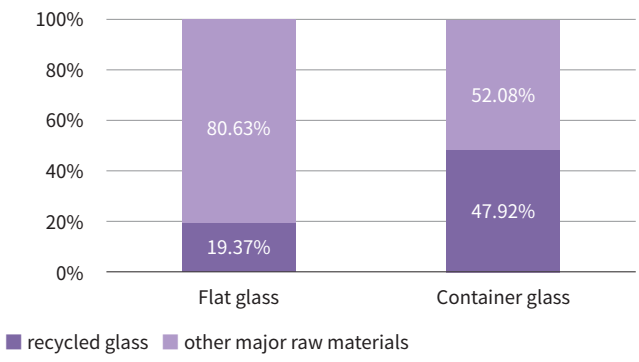
Recycle of Waste Glass

As glass is the material that can reduce environmental pollution, using glass is supported by the public; furthermore, both international organizations and governments from each country recognize the highly recyclable feature of glass. Therefore, Taiwan Glass has also established a recycled glass processing center to clean and reuse the recycled glass, regularly send samples to SGS to verify the lead content, reuse the recycled waste glass in large amounts in the production procedures at various Plants. Taiwan Glass cooperates with Spring pool Glass on the recovery of post-sales cullet generated by customers for the cullet sold to the middle and downstream glass plants, where it is cleaned and inspected using metal detectors to remove most of the metal pollutants such as stainless steel, aluminum, copper, and tin to improve production quality. In 2021, the recycling rate of flat glass and container glass reached 19% and 48% respectively for a constant increase in the recycling rate.

Waste Glass Consumption Ratio Unit：%

Year/Product	Flat glass	Glass container
2019	19.40%	51.35%
2020	21.06%	47.92%
2021	19.37%	47.92%

Ratio of scrap glass recycling



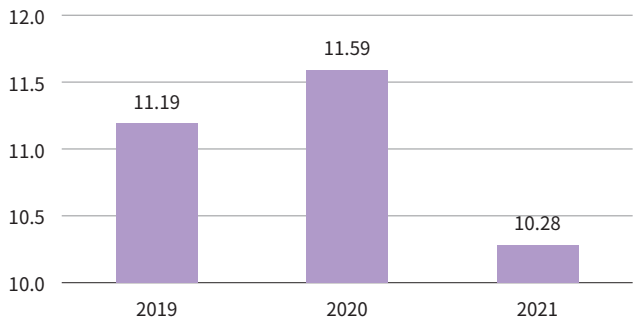
Energy Management

Taiwan Glass has installed regenerators for heat exchange using furnaces to improve energy efficiency in the glass production process, and also uses energy conservation measures such as pure oxygen combustion tank furnaces with optimal control technology to reduce the environmental impact of operating costs. The main types of energy used include electricity, heavy oil, natural gas and diesel fuel, and non-electric or energy for sale (electricity, heat, cooling, steam). The usage of various types of energy over the years is as follows:

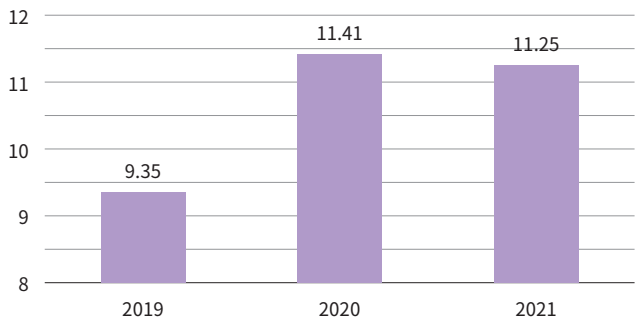
Various energy consumptions (by year)

Year/ Energy		Heavy crude oil (KL)	Diesel (Liter)	Natural gas(M^3)	Liquefied petroleum gas (KG)	Electricity (kWh)	Transmission energy percentage
2019 年	Total	97,558	762,650	43,270,529	9,000	523,599,725	25.89%
	Calorific value(GJ)	3,920,409	26,817	1,449,043	454	1,884,938	
2020 年	Total	75,560	1,193,605	47,721,881	38,325	524,221,915	28.74%
	Calorific value(GJ)	3,036,416	42,015	1,598,683	1,939	1,887,199	
2021 年	Total	89,511	684,245	54,070,693	4,636	527,276,704	25.90%
	Calorific value(GJ)	3,597,065	24,059	1,810,719	234	1,898,175	

Flat glass energy consumption intensity（GJ/ ton）



Glass container energy consumption intensity（GJ/ ton）



Greenhouse Gas Management

Greenhouse Gas Assessment Policy

Every member of TGI is contributing to energy conservation, carbon reduction, and greenhouse gas emission reduction. We also promote the awareness of green production and trace the carbon emission amounts regularly.

TGI's greenhouse gas emissions can be divided into two categories: direct and indirect. The direct category includes the energy (such as heavy crude oil, diesel, and natural gas) used during production. The indirect category mainly consists of electricity purchased from external sources. TGI's direct carbon emission was approximately 266 thousand tons of CO2e in 2021, a 5% decrease compared with 2020. The indirect carbon emission of glass containers is approximately 44,000 tons, which is a decrease of 17% compared with 2020. In addition, the indirect carbon emission of glass fiber is approximately 160,000 tons, which is a decrease from 2021 year and the total carbon emission is about 230,000 tons. The greenhouse gas emission intensity is approximately 1.37 tons, which has been decreasing annually over the past three years.

Product Carbon Emissions (by year)

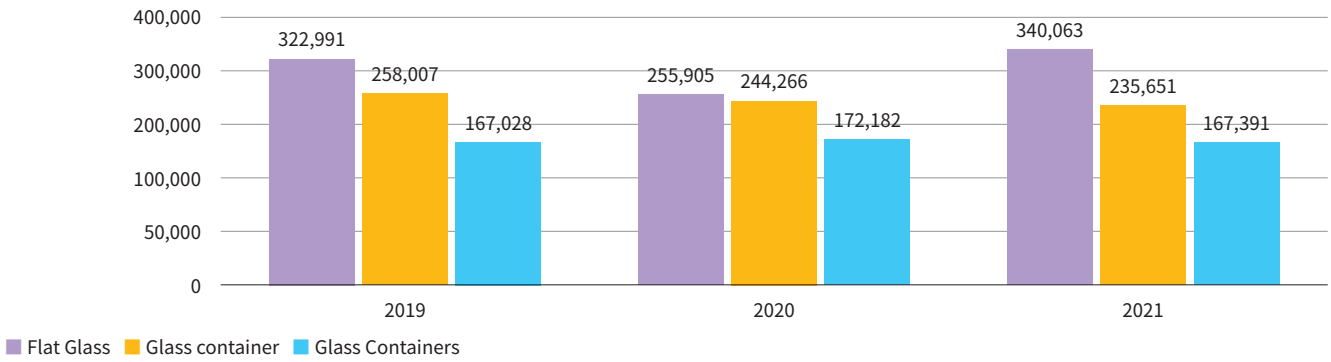
Uni：Tons CO_2e

Product/Year	2019		2020		2021	
	Direct emission	Indirect emission	Direct emission	Indirect emission	Direct emission	Indirect emission
Flat Glass	250,678.80	72,312.40	191,997.49	63,907.18	272,918.91	67,144.04
Fiberglass	102,522.94	155,484.41	80,493.62	163,772.57	80,354.09	155,297.19
Glass Container	115,745.71	51,281.85	119,359.67	52,822.01	123,377.22	44,013.75
Subtotal	468,947.46	279,078.65	391,850.78	280,501.76	476,650.22	266,454.98
Total	748,026.11		672,352.54		743,105.20	

Remark 1：To make TGI's environmental data easier for readers to understand, this year's report adjusts the presentation of greenhouse gases, converts the plants' main emission by coefficient released by the Evironmental Protection Administration and the Bureau of Energy, and revises the data of the past two years.

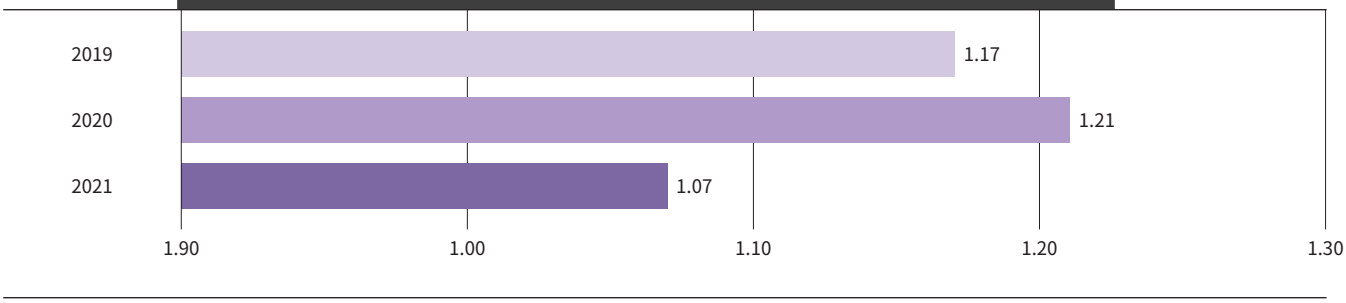
Remark 2：Except for the head office and the Changpin plant, plants of Taiwan Glass annually commissions a third-party organization to track the previous year's greenhouse gas inventory. Results are uploaded to the National Greenhouse Gas Platform of the Environmental Protection Administration and Market Observation Post System, in compliance with relevant laws.

Product Carbon Emissions（TonsCO$_2$e）

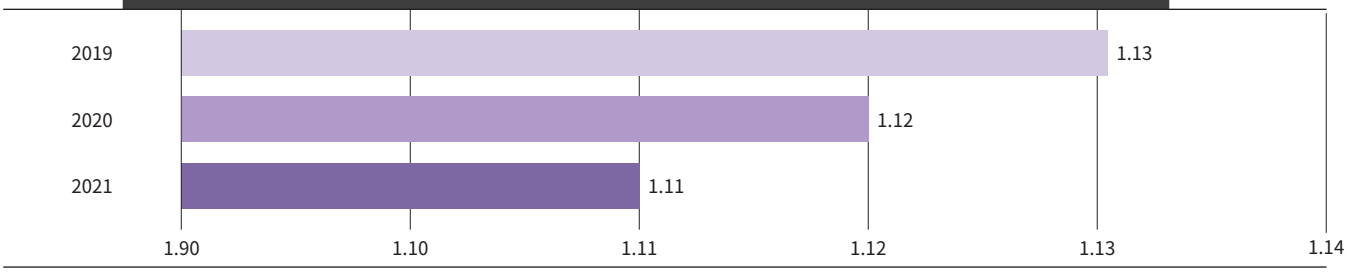


TGI continued to promote energy conservation and take action on carbon reduction. Since 2014, Taoyuan, Taichung, Lukang and Hsinchu Factory have been certified the ISO 50001(energy management system), and continue to obtain certificates. By establishing energy management principles and methods, it will allow TGI to optimize its energy efficiency while staying in line with the company's strategies and objectives. On top of this, the Plan Do-Check-Action mechanism can continue improving the way TGI uses energy.

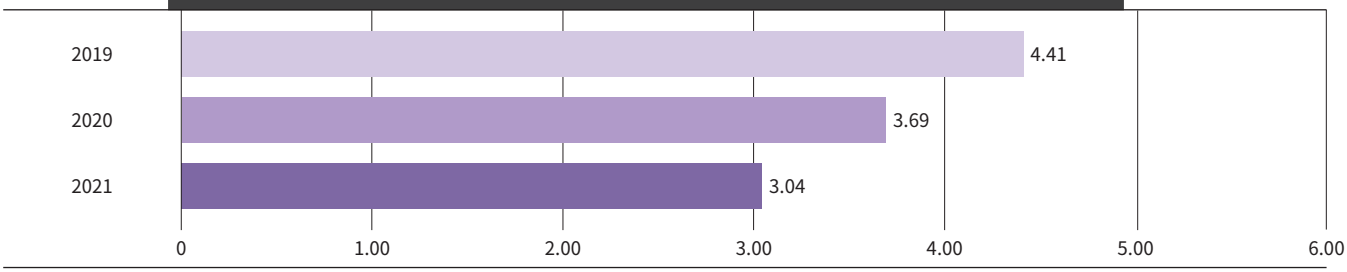
Flat Glass GHG Emission Intensity CO_2e/glass (ton)



Glass Container GHG Emission Intensity CO_2e/glass (ton)



Fiber Glass GHG Emission Intensity CO_2e/glass (ton)



Energy Conservation and Carbon Reduction Commitment from TGI Factories

Taoyuan Plant	Continued inspection of greenhouse gasses in the Plant, increase the investment of green energy, and reduction of energy use intensity. The Plant implemented solar energy equipment that is expected to save 1,971,547 kWh of electricity annually, and reduce carbon emissions by 989.7 tons (CO_2/year). The Taoyuan Plant was recognized as an excellent firm for its voluntary energy conservation and carbon-reduction by the Ministry of Economic Affairs Industrial Development Bureau in 2021.
Hsinchu Plant	Accelerated the use of renewable energy and planned for implementation of solar power generation in early 2021, and planned for an electricity production of 1,328.38 KWH by the end of 2022 after the implementation of the solar power generators. Planned to change from using heavy oil in a single furnace to using natural gas, which reduces energy costs, air pollution, and carbon emissions. The change is expected to occur during the cold repair of the furnace in 2023-Q4.
Taichung Plant	In November 2021, the Plant introduced the use natural gas as its main energy source, and is expected to reduce carbon emissions by 7,334 tons (CO_2/year) The waste glass of the Plant and the cullet recovered outside of the Plant are put into the furnace for melting to reduce waste. In 2021, there was a total of 33,591 tons put into this process.
Lukang Plant and Lukang Flat Glass Plant	The Lukang Plant replaced the 4-foot fluorescent lamp tubes with 4-foot LED lamp tubes, and replaced the mercury vapor street lamps with electrodeless street lamps to annually save 1,283,040 kWh of electricity. The Lukang Flat Glass Plate Plant partially replaced the use of heavy oil with natural gas, which is estimated to reduce the annual use of heavy oil by 68.472 kilograms. It is estimated that the solar power generators for the two Plants will be implemented in 2022.
Changpin Plant	Continuously replace its LED lamp tubes. Changed to fan cooling, and the fan replacement rate reached 71%. The cooling of the multi-layer distribution boxes was changed from cooling with air-conditioning to cooling with fans to reduce the use of air-conditioning.

TGI reduced its carbon emission by a total of 2,887.05 tons in 2021. The energy conservation and carbon reduction measures and results for all TGI's factories are listed below:

Item Factory	Energy conservation measures	Energy conserve	Amount conserved	CO_2 reduced
Taoyuan Factory	Planned Implementation of Solar Panels	Electricity (KWH)	1,971,547.5	989.7
	mprovements to energy conservation for the TT-6 Fabric Ventilation Fans by installing frequency converters	Electricity (KWH)	43,200	21.7
Hsinchu Factory	Replace the TS-2 TANK windmill motor with the new one.	Electricity (KWH)	13,140	6.6
	Replace the fan motor of TS-2 COMBUSTION with the new one.	Electricity (KWH)	3,373	1.7
	Replace the TS-2 #1、#2、#3Line LEHR.	Natural gas(M^3)	192,720	362
	Replace the TS-2 IS Mold Cooling Fan 250HP IE3	Electricity (KWH)	1,697,806	852
Lukang Factory	Replacement of 4-foot fluorescent tube with 4-foot LED tube	Electricity (KWH)	829,440	422.2
	The mercury lamps were replaced with electrodeless lamps in the factory. (210 lamps in total)	Electricity (KWH)	453,600	230.9
Total of CO2 reduction across all factories (tons)				2,886.8

Results of Implementing Solar Panels in the Plants

Taiwan Glass'environmental sustainability policy actively promotes energy conservation, carbon reduction, and the use of renewable energy. The Company also complies with the Ministry of Economic Affairs' announcement of the "Regulations for the Management of Setting up Renewable Energy Power Generation Equipment of Power Users above a Certain Contract Capacity,? stipulating that power users with a contracted capacity above 5000KWH are obligated to implement renewable energy equivalent to 10% of their contracted capacity. Taiwan Glass is committed to promoting the implementation of solar panels in the Plants, and will establish management regulations for renewable energy power generation equipment in response to the announcement of the Ministry of Economic Affairs for power users with a certain contracted capacity, and maximize energy conservation. Taiwan Glass’ 2021 solar panel implementation plan is currently expected to complete power generation by the end of December 2022, and achieve implementation of solar panels with a power capacity of approximately 7,085 KWH.

Strategy	According to the Renewable Energy Development Regulations, energy-heavy industries are required to set up renewable energy sources equivalent to more than 10% of their contracted capacity that they will generate and use themselves	
Plant Promotion Progress	Goals and Outcomes	
Implementation of Solar Power Systems in 2021	Taoyuan	Expected to achieve Parallel Power Generation by the end of 2022 Expected to implement power generation of 1,993KWH
	Hsinchu	Expected to achieve Parallel Power Generation by the end of 2022 Expected to implement power generation of 1,328KWH
	Lukang	Expected to achieve Parallel Power Generation by the end of 2022 Expected to implement power generation of 3,063KWH
	Lukang Flat Glass	Expected to achieve Parallel Power Generation by the end of 2022 Expected to implement power generation of 700KWH
	Taichung	Expected to achieve Parallel Power Generation by the end of 2022 Expected to implement power generation of 1,685KWH

Implementation of Solar Panels in Taiwan Glass Plants

Water Resources Reduction Management

Water Resources Management Policy

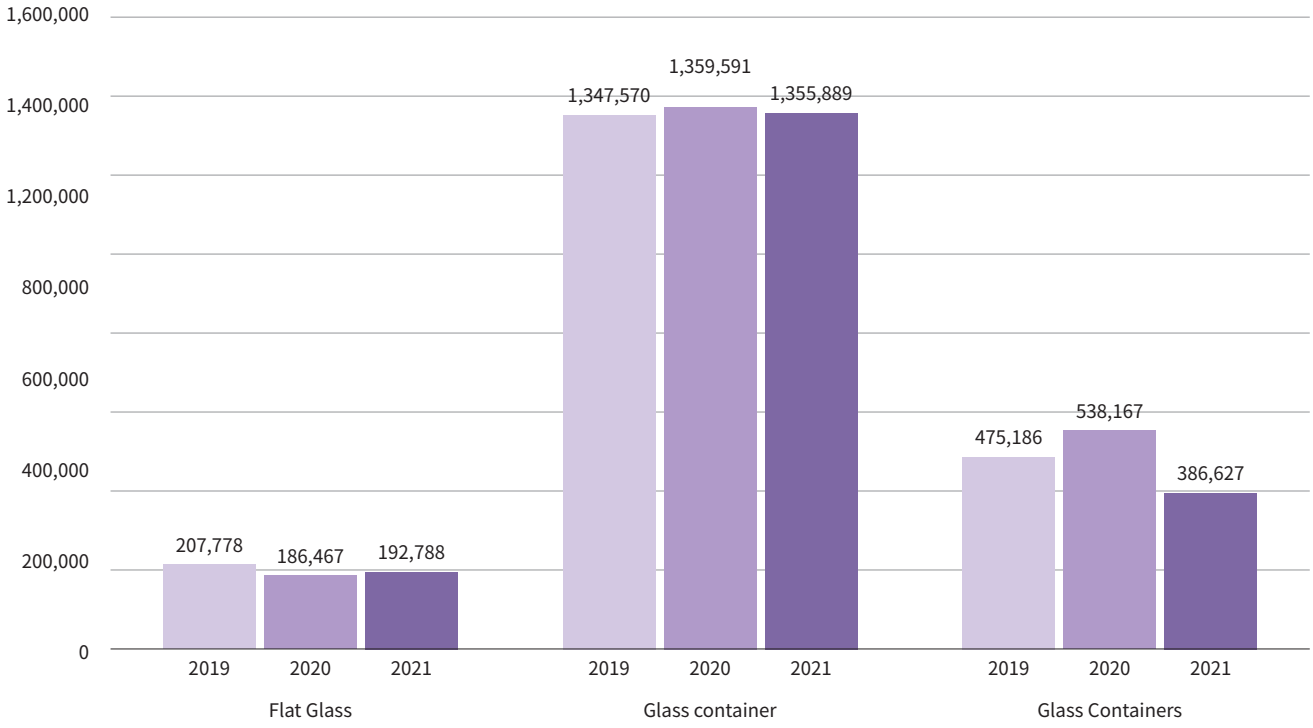
TGI improves water efficiency by purchasing water-conserving equipment. We promote awareness of green production and reuse water resources.

In the process of manufacturing glass, such as glass edging, anvil holes, drilling, etc., a large amount of water source must be used. We continue to improve water-saving technologies in various factories, evaluate feasible methods and apply them to reduce water consumption and achieve the spirit of sustainable water resources. The water used in each factory can be divided into business water, domestic water and recycled water (partially used in the exhaust system), and recycled water is used instead of tap water to reduce the amount of tap water. The water withdrawal from each factory in Taiwan has no significant impact on the local water source. The water intake is as shown in the right table.

Taoyuan	Hsinchu	Taichung	Lukang / Lukang Flat Glass	Changpin
Water Source: Taiwan Water Corporation 2nd Branch	Water Source: Dongxing waterworks	Water Source: Water Management Area 4, 1st Branch	Water Source: Taiwan Water Corporation 11th Branch	Water Source: Taiwan Water Corporation 11th Branch

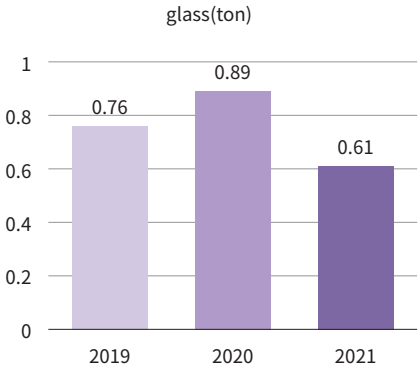
In 2021, the plants of Taiwan Glass will consume about 1.88 million tons of water. Since 2017, part of the process has been improved. Recycled water is used as dilution water. The recycled water system has gradually improved and the increase in water consumption has gradually declined.

Annual Water Consumption（ton）

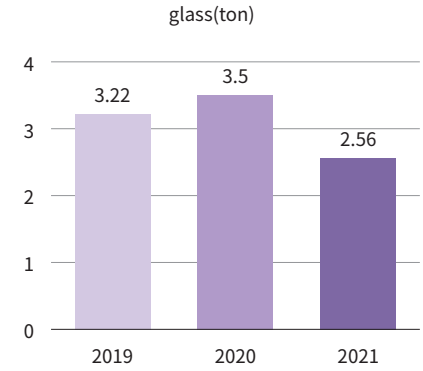


Year	2019	2020	2021
Water withdrawal (Million Liter ML)			
Surface Water	0.00	0.00	0.11
Undergriund Water	428.36	493.78	335.10
Seawater	0.00	0.00	0.00
Produced Water	1,569.82	1,674.09	1,602.23
Third-party Water	1,672.93	1,655.07	1,672.30
Total Water withdrawal	3,671.10	3,822.94	3,609.74
Water Displacement(Million Liter ML)			
Surface Water	0.00	0.00	0.00
Undergriund Water	442.14	387.00	260.60
Seawater	0.00	0.00	0.00
Third-party Water	953.34	881.62	920.90
Total Water Displacement	1,395.48	1,268.62	1,181.50
Water consumption (Million Liter ML)			
Total Water Consumption	2,275.62	2,554.32	2,428.24

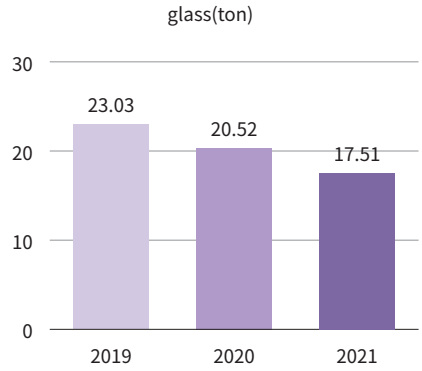
Flat Glass Water Consumption Intensity water



Glass Container Water Consumption Intensity water



Fiberglass Water consumption Intensity water



In 2021, the TG Hsinchu Plant was awarded the "Bronze Award" in the 3rd Annual Enterprises Environmental Protection Awards (AEEPA) - Manufacturing Industry Category

The Hsinchu Plant participated in the Executive Yuan Environmental Protection Agency's 3rd Annual AEEPA Selection Event for the first time in 2021, was awarded the "Bronze Award" in the Manufacturing Industry Category

The Taoyuan Plant was recognized as an excellent firm for its voluntary energy conservation and carbon-reduction by the Ministry of Economic Affairs Industrial Development Bureau in 2021

In 2020, the Taoyuan Plant changed the combustion of its boilers from using heavy oil to natural gas, and achieved excellent carbon reduction results. In 2021, the Plant was awarded as an "Excellent Firm for the Reduction of Industrial Greenhouse Gasses" by the Ministry of Economic Affairs Industrial Development Bureau.

Water Reuse

With the frequent changes of climate and extreme weather, water management has become a unignorable material issue in the industry. Over the years, TGI has promoted water conservation measures in various factories, improved equipment efficiency, reduced water consumption per unit of product, and promoted changes in water use behavior to employees, saving water and spare no effort. The 11th Water Supply District for the water supply company of the Changpin Plant moved its water tank outside, and used visual management to reduce overflow and improve internal water circulation. The 2nd Water Supply District for the water supply company of the Taoyuan Plant recycled the waste water discharged from backwashing of the TT1,7 resin softening tanks, and used it to clean the TT1 E/S SYS. The total volume of water that was recycled in 2021 was 123,988 tons and the Dongxing Water Purification Plant for the Hsinchu Plant improved its recycling system and water collection tank, and reduced the total emissions by 126,427 tons in 2021 compared to 2020. The recycling volume and recycling rate of each Plant in 2021 are as follows:

TGI 2021 Recycled Amount & Recycle Rate of Water Resources (By Factory)

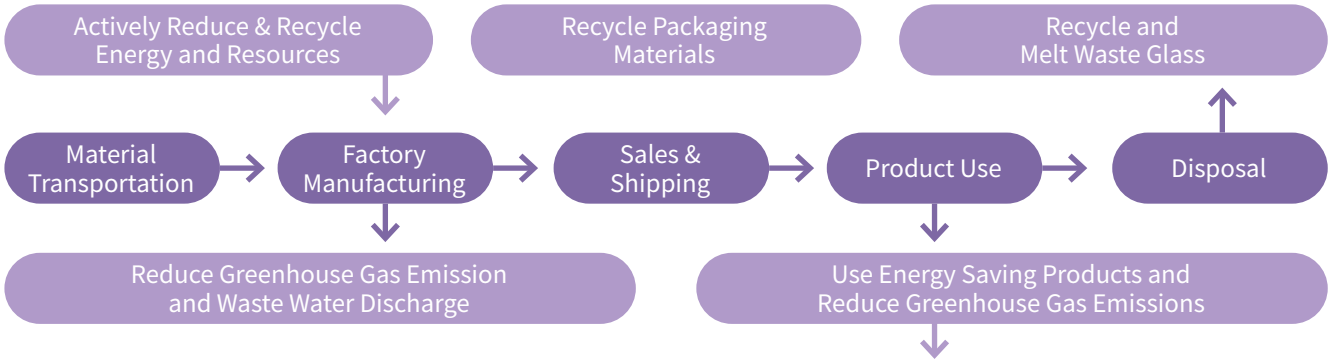
Item / Factory	Taoyuan	Hsinchu	Taichung	Lukang	Lukang Flat Glass	Changpin
Total circulating water amount + Total recycled water amount (M^3)	59,516,182	509,980	568,022	100,955,095	12,498,160	13,492,918
Total water consumption (%)	60,179,973	891,286	724,152	101,653,364	12,549,946	13,547,141
Recycle rate (Reuse rate)	98.90%	57.20%	78.44%	99.31%	99.59%	99.60%

Notes:
- Circulating water: the amount of water reused in the same system.
- Recycled water: the amount of water reused in the other systems.
- Total water consumption: the amount of water needed through a productive or operative process.
- Recycle rate (Reuse rate): (Total circulating water amount +Total recycled water amount)/ Total water consumption × 100%.

The recycled water that the Taichung Factory supplies to Taiwan Autoglass Ind. Corp. is not included in the calculation of Taichung Factory.

4.3 Green Production&Management

TGI Green Production Strategy



In response to the rising global environmental awareness and the adoption of green manufacturing in this industry, TGI is committed to improving the efficiency of raw materials use, reducing the environmental costs of production, and carefully analyzing the energy consumption to assess the greenhouse gas emission intensity, air pollution, waste water and waste, etc. We hope to make progress towards sustainable production and to do our best for the earth.

Waste Management and Recycling

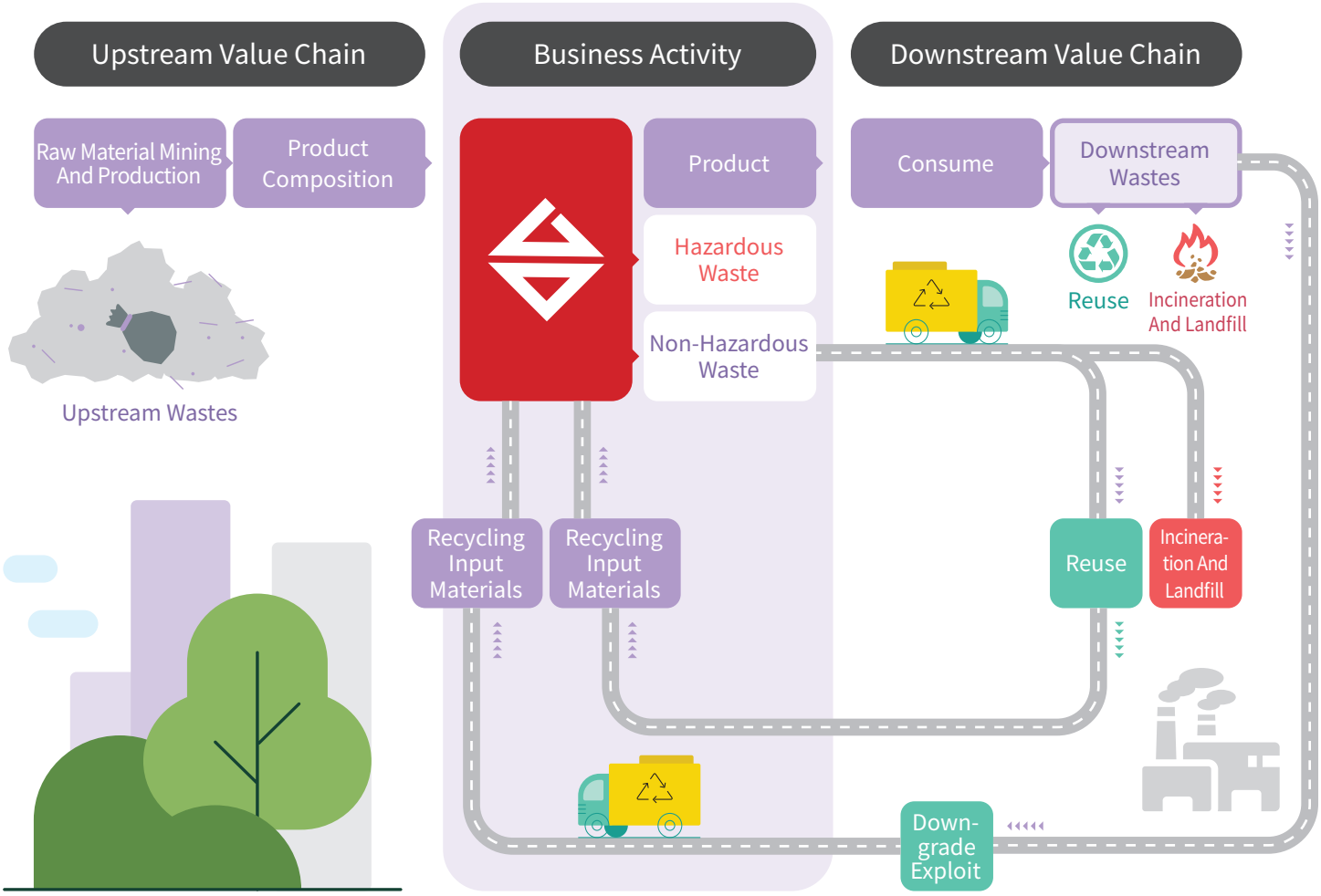
Taiwan Glass has established two principles for waste disposal: improve production yield and reduce waste volume, and recycle reusable waste.

The recyclable waste is handed over to qualified recyclers for disposal; the reusable pallets and packaging materials are also recycled and reused for the production procedure. This not only reduces the cost, but also reduces the impact on the environment as the selection of raw materials and packaging materials contribute towards the Company's fulfillment of its CSR. The Taiwan Glass Plants will also continue to sort garbage, recycle, and reduce waste.

Qualified waste treatment companies are commissioned to handle non-recyclable wastes, which is then handed over to the local environmental protection bureau incineration plants and landfills for treatment. The Company also commissions qualified treatment firms for the treatment and recycling of the sludge generated from the wastewater treatment. The disposal of non-recyclable industrial waste is handled by qualified treatment firms after filling out the "Commission Form for Joint Treatment and Management of Industrial Waste" online, and then handed over to qualified treatment sites for disposal. Taiwan Glass continues to carry out waste management, and work towards the goal of recycling and waste reduction.

Taiwan Glass Plants Implementation of Waste Management

Taoyuan	The principle for waste management of the Taoyuan Plant is to improve the production yield to reduce the amount of generated waste, and recycle the reusable waste.
Hsinchu	Sludge from the wastewater treatment process is entrusted to qualified processors for reuse. Recyclable waste such as waste paper, scrap iron, and waste plastic are also handed over to qualified recyclers for disposal. We will continue to require sort garbage, recycle, and reduce waste.
Taichung	The Taichung Plant commissions qualified professional waste treatment firms with the disposal and recycling of its waste, and the waste is classified and disposed based on the nature of the waste.
Zhangpin	To achieve waste reduction, the Plant conducts on-site inspections on the implementation of recycling every week. Those who do not carry out proper recycling will be issued warnings, and are required to make improvements.
Lukang	To be eco-friendly and carry out energy conservation, the Lukang Plant continues to recycle industrial waste and has a dedicated unit for the waste management to do as much recycling of valuable waste.



Taiwan Glass Waste Disposal Volume in 2021 (tons)

General Waste (non-hazardous)		
Item	**Treatment Method**	**2021 (tons)**
Waste from living activities	Incinerate	408.02
Waste plastic mixtures	Reuse or incinerate	99.03
Waste rubber mixtures	Reuse or incinerate	1.52
Waste paper	Reuse or incinerate	679.57
Waste fiber	Incinerate	77.56
Waste glass	Bury or physically dispose	811.72
Waste glass fiber	Reuse	3,370.90
Waste glass mixtures	Bury or physically dispose	404.59
Waste wood	Reuse	404.60
Waste firebrick	Reuse	5.64
Waste lubricating oil	Reuse	41.52
Nightsoil	Biological treatment	99.83
Civil Waste	Reuse	54.73
Scrap iron	Reuse	364.62
Scrap aluminum covers	Reuse	565.82
Wasters	Reuse	360.17
Sludge or inorganic sludge	Heat treatment or curing	2,262.97
Waste pallets	Reuse	118.00
Not yet reeved	Reuse	12,055.00
Non-hazardous waste EP Ash or EP Ash mixtures	Physical treatment	288.6
Hazardous waste		
Item	**Treatment Method**	**2021 (tons)**
Other corrosive mixtures	Bury after incineration	4.13
Selenium and compounds	Bury after curing	52.63

Air Pollution Control

Our priority is to comply with EPA’ emissions standards and reduce pollutants emitted every year. We have improved our manufacturing process by replacing heavy oil and diesel with natural gas and managing pollutants with equipment. increase natural gas to reduce the emission of air pollutants. In addition to reducing air pollution and fossil energy use, the implementation also ensures the health of employees in factories. TGI follows the ISO 14001 management system and complies with air pollution prevention guidelines. We have departments in charge of periodically checking and maintaining our equipment. Should there be any control or emissions anomalies, these departments will respond by carrying out contingency plans. They will determine the cause of the anomalies and have

them under control immediately to reduce the burden our manufacturing imposes on the environment.

The emission intensity of air pollutants for each product is shown in the figure below. Taiwan Glass will carry out stricter control for various types of air pollutants to hopefully reduce pollutant emissions while increasing production capacity, and do its part to protect the global environment and public health.

Air pollutant emissions of Taiwan Glass over the years (total by each factory)

Air pollution testing project/Year	2019	2020	2021
NOx	950,107	817,046	699,064
SOx	396,592	324,950	274,066
VOCs	87,363	69,148	70,023
Particulate Pollutants	76,115	61,894	53,589

unit：kg

In response to global warming, Taiwan Glass will effectively prevent air pollution and maintain the ambient air quality around the Plant by adding several sets of SCR denitration equipment for the Hsinchu Plant in 2021 to meet the lowered nitrogen oxide emission standard from 300ppm to 180ppm. The Lukang Flat Glass Plant newly installed CF dust collection equipment at the front end of the emission channel to reduce the emission of particulate pollutants, and improve the stability of the air pollution control equipment.

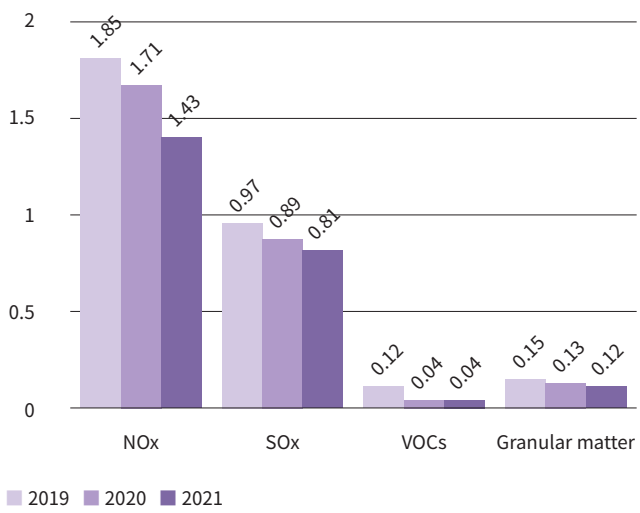
SCR denitration equipment

TS-3 SCR denitration equipment

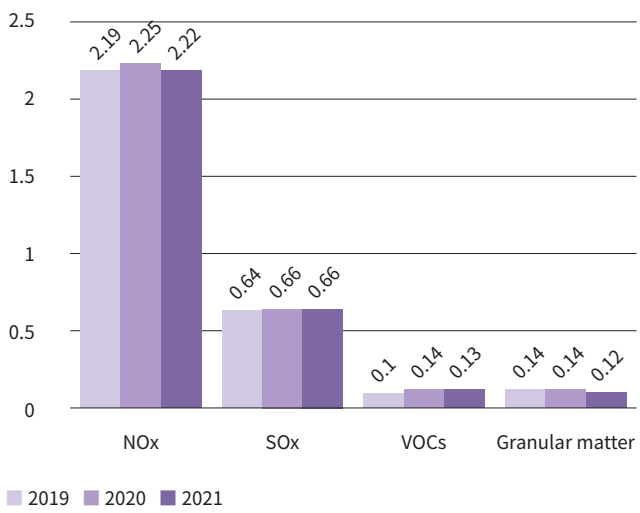
TS-7 SCR denitration equipment

CF dust collection equipment

Intensity Record TGI Flat Glass Air Pollutant Emission Intensity Record



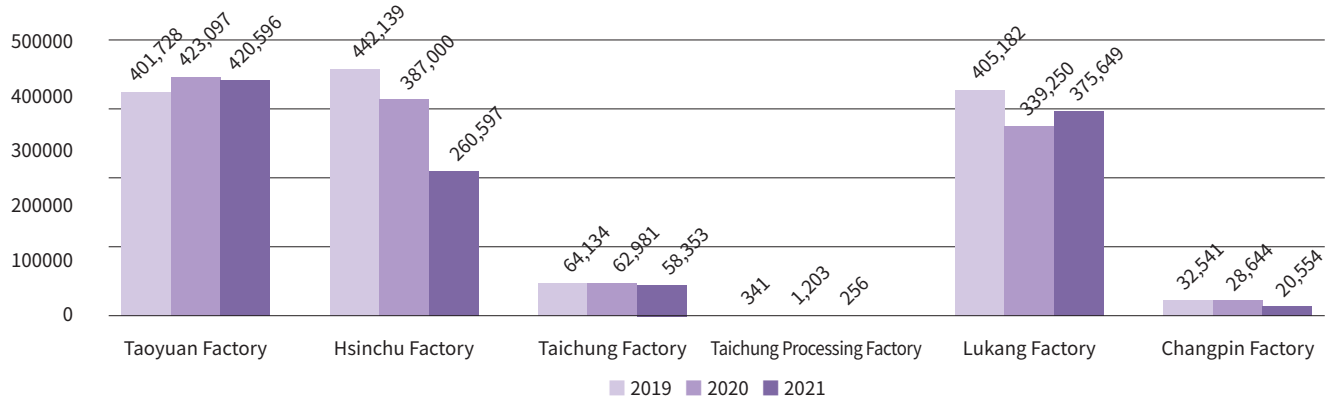
Glass Container Air Pollutant Emission Intensity Record



Water Pollution Management

All factories have wastewater treatment equipment to reduce the pollutants in the wastewater so that the wastewater can meet the local discharge quality standards. Domestic sewage, after being treated by the treatment system, is compliant with the legal standard to be discharged to the surface water body. TGI factories discharged a total of 1,242,175 tons of wastewater in 2020, reduced 8.39% compared with 2019.

Wastewater Quantity of TGI Factories (by years)



Remark:

1. The Taiwan Glass waste water volume is presented based on the emission amount paid by each Plant. The measured emission amount of the Taichung Processing Plant includes the emission amount of Taiwan Auto Glass Co., and the measured emission amount of the Changpin Plant includes the emission amount of TG TECO Vacuum Insulated Glass Corp.
2. The Taichung Plant and Taichung Processing Plant recycle the waste water for cleaning filter fabrics and road surfaces. Therefore, the measured amount for the payment is actually lower than the actual emission amount.
3. In 2021, the Hsinchu Plant increased its use of recycled water to significantly reduce the use of groundwater, and installed proportional valves in the water plants to reduce groundwater extraction.

Wastewater Discharge Destination and Legal Standard

Factory	Discharge Destination	Legal Standard
Taoyuan	Guanyin Industrial Park Service Center	Guanyin Industrial Park Service Center Wastewater Discharge Limit Summary Table
Hsinchu	Sanxinggoan Creet	Water Pollution Control Act
Taichung Factory (Including Taichung Processsing Factory)	Guanlian Industrial Park sewage system	Taichung Harbor Special District Water Recycle Center Wastewater Discharge Standards
Lukang Factory (Including Lukang Flat Glass)	Changhua Coastal Park Service Center Wastewater Treatment Plant	Changhua Coastal Park Service Center Wastewater Treatment Standard
Chanping Factory	Changhua Coastal Park Service Center Wastewater Treatment Plant	Changhua Coastal Park Service Center Wastewater Treatment Standard

2021 Detected Discharged Water Value

Water pollution inspection item/factory		Taoyuan Factory	Hsinchu Factory	Taichung Factory	Taichung Processing Factory	Lukang Factory	Changpin Factory
COD (mg/L)	Detected Values	203.1	15.3	9.7	9.6	52.34	38.2
	Discharge Standards	560	100	800	800	640	640
SS (mg/L)	Detected Values	21.3	2.2	4.1	7	12.04	12.1
	Discharge Standards	480	<50	600	600	<400	<400

Remark:

1. Only Hsinchu factory paid half-year billing for wastewater discharge, other industrial areas to which other factories belong calculated and monitored the discharge water value monthly. All the factories entrust third-party institutions to sample and test the declaration in accordance with the provisions of the Environmental Protection Agency.
2. The monitoring values of Hsinchu factory in this report are presented based on the average value of each quarter's outsourced inspections, and the monitoring values of other factories are presented as the average of monthly monitoring values in the industrial area. Therefore, the inspection value of the processing plant includes TAGC, and TVIG in Changpin factory.

4.4 Climate action

Taiwan Glass TCFD Core Framework

Reports from the Global Economic Forum in recent years indicated that extreme weather events and climate action failure are among the top five global risks, and they have been ranked as the top 2 risks in the past 4 years. Therefore, Taiwan Glass introduced TCFD (Task Force on Climate-Related Financial Disclosures) framework with the four aspects of "governance," "strategy," "risk management," and "indicators and targets" to formulate strategies and actions for climate change, which will hopefully mitigate the impact of climate risks.

Governance

- The Board of Directors is the highest governance unit on climate issues of Taiwan Glass as it is responsible for supervision and decision-making, and the "ESG Committee" regularly reports the progress of climate risks and opportunities to the Board of Directors.
  - **Competent Authority:Board of Directors**
- The Board of Directors formulates the medium and long-term sustainable development goals of Taiwan Glass, and is responsible for integrating the Company's cross-departmental resources, identifying climate issues related to the Company's operations, formulating climate strategies, tracking the achievement of targets, and regularly reporting the implementation to the Board of Directors.
  - **Competent Authority:ESG Committee**

Strategy

- Carry out climate risk and opportunity identification on a regular basis.
  - **Competent Authority:ESG Committee**
- Analyze the possible financial impact of major climate risks, and formulate contingency and preventive measures to enhance the Company's climate resilience.
  - **Competent Authority:ESG Committee and Management of each Plant**

Risk management

- Integrate major climate risk and opportunity issues and corresponding control measures, and regularly review and track them.
  - **Competent Authority:ESG Committee**
- Review changes in policies, regulations, technologies, markets, and goodwill on transformation risks and opportunities every year; also regularly review the assessment of physical risks, transformation risks and opportunities through the identification of climate risks and opportunities, and work with each Plant to respond to risks and opportunities.
  - **Competent Authority:ESG Committee**

Indicators and Targets

- Analyze the impact of climate risks and opportunities based on Plant conditions, and outline management approach.
  - **Competent Authority:Taiwan Glass Plants**
- Regularly conduct supplier evaluations in response to the TCFD risk identification results, and reduce production risks caused by insufficient raw materials.
  - **Competent Authority:Taiwan Glass Plants**
- Phase out high-energy-consuming equipment according to Plant demands.
  - **Competent Authority:Taiwan Glass Plants**
- Plan to implement solar power and annually increase the usage percentage of renewable energy, and implementation is expected to be completed by the end of 2022.
  - **Competent Authority:Taiwan Glass Plants**

Identify Climate Change Risks and Opportunities

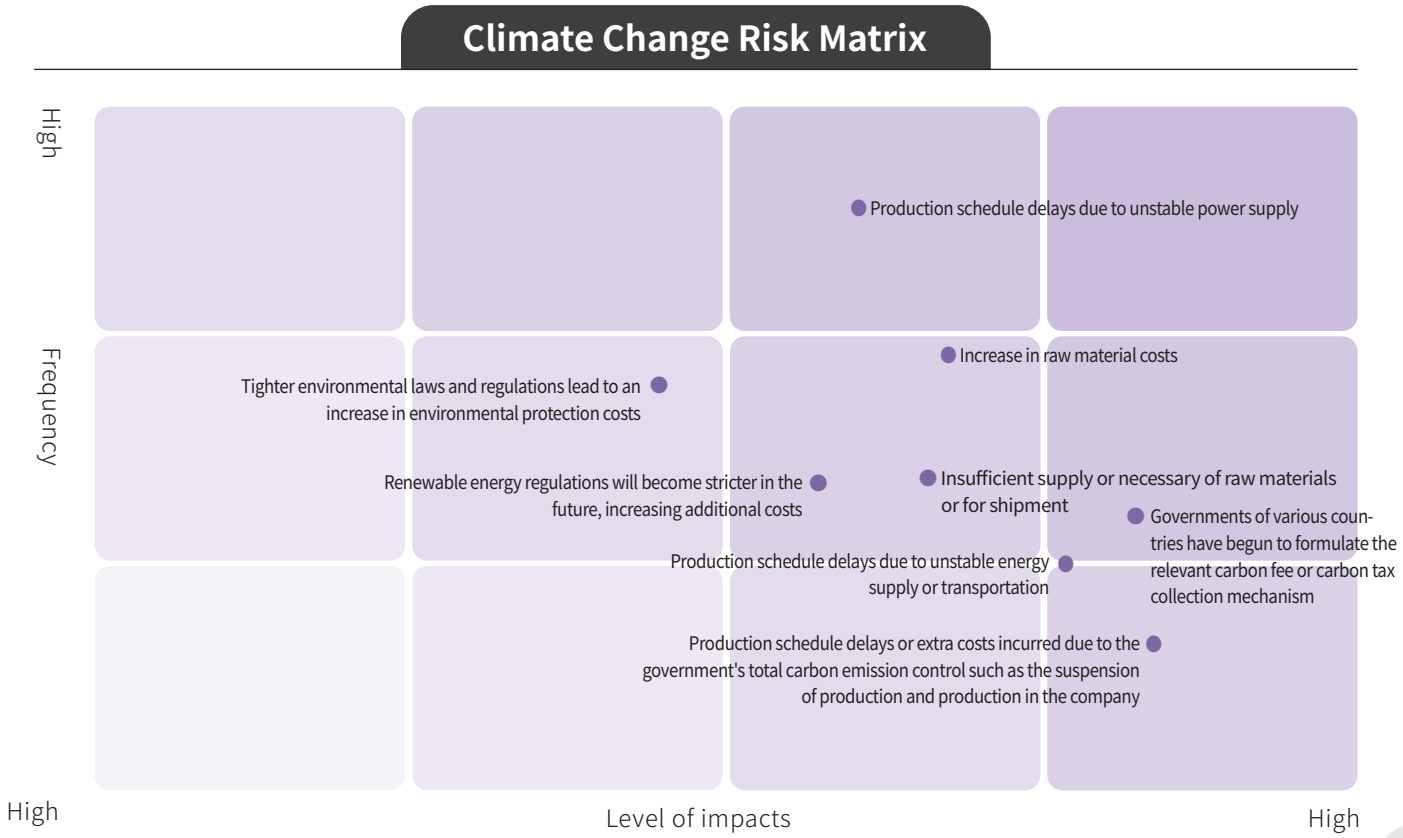
The Company worked together with external consultants and experts to distribute surveys to employees of each Plant, and carried out rigorous analysis after collecting the surveys. Matrix analysis was used based on the two parameters of "occurrence frequency" and "degree of impact," and a total of 8 major climate change risks and 7 high potential future climate opportunities.

Description of Identification Process

The Company will use the TCFD's physical risks, transition risks, and climate change opportunities as the direction of interviews, and meetings with external consultants and the directors of various Plants and departments of Taiwan Glass to jointly identify possible climate change risks and opportunities. The focus is then placed on the actual climate change risks that the Company will face and potential future opportunities during daily operations, and the design and distribution of surveys to analyze major climate change risks and opportunities to formulate an appropriate climate change management policy for the Company.

Identify potential climate risks	Evaluate the impact and frequency of climate risks	Analyze climate risks and opportunities	Respond to climate risks and opportunities
Interviews with the heads of the responsible departments, inquire about the daily operation of each plant area and department and assist in identifying potential climate risks.	Prepare a TCFD Risk and Opportunity Questionnaire and distribute it to relevant authorities to fill in, to evaluate the impact and frequency of climate risks and opportunities.	Based on the collected questionnaire responses, analyze the major climate change risks and opportunities faced by the company and use a matrix diagram to make the results clear.	Discuss with the heads of departments responsible for annual climate-related indicators and targets base on the identified major climate change risks and opportunities.

Taiwan Glass Climate Change Risks and Opportunities



Climate Change Risk Events	Risk Issues	Risk Evaluation	Stakeholders
Delays to production schedule due to measures such as unstable power supply	Intensification of Extreme Weather Events	Physical risk	Taiwan Glass, Supply Chain, Customers
Increased Raw Material Costs	Raw Material Related	Transition risk	Taiwan Glass, Customers
Governments of Various Countries have begun to formulate the relevant Carbon Fee/Carbon Tax Collection Mechanisms	Carbon Fee Issues	Transition risk	Taiwan Glass, Supply Chain, Customers
Impact due to Energy Supply/Transportation Instability caused by Extreme Weather (ex. natural gas, diesel, heavy oil, LPG), possibly resulting production schedule delays.	Production Schedule Delays	Physical risk	Taiwan Glass, Supply Chain, Customers
Insufficient Supply of Raw Materials or Necessary Raw Materials for Shipment	Raw Material Related	Physical risk	Taiwan Glass, supply chain, customers, employees
Order to Suspend Operations and Production due to the Government's Control on Carbon Emissions, resulting in Production Schedule Delays or Additional Costs	Production Schedule Delays	Transition risk	Taiwan Glass, Supply Chain, Customers
Renewable Energy Regulations becoming more stringent in the future, and adding additional costs	Environmental Regulations	Transition risk	Taiwan Glass, Supply Chain, Customers
More stringent General Environmental Regulations resulting in an Increase of Environmental Protection Fees	Environmental Regulations	Transition risk	Taiwan Glass, Supply Chain, Customers

Description of Climate Change Risk

Climate Change Risk Events

Delays to production schedule due to measures such as unstable power supply

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
Unstable power supply has affected production operations and reduced glass yield, resulting in scrapped glass and untimely deliveries.	Increase in operating costs, possible interruption to operations, and delays in product delivery will result in customers losing confidence in Taiwan Glass.	Taiwan is facing the risk of power shortage or unstable supply and with the need for energy-conserving glass possibly increasing significantly in the future, adding energy-conserving glass can create new business opportunities for Taiwan Glass.	1 Each PLANT has implemented an Uninterruptible Power Supply System and tests them regularly as they are activated when power is unstable or shut off, other unnecessary energy consumption is turned off to minimize production risks. 2 Adjustments to the Processing Procedure: For example, when part of the small flat glass production is shut down, hand production can be used to replace machine production.

Indicators and Targets

1 When a power outage occurred in 2022, the emergency power system failed to start normally 0 times.
2 Check the UPS regularly to avoid equipment damage. During the cold repair in 2020, the battery equipment was replaced and the UPS could be used for approximately 30 minutes.
3 Regularly start and test the diesel generators to avoid failures when they are required to generate power.

Increased Raw Material Costs

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
Raw material suppliers have increased carbon emission costs (carbon fees or carbon taxes), energy costs and logistics costs to meet low-carbon requirements, which is further reflected in the price of raw materials.	1 1.Increased Safety Inventory and Reduced Funding Flexibility. 2 Increased Operating Costs and Decrease of Profit.	If downstream customers are more willing to purchase circular economy glass containers while Taiwan Glass continues to increase the ratio of waste glass in its products, it will reduce the amount of purchased raw materials and the cost of raw materials. This contributes to the circular economy and reduces costs, and makes the supplier the preferred firm by downstream customers.	1 Regularly conduct supplier evaluations to ensure stable supply of raw materials, assess the carbon footprint of the raw materials, and carry out planning for carbon reduction by the suppliers. 2 Add upstream raw material suppliers, and compare the prices of other qualified suppliers. 3 Increase the ratio of waste glass added to the products, and reduce the amount of raw material used. 4 Each Plant's minimum inventory of raw materials: 2-3 months worth of foreign raw materials, and 2-4 weeks worth of domestic raw materials. 5 Stipulate long-term contracts for important raw materials that require suppliers to make regular and quantitative deliveries.

Indicators and Targets

1 Raw material cost increase of <10% in 2030.
2 Inventory of raw materials was maintained in 2022.
3 With minimal concerns regarding the supply of outsourced waste glass, the addition rate of waste glass is aimed to increase by 2% per year.

Governments of Various Countries have begun to formulate the relevant Carbon Fee/Carbon Tax Collection Mechanisms

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
Taiwan Glass is a leading glass enterprise and may be listed as a priority subject for taxation by the government, which will result in the overall increase of production costs for its products.	Increase of Operating Costs, affecting the Competitiveness of Product Prices.	Customers will turn to make procurements from low-carbon emission suppliers and with the increased demand for high-end energy-conserving products such as coated glass, Taiwan Glass can establish a presence in the Net Zero supply chain.	1 1.Match the Government’s Net Zero Emissions progress, and plan its Carbon Emission Reduction Roadmap. 2 2.Reduce carbon emissions: Replace heavy oil with natural gas under the conditions that natural gas reducing carbon emissions and having favorable prices. 3 Implement solar panels.

Indicators and Targets

1 No violations have occurred according to relevant government regulations.
2 Gradually change to a hybrid combustion design in response to the furnace's service life and cold repair schedule, and reduce greenhouse gas emissions.
3 The solar panels are expected to be implemented and start generating electricity by the end of 2022. The scale of implementation for each Plant is different, please refer to 4.2 Management of Energy Resources for more details.
4 The Lukang Flat Glass Plate Plant partially replaced the use of heavy oil with natural gas, which is estimated to reduce the annual use of heavy oil by 68.472 kilograms.
5 Increase the use of natural gas by at least 50%.
6 The missed payments for Carbon Fees/Carbon Taxes since it has been levied is 0.

Climate Change Risk Events

Impact due to Energy Supply/Transportation Instability caused by Extreme Weather (ex. natural gas, diesel, heavy oil, LPG), possibly resulting in production schedule delays

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
Forklifts (diesel) were unavailable for use as large flat or extra-heavy glass could not be delivered after they were produced, which possibly hinders production.	1 1.Hinderance of production resulting in idle equipment could potentially result in delayed deliveries. 2 In addition to increasing labor costs, the additional use of manual handling also presents concerns regarding work-related injuries when handling glass.	The use of manual electric forklifts reduces the risk of delays in production schedules for Taiwan Glass, and makes the supplier the preferred firm by downstream customers.	Set the load limit of the electric forklifts, and the pieces of glass placed on the forklifts cannot exceed the load limit.

Indicators and Targets

1 The inventory for heavy oil should be maintained for at least 1 month of usage to avoid fuel shortages.
2 There were no production schedule delays caused by measures such as lacking natural gas supply/transportation instability.
3 2The power supply improvement plan for switching to LPG gas supply was completed in 2022.

Insufficient Supply of Raw Materials or Necessary Raw Materials for Shipment

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
Shortage of stock for upstream suppliers due to climate change, resulting in no raw materials available for production. Those with minor shortages will reduce production, and those with severe shortages will suspend production. Restarting the furnace for production after a suspension may take up to half a year.	Increase in operating and raw material costs, and possibly failing to meet customer requirements may affect customer willingness to take delivery. This will result in loss of orders and overdue fines, reduced revenue, and even interruptions to the Company’s operations.	1 mplement a customer-friendly procurement policy, increase the percentage of local procurement, and reduce carbon emissions from logistics. 2 Adopt a multi-supplier strategy to diversify supply risks, stabilize the supply chain, and create potential business opportunities.	1 Demand forecasting and information sharing for supply chain management. 2 Adjust safety inventory and select reliable, high-quality, and affordable suppliers. 3 Assess the feasibility of backup suppliers, and add other sources of supply.

Indicators and Targets

1 There were 0 events of insufficient supply of raw materials or necessary raw materials for shipment.
2 Increased the primary inventory of raw materials to 60 days of use, and the inventory of raw materials at Plants is to be kept as full as possible.

Order to Suspend Operations and Production due to the Government's Control on Carbon Emissions, resulting in Production Schedule Delays or Additional Costs

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
Taiwan Glass is an energy-heavy industry and when regulations require the control of carbon emissions, the Company may face risks of partial suspension and shutdown.	Some of the equipment in the Plants are machines that cannot be shutdown and if shutdowns are required, the equipment may suffer damage and shutdowns will also reduce the Company’s revenue.	Reduce energy consumption and improve equipment efficiency, implementing solar power, and using more green electricity to reduce carbon emissions not only reduces additional costs, but also makes the Company the preferred firm by customers.	1 1.Reduce carbon emissions, switch to natural gas, and implement solar power 2 Build exhaust control equipment with higher specifications.

Indicators and Targets

1 There were no reductions in production in 2022.
2 Increase the use of natural gas by at least 50%.
3 Continue to identify regulations, and formulate responses to regulations.
4 Implement solar power generation. The scale of implementation for each Plant is different, please refer to 4.2 Management of Energy Resources for more details.

Climate Change Risk Events

Renewable Energy Regulations becoming more stringent in the future, and adding additional costs

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
The increase in operating costs due to changes in regulations resulted in situations such as payments of cash or transfer for administrative execution.	Implementation of green power will increase operating costs.	Using green electricity to reduce the usage of supply mains and greenhouse gas emissions not only reduces additional costs, but also makes the Company the preferred firm by customers.	Implement solar panels.

Indicators and Targets

The solar panels are expected to be implemented and start generating electricity by the end of 2022. The scale of implementation for each Plant is different, please refer to 4.2 Management of Energy Resources for more details.

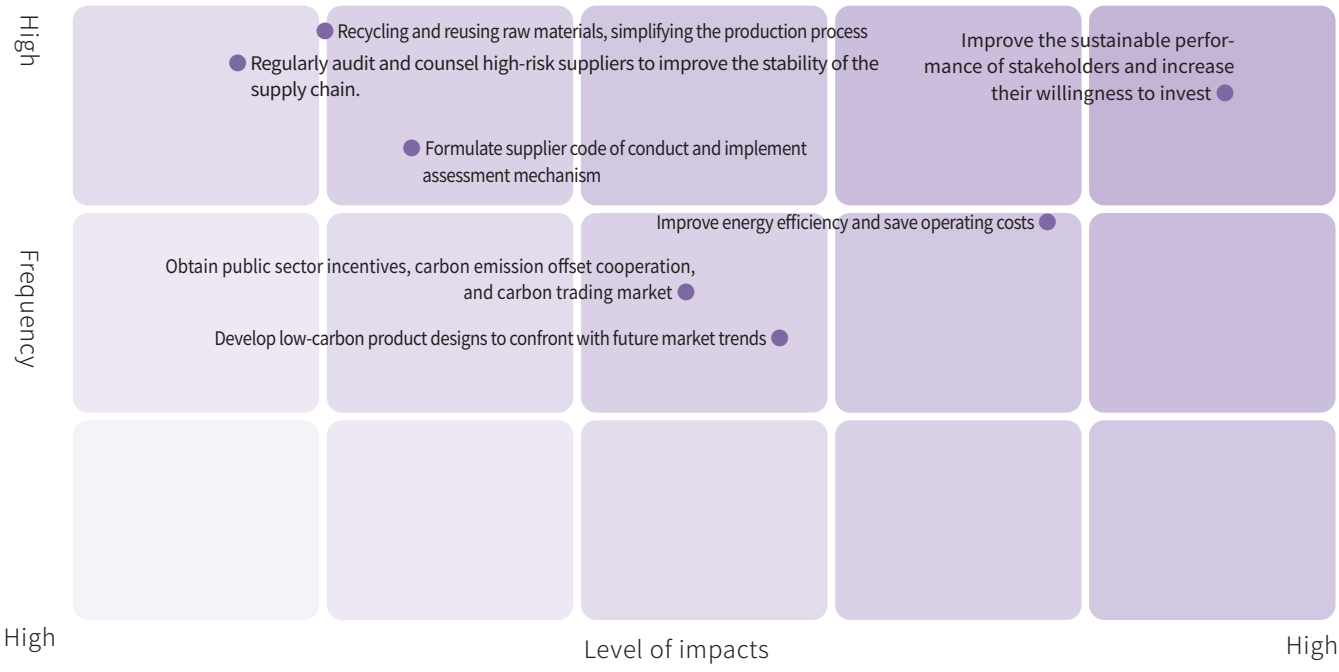
More stringent General Environmental Regulations resulting in an Increase of Environmental Protection Fees

Description of Risk Impact	Potential Financial and Operational Impact	Opportunities	Management Approach or Response Measures
After the implementation of the total greenhouse gas control regulations, the increase in greenhouse gases will be controlled by the competent authority. This will result in restrictions to orders and production, which will result in increased operating costs.	Eat into the production profits as water costs, carbon fees, and raw material costs will continuously increase.	Actively search for innovative technologies or production procedures such as recirculated water and recycled glass to reduce exhaust emissions and improve recycling rates.	1 Formulate relevant issues such as water and energy conservation, and continue to improve the production yield and reduce the output of waste glass. 2 In 2017, Taichung Plant introduced Selective Catalyst Reduction Equipment (SCR) to reduce the concentration of nitrogen oxide and meet regulatory requirements. 3 In 2021, CF was introduced to improve the service life of back-end exhaust equipment.

Indicators and Targets

1 There were no missed payments for environmental protection fees in 2022.
2 There was no increase of environmental protection fees caused by more stringent general environmental regulations
3 The nitrogen oxide emission concentration was controlled below the regulatory emission standard of 180ppm.
4 2022 Exhaust Re-modification Project.

Climate Change Opportunity Matrix



Taiwan Glass Climate Opportunities and Promotion Strategies

Climate Change Opportunity Events	Opportunity Issues	Stakeholders	Description of Opportunity Event	Potential Financial and Operational Impact	Management Approach or Response Measures	Indicators and Targets
Improve the sustainability evaluation results of stakeholders, and increase the willingness of stakeholders in making long-term investments	**Increase Willingness to Make Investments**	Taiwan Glass, Supply Chain, Customers	Disclose the net zero carbon emission schedule and strategy, which helps build investors' confidence in the sustainability operations of the Company, enhance the Company's image, and help obtain external funding.	1 Investor recognition of the Company's business model and objectives. 2 Improve the sustainability evaluation results. 3 The injection of external funding is beneficial for enterprises to expand their businesses and equipment.	1 Establish a carbon reduction schedule and goals based to the government's Net Zero Emissions Roadmap. 2 Supply Chain CSR Management Evaluation [1]. 3 Continue to promote the weight reduction of bottles, increase the percentage of low-carbon emission energy and energy conservation equipment.	1 Carbon Neutrality of Products by 2050. 2 Evaluation will continue in 2022. 3 Lightweight bottles will account for 45% of the production in 2030.
Recycling raw materials, and simplifying the production process	**Circular Economy**	Taiwan Glass	Search for reusable raw materials in the Plant such as structural adhesives, aluminum strips, PVB film, and recycled paper to process and use them, and reduce waste disposal costs.	Improve the recovery of raw materials, reduce expenditures, and enhance the use of circular economy within the Plant to not only reduce waste disposal costs, but also be more environmentally friendly.	1 Reclassify and use the used raw materials (residual materials). 2 Increase the use of exhaust control equipment. 3 Increase the amount of purchased cullet and increase the addition rate of recycled cullet.	200mt of dust was removed from exhaust control equipment in 2022.
Regularly audit and counsel high-risk suppliers to improve supply chain stability	**Improve supply chain stability**	Taiwan Glass, Supply Chain, Customers	Maintain stable product quality.	Having stable upstream supply results in stable quality and supply for Taiwan Glass products, and increase repurchase rates of downstream customers.	Regularly audit, evaluate, and counsel high-risk suppliers, and find new suppliers as secondary suppliers to improve supply chain stability.	Evaluation and counseling will continue in 2022.
Improve energy efficiency and save operating costs	**Improve energy efficiency**	Taiwan Glass	Improve energy efficiency to reduces cost and carbon emissions.	Improve energy efficiency, reduce energy costs and carbon emissions.	1 Introduction of AI to control the temperature and energy of the melting glass. 2 Prioritize procuring products with energy labels, and prioritize energy conservation upgrades or newly-purchased operating equipment. 3 The air compressor adopts high/low voltage split sharing to reduce the number of startup units and reduce energy consumption. 4 Motors and pumps are replaced with new ones, and have IE3 energy efficiency.	Cooperate with Academia Sinica on automated control of furnaces in 2022.
Formulate supplier code of conduct, and implement assessment mechanisms	**Carry out supplier assessments**	Taiwan Glass, Supply Chain, Customers	Ensure that all suppliers comply with the standards when conducting business with Taiwan Glass, and maintain stable product quality.	Having stable upstream supply results in stable quality and supply for Taiwan Glass products, and increase repurchase rates of downstream customers.	1 Every year, Eco-friendly Subcontractors will undergo the Company's evaluation and audit according to the "Evaluation Form for Eco-friendly Subcontractors." 2 Supplier evaluation norms have been included in the ISO procedure, and quarterly evaluations are carried out.	Evaluation and counseling will continue in 2022.

Obtain public sector incentives, carbon emission reduction co-operation, and carbon trade markets	**Obtain public sector incentives**	Taiwan Glass, customers, government authorities	Follow the trend of net zero emissions, and build the Company's corporate image.	Add carbon reduction equipment that will increase operating costs in the short term, but might increase customers' willingness to purchase products in the long run.	1 Regularly update high energy-consuming and high carbon emission equipment. 3 Continue implementing environmental management systems and energy management systems.	The Bureau of Energy's waste heat recycle subsidy project, measures of the project will be introduced during the next cold repair (currently estimated during 2023).
Develop low-carbon product designs to meet future market trends	**Develop low carbon products**	Taiwan Glass, Customers	1 The Company's primary products are food containers. Since domestic and foreign customers/channels have become stringent, low-carbon products can help expand the market and enhance the Company's competitiveness. 2 Improve energy-conserving glass products.	1 Lightweight bottles use less energy and raw materials, reduce carbon fees and shipping costs, and costs by weight. 2 Meet market demands for energy conservation, and increase operating income.	1 Continue technical collaborations with foreign firms to guide customers in adopting lightweight bottle products. 2 Use natural gas to replace heavy oil, and continue to improve production procedure equipment. 3 Increase the procurement of low-carbon raw materials, carry out carbon reduction for various production procedures, and offer low-carbon products based on the Government's Net Zero Emissions Roadmap.	Lightweight bottles will take up 45% of the production in 2030.

CH5
Safe Workplace & Trusted Growth

5.1 Talent Structure and Benefits

5.2 Employee Care & Development

5.3 Safe Workplace and Health Promotion

ENVIRONMENT SOCIETY GOVERNMENT

2021 Employee Care and Welfare Achievements

155%	The average salary of grassroots staff in Taiwan Glass is 155% higher than the local minimum salary.
100%	Strictly abide by government labor laws and regulations, and 100% meet the proportion of employees stipulated in the "Law on the Protection of Rights and Interests of Persons with Disabilities"
80.57%	In 2021, the implementation rate of employees' birthday leave will reach 80.57%.
94.44%	Reinstated employees who applied for parental leave without pay will have a 94.44% retention rate in 2021.
99.9%	The ratio of hiring local executives is 99.9%, creating many employment opportunities for Taiwan and taking care of local people.
28.87 years	There will be 77 retired employees in 2021, with an average length of service of 28.87
19.1 hours	In 2021, the average hours of education and training for general personnel in Taiwan Glass will be 19.1 hours.
100%	By the end of 2021, the new employees who adopt the <new employee counselor system> will have a 100% on-the-job rate by the end of 2021.
100%	In 2021, the special class of "Category C occupational safety and health business supervisors" will be held, with a total of 81 people trained, and the pass rate of the expiry test will reach 100%.
100%	In line with the after-school charging and take-off plan for employees, courses such as "Supervisor Management Ability Development Training Course" will be launched in 2021, with a 100% pass rate upon completion of the training.

5.1Talent Structure and Benefits

TGI treats employees as the company's most valuable assets; therefore, we put the working environment, career development and health in the first place and keep promoting the various employee welfare projects. Our compensations and benefits are better than the compliance requirement and continuously adjusted based on employee's position and personal experience instead of gender, race, religion, political affiliation, marital status or union/social association membership. In addition to providing a starting salary that is higher than the legal minimum wage in the areas where TGI operates, we also review employee's education level, experience, expertise, skills, number of years of service in the industry and the average salary in the industry.

Human Resources Structure

By the end of 2021, there were 4,041 employees in total, among which 1,226 managers were Taiwanese. 99.9% of supervisors at TGI are local Taiwanese. This indicates that TGI has created many job opportunities for the locals. All the employees are hired workers, with no dispatched employee, which makes TGI a stable and healthy workforce. Our employees are located in various cities in northern, central and southern Taiwan. They are all either fixed-term or non-fixed-term contracted workers. The detailed employee structure is listed below:

Employee Gender Structure

Year		2019		2020		2021	
Item	Male	Female	Male	Female	Male	Female	女性
Nationality	3,163	559	3,010	550	2,878	532	532
	733	127	639	89	520	111	111
	3,896	686	3,649	639	3,398	643	643
Total		4,582		4,288		4,041	

Employee Seniority Structure

Item	Category	Male		Female		Total	
		Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Seniority	Under 5 years	1,048	25.93%	223	5.52%	1,271	31.45%
	6~15 years	1,262	31.23%	182	4.50%	1,444	35.73%
	16~25 years	829	20.51%	184	4.55%	1,013	25.07%
	25 years or above	259	6.41%	54	1.34%	313	7.75%
	Sub-total	3,398	84.09%	643	15.91%	4,041	100%

Salaried/Contract Employees

Item	Category	Male		Female		Total	
		Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Type	Salaried Employees	2,789	81.79%	527	15.45%	3,316	97.24%
	Contract Employees	89	2.61%	5	0.15%	94	2.76%
	Total	2,878	84.40%	532	15.60%	3,410	100.00%

Note：Foreignemployees were not included.

Employee Age Structure

Item	Category	Male		Female		Total	
		Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Age	Under 30	522	12.92%	143	3.54%	665	16.46%
	31~40	1,387	34.32%	255	6.31%	1,642	40.63%
	41~50	1108	27.42%	198	4.90%	1,306	32.32%
	51 or older	381	9.43%	47	1.16%	428	10.59%
	Sub-total	3,398	84.09%	643	15.91%	4,041	100.00%

Note：Foreignemployees were not included.

Employee Education Level Structure

Item	Category	Male		Female		Total	
		Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Education	Master or higher	140	4.11%	11	0.32%	151	4.43%
	College	1,801	52.82%	357	10.47%	2,158	63.28%
	High school or below	937	27.48%	164	4.81%	1,101	32.29%
	Total	2,878	84.40%	532	15.60%	3,410	100.00%

Note：Foreign employees were not included.

Management Structure

Nature of work	gender	Total	Ratio	Total percentage
General staff	Male	2,302	56.97%	69.66%
	Female	513	12.69%	
Junior-level Manager	Male	1,004	24.85%	27.74%
	Female	117	2.90%	
Mid-level Managers	Male	72	1.78%	2.10%
	Female	13	0.32%	
Senior Managers	Male	20	0.49%	0.49%
	Female	0	0.00%	
Total		4,041	100%	

Staff Turnover Rate and Resignation Rate

In 2021, 346 employees resigned from TGI with a turnover rate of 10.1%. For the past three years, the annual turnover rate has been below 15%. In 2021, TGI hired 232 new employees with a recruitment rate of 6.8%. TGI promise to build a better working environment and welcome new member join annually.

New recruits in 2021

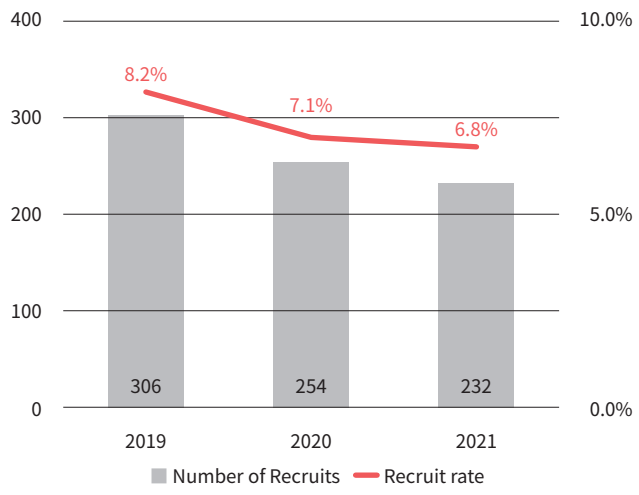
Area	New recruits	Gender		Age							
				Male				Female			
		Male	Female	Under 30	31~40	41~50	51 or older	Under 30	31~40	41~50	51 or older
North	98	69	29	24	20	9	16	18	9	2	0
Central	134	124	10	44	40	12	28	8	1	1	0
Total	232	193	39	68	60	21	44	26	10	3	0

Resignation in 2021

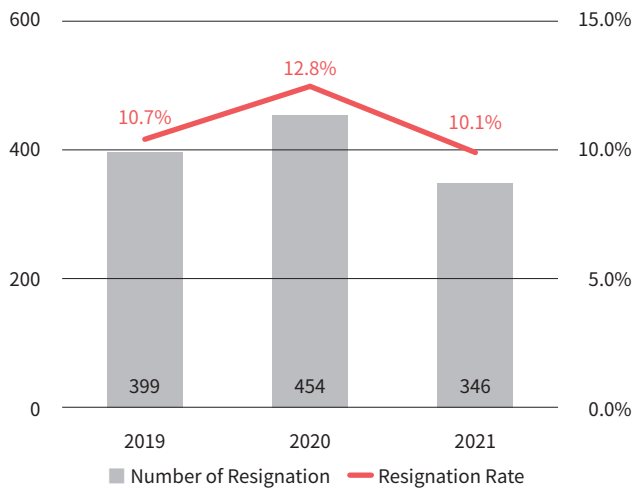
Area	Resigna-tion	Gender		年齡							
				Male				Female			
		Male	Female	Under 30	31~40	41~50	51 or older	Under 30	31~40	41~50	51 or older
North	185	153	32	34	43	30	46	13	11	4	4
Central	161	140	21	25	38	41	36	8	9	2	2
Total	346	293	53	59	81	71	82	21	20	6	6

註：
1.The number of new recruits/leavers does not include the number of people who have been suspended without pay and transferred across factories.
2.Northern region: including the head office, Taoyuan factory and Hsinchu factory; central region: including Taichung factory, Taichung processing factory, Lukang factory, Lukang flat plate factory and Changpin factory.

TGI Recruitment rate (by year)



TGI Resignation rate (by year)



Note:
Recruit rate (%) = Recruits of the category/Total number of Taiwanese employees of the category by the end of the year
Resignation rate (%) = Number of employees of the category that left TGI/Total number of Taiwanese employees of the category by the end of the year

Human rights protection and talent recruitment

In order to safeguard the basic human rights of all colleagues, customers and stakeholders, TGI adheres to the 《UN International Labor Organization》, 《UN Global Compact》, 《UN Guiding Principles on Business and Human Rights》,《UN Universal Declaration of Human Rights》. The principles enshrined in international human rights conventions respect internationally recognized fundamental human rights, including banned child labor, care for vulnerable groups, freedom of association, eliminate all forms of forced labor, eliminate employment and employment discrimination, and abide by the labor of the local regulations.

The company's human rights policy applies to all levels of units and particularly emphasises on the following human rights issues, and continuously promote and promote the quality of human rights:

Human Rights Policy of TGI

- Multi-inclusive and equal opportunities
- Reasonable working hours
- Health and safety workplace
- Freedom of association
- Labor negotiation
- Privacy protection

TGI complies with the laws and regulations of the Labor Standards Act to safeguard our employees' human rights and privacy and prohibit discrimination. All recruitment, employee selection, and employment comply with the government's rules and regulations. No employee is discriminated (including compensation discrimination) owing to his/her race, social status, language, thought, religion, political party, place of origin, birthplace, gender, sexual orientation, age, marital status, appearance, facial features, disability, or past membership in any labor union. Our recruitment process is fair, just and honest. TGI offers compensation based on the education level, job responsibilities, position rank, experience and professional background. Candidates' outfit, demeanor, mental situation, reaction and logic during the interview will also be factored in.

TGI adheres to the government's statutory regulations on employment quota in disability. Although TGI is a traditional manufacturing industry, it aims to create a stable and friendly employment environment for the disabled employees. At the end of 2021, the average number of disabled employees in TGI is about 106 per month, which is more than 140% higher than the statutory standards. We will be more proactively to create diversified and optional job opportunities and environment ever since. In 2021, Taiwan Glass also employed 27 aboriginal employees, which fully demonstrates the diversity of employment. Also, there were no violations on the rights of indigenous peoples in 2021.

Taiwan Glass formulated plans for human rights control issues

Concerned issues	Risk Mitigation Measures	Impact Compensation Measures
Workplace Health	1 Employee health checks are implemented every two years to help employees keep track of their own health. 2 Doctors and factory nurses regularly check the health examination reports and provide health consultation, advice, and care.	1 Items with abnormal health examinations will be notified and reviewed by the partner hospital. 2 Analyze results of the overall health checks, and plan health promotion events and lectures. 3 Encourage the establishment of sports clubs, and subsidize club-related expenses.
Workplace Safety	1 Handle occupational safety education and training for new employees. 2 Handle occupational safety education and training for in-service colleagues. 3 Conduct fire-fighting drills to improve disaster prevention knowledge. 4 Promote the Four Major Programs for Occupational Safety	1 Occupational accident reporting and handling procedures. 2 Emergency medical first aid kits are available. 3 Doctors and factory nurses are regularly stationed to provide consultation services. 4 Occupational safety and health committee meetings are held regularly, and issues are discussed during the meetings.
Workplace Diversity	1 Any form of discrimination is prohibited for a friendly workplace environment. 2 Employees with disabilities are employed in full according to laws and regulations.	1 Really control the number and proportion of people with disabilities. 2 Create a friendly workplace environment. 3 The total number of employees with disabilities employed by the Group in general is higher than the number stipulated in legal regulations.

Lukang won the "Changhua County 2020 Excessive Use of Persons with Disabilities Excellent Award"

Employee of Lukang Plant, was awarded the "Certificate of Commendation for Outstanding Persons with Physical and Physical Disabilities"

Lukang factory nurse was awarded the "Nursing Light of Nursing Award" by the Association of Nurses

A Diverse and Friendly Working Environment

TGI friendly workplace column - Birthday Leave

The aim of TGI is to build up a "caring the employee for a happily working" environment. To show the gratitude towards colleagues who work together with the company, each employee has one-day birthday leave from 2019. Until the end of 2021, the implementation rate of birthday leave is 80.57%, which shows the recognification of the benefit by TGI employees.

2021 Birthday Leave Welfare Implementation Result

Total number of having the Birthday Leave Welfare (A)	The number of applying for Birthday Leave Welfare (B)	Implementation Rate (B/A) (%)
3,422 people	2,757 people	80.57%

Implementation of parental leave

Taiwan Glass has always upheld its philosophy of "equally emphasizing work and family," and employees of both genders can apply to take parental leaves. From 2020 to 2021, 22 employees of Taiwan Glass applied for parental leave without pay: female employees accounted for 54.55% of the applications while male employees accounted for 45.45% of the applications, and 13 of them were reinstated in 2021 with a reinstatement rate of 59.09%. In 2021, the parental leave for employees without pay were handled in accordance to the legal regulations.

2021 Child Care Leave

	Male		Female		Total	
	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage
A. Number of Workers Scheduled for Reinstatement (=B+C)	10	45.45%	12	54.55%	22	100.00%
B. Number of Reinstated Workers	5	22.73%	8	36.36%	13	59.09%
C. Number of Workers that Resigned after Child Care Leave	5	22.73%	4	18.18%	9	40.91%
Reinstatement Rate (B/A) %	50.00%		66.67%		59.09%	

According to the statistics for unpaid parental leaves during 2020-2021, a total of 18 employees of Taiwan Glass were reinstated after their unpaid parental leaves in 2020, and the retention rate of in-service employees was 2021 is 94.44%.

2020~2021 Child Care Leave

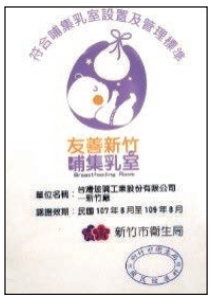
	Male		Female		Total	
	Number of people	Percentage	Number of people	Number of people	Percentage	Number of people
E. Number of Reinstated Workers after Child Care Leave in 2020	8	44.44%	10	55.56%	18	100.00%
F. Number of Reinstated Workers after Child Care Leave in 2020 that stayed for one year after their Reinstatement	7	38.89%	10	55.56%	17	94%
Retention Rate F/E %	87.50%		100.00%		94.44%	

Mother-Friendly Workplace

For pregnant women and women within one year after giving birth, we conduct a risk assessment of their work environment, categorize and manage their health conditions. Doctor visits are arranged to provide appropriate assessment and advice. We follow up regularly with a working mom and provide them with health education information based on their stages of pregnancy. Their workload/duties can be adjusted accordingly to ensure workplace safety. Pregnant employees at TGI have their dedicated parking spaces. Our facilities are also equipped with breastfeeding rooms where working moms can

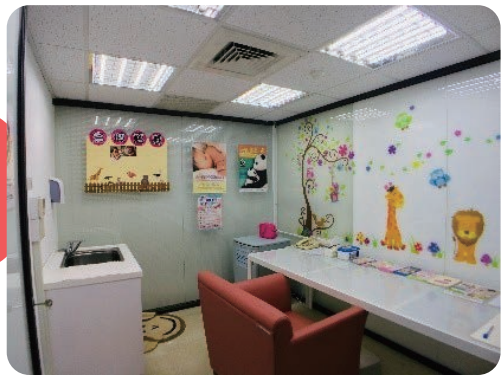
pump during working hours, allowing them to take care of their family and job at the same time.

TGI creates a friendly, welcoming and relaxing breastfeeding room with the soft colors. To make the mother feel comfortable, the room could be locked with the notice of occupying, and TGI provide the comfortable couches, breastfeeding pillows, breast milk refrigerator, pure water baby wipes, bottle sterilizer, spare breast milk bags and glass bottles. All items are free of charge and all the breastfeeding rooms are cleaned every day and the temperatures of the refrigerators are also monitored. TGI also provides breastfeeding related information, activities, and consultations. As a mother experiences physical changes during the pregnancy, TGI provides necessary support and arranges other experienced colleagues to help these new mothers. All in all, we strive to provide the friendliest workplace for mothers.



The certification of Headquarter and The Hsinchu Factory

Headquarter



Hsinchu Factory

Chanping Factory

Chanping Factory

Employee Benefits

Fair Performance Management System

To improve and recognize the performance of the employee, we assess our employees based on their education level, experience, expertise, seniority, and performances. Gender, race, religion, political affiliation, marital status and membership in unions/social association will not affect our employee assessments. All TGI employees receive regular performance assessments mainly based on their job performances. Their work efficiency and sense of responsibility are the core evaluation criteria.

The male-to-female ratio of a basic salary of TGI in 2021 was 1:0.95, and the overall difference was less than 0.05. The analysis of this minor difference reflected the differences in job content and qualifications. TGI upholds equal pay for equal work and does not differ by gender, race, religion, political party, marriage or union. In addition, the personnel unit continuously tracked and analyzed the salaries of the general staff, which was higher than the statutory salary by 155%. The average annual salary of non-executive full-time

employees is 717,000 NTD, and the median of the average annual salary of non-executive full-time employees is 680,000 NTD, which are both better than the average wages of glass industry.

Employee Benefit Committee

To provide adequate support to employees and ensure their living conditions, TGI provides or sponsors the promotion of relevant welfare programs in addition to providing basic protection according to the law and organizes the staff Benefit Committees to take charge (planning and implementing) of the benefit measures of all colleagues. The current welfare measures are as follows:

Employee Benefit and Welfare Measures

Health Care	Provide employee health examination that are better than requirement. TGI offers employees' family medical examination with discount Offer stationed doctor and nurse health services Implement the four major occupational safety plans and employee health management. Actively promote sports clubs and health seminars. Set up basketball court, fitness room, billiard room. Plan to launch after- work sports courses (employee interest survey).
Life Care	Provide with employee restaurant, dormitory, breastfeeding room Provide corporate cafeteria, dormitories, and breastfeeding rooms Half-price subsidies for employees' meals/ travel subsidies and subsidies for social activities Provide marriage and funeral gifts, childbirth gifts/gifts Provide family emergency leave Provide death pension
Holiday Care	Provide employee birthday leave Offer Lunar New Year, Dragon Boat Festival and Mid-Autumn Festival bonus Hold annual year-end banquet and provide the year-end bonus Offer May 1st Labor Day bonus
Learning Care	Develop the career development program and provide free foreign language courses. Provide employee self-training bonus Child education scholarships.
Insurance Care	Offer employees group life accident insurance that is superior to regulated requirement and the family of employees exercise the same price Offer employee travel/outbound travel safety insurance.

We encourage employees to form clubs, do exercise, or relax after work. Such activities allow employees to cultivate friendships, enhance their mutual understanding. In addition, the Changping Factory held a group activity in 2020, inviting colleagues from all departments to join the event, which increases interaction, relaxes the body and mind, and raises team cohesiveness. The headquarters established a "Sport Competition Club'' in 2020. Through various activities, we encouraged our employees to develop their interest in exercising, also provides numerous sports options. To combat COVID-19 and protect the health and safety of our employees, Taiwan Glass reduced the amount of high-contact events such as club events in 2021, and will plan relevant events based on the developments of the COVID-19 epidemic.

Retirement system

According to the Labor Standards Act and Labor Pension Act, TGI has formulated a retirement policy. Employees who joined TGI before June 30, 2005 (inclusive) are entitled to the old retirement system, of which pension is paid to the old retirement reserve account of the Central Trust Bureau on a monthly basis of 6%. The new pension is paid by the employer 6% to the employee's individual pension account. In addition, employees can choose to pay the pension ranging from 0% to 6% according to their own wishes. The coverage of the TGI employee retirement system is 100%. In addition to appropriating pension to the respective accounts regularly, TGI has a professional accounting consultant that precisely calculates the pension to ensure that the company appropriates enough pensions every month so that our employees can receive a pension after retirement. In 2021, 77 employees retired, with an average of 28.87 years of service. Senior supervisors were presented with medals from the chairman/president as a token of appreciation for their service over the years.

Old Retirement System

- The pension of old retirement system is paid to the old retirement reserve account of the Central Trust Bureau on a monthly basis of 6%.

New Retirement System

- The pension of new retirement pension system is paid by the employer 6% to the employee's individual pension account.
- Employees can choose to pay the pension ranging from 0% to 6% according to their own wishes.

Employee communication channel

Union

Taiwan Glass follows relevant laws and regulations such as the International Labor Convention and the Domestic Trade Union Law. Some factories have established labor unions as a channel for labor-management communication and can effectively convey the opinions of both parties. In September 2018, TG and the trade union signed a group agreement to lay a more solid foundation for labor-management harmony; in June and November 2019, the Lugang Plant was awarded the honor of Changhua County Government and the Ministry of Labor respectively, affirming that TG is promoting Efforts on labor-capital harmony. The trade union holds a member representative meeting once a year, elects qualified representatives through public voting, and holds regular meetings of directors and supervisors and regular meetings every 3 months. At the same time, set up employee electronic suggestion boxes, bulletin boards and contact telephones, so that ordinary employees can directly express their opinions, receive feedback immediately, and when necessary, assign relevant personnel to attend the meeting to respond to the motions in the meeting, as a follow-up improvement, the basis for coordination matters. At present, there are no labor unions in some factories. As of 2021, there will be a total of 1,207 labor union members.

Number of member participating in Labor Union in 2021

Factory	Hsinchu	Taichung
Male	804	299
Female	83	21
Total	887	320
employee	915	410
ratio	96.94%	78.05%

Note:
1. The Hsinchu factory does not contain foreign labor, and almost all domestic employees of the factory are union members.
2. The labor union of the Lugang factory was unable to provide relevant information.
3. There are no trade unions in Taoyuan Factory, Lukang Flatbed Factory and Zhangpin Factory.

2021 Member Congress

Taichung Member Congress

Hsinchu Member Congress

Lukang Plant won the Labor-Management Model Award from Changhua County 2021 Labor-Management Relations Association

Minimum Announcement Period for Operational Changes

If Taiwan Glass complies with the provisions of Article 11 or Article 13 of the Labor Standards Act to terminate the labor contract, the notice period shall be handled in accordance with the following provisions:

1. Those who continue to work for more than 3 months but less than 1 year shall be notified 10 days ago
2. Those who continue to work for more than 1 year but less than 3 years shall be notified 20 days ago
3. Those who continue to work for more than 3 years shall be notified 30 days ago

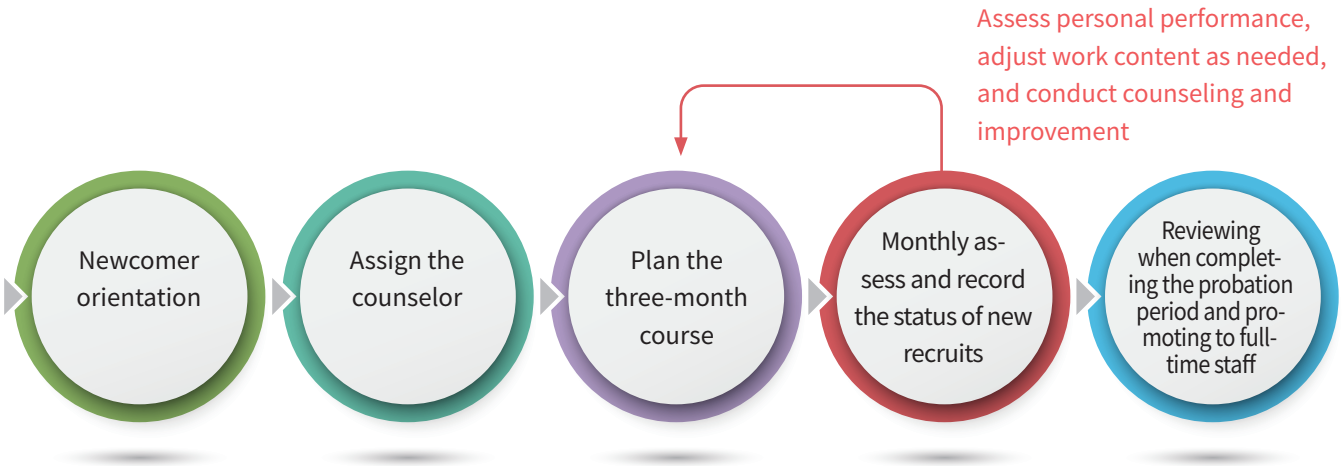
5.2 Employee Care & Development

We attach great importance to the career planning, personal development of our employees, and aim to develop professional talents and expect to convey the mission, vision and core values of TGI. TGI has established a comprehensive training policy to provide new and incumbent personnel diversified training experience ranging from common courses to professional courses, and even to management knowledge. Every year, TGI arranges courses according to organizational strategies and unit needs in order to increase the consciousness on human right, occupation safety, compliance, etc. Through systematic education and training, for example, standardization of workflow of staff employees, optimization of supervisory competence, and promotion of workplace safety and health education, and awareness to human rights, workplace safety and regulatory compliance; Besides, to respond to rapidly changing market demands, digital and information explosion generations, we cultivate optoelectronics, energy conservation, touch-responsive glass, to enhance the company's competitiveness and continuity of sustainable operation.

Education and Training System for TGI Employees

New employee orientation and education

1 Common Course (Including Group introduction, employee handbook and employee regulations, occupational safety and health education and training, human resources system, reading of professional documents, and the addition of "Administrative Regulations for the Prevention of Insider Trading" in 2020).



2 Professional Course (including course, factory internship)

In order to promote employee experience inheritance, tacit knowledge sharing and enhance the sense of honor of senior employees, in 2019, TGI introduced the "New Personnel Counseling System". Through the organization, culture, professional and skilled senior counselors, we provided newcomers the most direct and one-to-one guidance and teaching. With the same employee mutual assistance mechanism, new recruits can quickly integrate into the work environment and increase the retention rate. In 2021, there were 16 counselors in total. After the mutual discussion, all people were promoted to full-time staff at the expiry date of the trial period. Until December 31, 2021, the in-service rate is 100% which indicates that the counselor mechanism had shown certain results.

On-the-job education and training

1. Annual education and training plan: All units and departments report the needs for the courses at the end of the year to determine the planning and schedules of the courses for the following year.
2. Application for external training: Depending on the needs of each department, employees will be selected to participate in external training to strengthen professional knowledge.

Diverse skill training

According to the requirements of regulations and the independent proposals of the company's factories, TGI has set up a diversified development training course to enhance employee’s varios, considerable knowledge and skills:

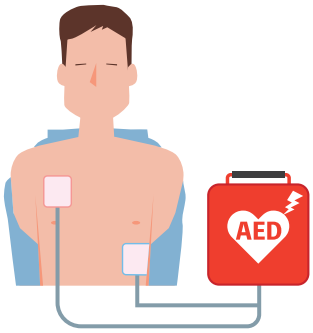
1. Legitimacy requirement: Information security course, Fire safety course, Personal data protection, Occupational safety and health advocacy, Workplace violence advocacy.

Course	Description of Item	Number of Events	No. of participants
Occupational Safety and Health Training	Help colleagues establish workplace safety awareness, analyze and introduce the causes of various disasters, avoid disasters and reduce risks, and improve workplace safety.	2 sessions/year	66
Self-defense Firefighting Team Training	Use exercises to hone skills and simulations in advance to ensure that colleagues we remain calm in critical situations, make correct judgments, and effectively reduce casualties and property losses.	2 sessions/year	42

The head office handles occupational safety and health training

2. Professional skill: Language courses, First aid course, Artificial Intelligence course, Crane/forklift truck operator training.

Heart-related diseases have been increasing in Taiwan recently. Thus, add AEDs (Automated External Defibrillators) and related courses were prepared in the TGI Headquarters in 2020 to boost the perception and ability to handle emergencies for creating a safe working environment.



Taichung plant conducts AED and CPR education training

AED Device

AED Introoduction and Lecture

TGI set up dedicated manpower and training units to plan all categories of courses, establish an annual training plan through professional curriculum planning, training and exercise programs.

To encourage youngsters to understand the industry and to join TGI in the future, the Taichung Factory has participated in the government's "Youth Flagship Program" and employed young people who were aged 15-29. The program was subsidized with 10 thousand NTD for the first 3 months. The Taichung Factory also joins the Ministry of Labor's industrial talent promotion plan. Within three years, an external lecturer can be

invited to lecture the course. What's more, the program also provides. Taiwan Glass established an education and training center, assigned full-time personnel to plan various types of education and training, formulate annual training plans, and cultivate the required glass-related technical and management talent using professional curriculums, training and practice. If the work requires other conditions such as education level, skills or licenses, experiences, the Plant Affairs Section will evaluate and select capable personnel: operators of cranes and forklifts should have qualified licenses to operate them. In 2021, the average number of education and training hours per employee of Taiwan Glass was 19.1 hours, which is an increase of 2.3 hours from 16.8 hours in 2020.

In 2021, TGI's general employee education training hours is 19.1 in average.

2021 TGI Staff Education & Training Statistics

Employee	Factory	Male		Female		Total	
		Number	Hours	Number	Hours	Number	Hours
Staff	Headquarter	20	154.5	21	105	41	259.5
	Taoyuan	245	6,850.5	79	2,554.5	324	9,405
	Hsinchu	566	8,255	81	1,092.8	647	9,347.8
	Taichung	232	2,924.5	30	274.2	262	3,198.7
	Lukang	607	8,616.5	177	2,206.4	784	10,823
	Lukang Flat Glass	114	1,735.5	7	93.6	121	1,829.1
	Changpin	154	9,798.6	23	296.2	177	10,095
	Total	1,938	38,335.1	418	6,622.7	2,356	44,957.8
	Average Hours	19.8		15.8		19.1	
Junior-level Manager	Headquarter	28	166.3	47	240.5	75	406.8
	Taoyuan	152	4,226.8	14	387.5	166	4,614.3
	Hsinchu	293	6,263.4	12	351.2	305	6,614.6
	Taichung	184	3,229.7	1	41	185	3,270.7
	Lukang	206	2,796.2	16	172	222	2,968.2
	Lukang Flat Glass	69	1,472.9	1	6	70	1,478.9
	Changpin	83	7,291.7	1	7	84	7,298.7
	Total	1,015	25,447	92	1,205.2	1,107	26,652
	Average Hours	25.1		13.1		24.1	
Mid-level Manager	Headquarter	16	119.5	8	70	24	189.5
	Taoyuan	1	15.5	0	0	1	15.5
	Hsinchu	12	12	1	7	13	19
	Taichung	10	101.5	0	0	10	101.5
	Lukang	1	4	0	0	1	4
	Lukang Flat Glass	2	21	0	0	2	21
	Changpin	2	11	0	0	2	11
	Total	44	284.5	9	77	53	361.5
	Average Hours	6.5		8.6		6.8	
Senior-level Managers Executives	Headquarter	2	4.5	0	0	2	4.5
	Changpin	1	3	0	0	1	3
	Total	3	7.5	0	0	3	7.5
	Average Hours	2.5		0		2.5	

In 2021, the Hsinchu Plant continued cooperating with the Ministry of Labor Workforce Development Agency's employee charge and take-off program, and conduct courses such as development and training courses for managerial talent. The cooperation between the trade union and the government made it possible for the implementation of the charge and take-off and industrial talent promotion programs. Ordinary employees and senior executives alike are more than welcome to participate in these training sessions, and those who have completed the training will be issued certificates to recognize their efforts. We hope to break the mold of the traditional manufacturing industry, and create a new opportunity and image for Taiwan Glass.

Course name	Number of participants	Training pass rate
Statistical Process Control (SPC) Class	36	100%
Managerial Talent Development Training Class	23	
Common Core Competencies Class	27	

Managerial Talent Development Training Course

SPC statistical process control class

Common core function class

5.3 Safe Workplace and Health Promotion

Occupational safety and health committee

In order to create a safe and secure working environment, Taiwan Glass has set up occupational safety committees in the head office, factories, and implemented a communication mechanism. The headquarters and all factories of TGI all have a Safety and Health Committee, which provides an open channel for communication. 1/3 of the committee members are employee representatives, as required by law. The committees hold quarterly meetings to discuss safety and health-related issues. The meetings serve as a formal platform allowing horizontal communications between all departments and vertical communications between the management and the employees.

Our Occupational Safety and Health Committee's mission is to formulate safety and health-promoting strategies, establish company-wide safety, environmental and health-promoting objectives and to implement and revise relevant plans when necessary. The headquarters and the factories all have dedicated Occupational Safety Management Units which conduct occupational safety inspection every month to detect a problem and take precautionary measures as early as possible. The Occupational Safety Unit in all facilities are committed to promoting environmental safety & health as well as risk control. They also report to the highest-ranked factory supervisor, relevant authorities and Employee Representatives during Safety and Health Committee sessions every quarter. The "5S" plan provides education and training to new and current employees to enhance their working safety awareness and ability to handle situations at work and prevent accidents to ensure staff safety and health and a safe and healthy working environment.

Main Issued Discussed During the Occupational Safety and Health Committee Sessions:

01 To make recommendations on occupational safety and health policies.

02 Coordinate and propose occupational safety and health management plan.

03 Review the safety, health education and training implementation plans.

04 Review the operational environmental monitoring plan, monitoring results, and measures.

05 Review the health management, occupational disease prevention and health-promoting measures.

06 Review various safety and health proposals.

07 Review the automatic inspections and safety & health audits of all business units

08 Review the disaster prevention measures of machinery, equipment, or raw materials and materials.

09 Review the occupational injury investigation reports.

10 Assess the on-site safety and health management results.

11 Review the operational safety and health management matters in contracted work.

12 Other matters related to occupational safety and health management.

Committee Member/Employee Representative Ratio in 2021

Item/ Factory	Headquaters	Taoyuan	Hsinchu	Taichung	Lukang	Changpin	Total
Committee Members	14	18	15	19	10	29	105
Employee	6	7	6	7	5	13	44
Representatives (%)	42.9%	38.9%	40.0%	36.8%	50.0%	44.8%	41.9%

Note: Based on the law, Lugang flat glass factory does not need to establish a labor safety and health committee, but it continually promotes employee education and training programs every year to strengthen the occupational safety and health awareness.

Occupational Safety Management

The objective of the disaster management is to reduce the disability frequency (FR) and the severity of the disability injury (SR) by 20%, as the starting point of the zero-disaster target and as an indicator to enhance the safety activities of the factories. The operational mechanism of occupational accident management is aimed at accidents, traffic accidents and false alarms. In 2021, TG used these programs in hopes of providing employees with a healthy and safe workplace.

Name of Project	Description
Fire Fighting Drill	Use exercises to hone skills and simulations in advance to ensure that colleagues we remain calm in critical situations, make correct judgments, and effectively reduce casualties and property losses.
AED	The number of people in Taiwan suffering from heart-related diseases have increased in recent years, and setting up AEDs helps improve the on-site first-aid capabilities of the workplace.
COVID-19 Education	The Company uses internal announcements of relevant measures for COVID-19 prevention, rolling revisions of various government regulations resulted in the Company establishing a real-time reporting mechanism to reduce the risk of employees contracting COVID-19.
On-site Health Services	Doctors and nurses provide on-site services such as organizing, analyzing, and saving health inspection reports; learning about the health status of the Company’s colleagues; provide health education for high-risk colleagues; arrange follow-up tracking and treatment; regular care, and plan and promote health promotion events.

Emergency notification and Management

To deal with accidents, traffic accidents and false alarms, Taiwan Glass established an operational mechanism for managing occupational accidents that actively implements procedures for reporting, investigating, and improving accident prevention. In addition, the Company also conducts occupational safety training courses. The Company held a general safety and health training session for in-service employees in April, and conducted training on the prevention of occupational hazards in noisy places and the use of earplugs in June. The 2019-2021 safety indicators are as follows:

Item/Year	Gender	2019	2020	2021
Disabling Frequency Rate (FR). Total Disabling Incidents (more than 8 hours of rest) x 1,000,000/ Total Manhours	Male	7.12	5.82	7.25
	Female	4.48	5.34	4.66
	Total	6.73	5.75	6.85
Disabling Severity Rate (SR) Days Charged x 1,000,000/Total Manhours	Male	159	166	215
	Female	76	179	100
	Total	147	168	197
Absence Rate (AR) Total number of days lost / Total days Worked	Male	0.01	0.01	0.01
	Female	0.02	0.02	0.02
	Total	0.01	0.01	0.01

Note: Total days of absentee include the number of days of leave, sick leave, and work-related injury leave.
(1)Sick leave (including unpaid sick leave, half-pay sick leave, menstruation leave): 40,304 hours
(2)Leave (including family care leave): 19,840.5hours
(3)Work-related injuries: 13,294.5 hours
(2)Total working hours: 8,180,016 hours

TGI has continued to cooperate with the hired Warwick Mayall, a workplace safety consultant from the UK. TGI hold an annual zero-incident competition. Awards including Outstanding/Excellence/Achievement are given by Chairperson/President to the zero-incident plants evaluated comprehensively with environmental safety indicators..

Safety consultant visiting Lukang Flat Glass Factory

Taiwan Glass Annual Zero Incident Competition Medal

Workplace safety principles:

01 "Employee"isthekeytothesuccessofasafetyandhealthmanagementprogram.

02 Allinjuriesandoccupationaldiseasescanbeprevented.

03 Everyemployeehasaresponsibilitytopreventpossibleinjuriesandillnesses.

04 Emphasis on safety is one of the conditions of employment, and each employee must bear the responsibility for workplace safety.

05 Workplacesafetytrainingisthefoundationforestablishingasafeworkplace.

06 Acontinuousworkplacesafetyauditisnecessary.

07 Allsecuritydeficienciesmustbecorrectedimmediately.

08 Investigatingpossibleaccidentsisjustasimportantasinvestigatingaccidentsthathave occurred.

09 Safetyafterworkandsafetyatworkareequallyimportant.

10 Preventing workplace injuries can bring effective benefits.

The Taichung factory reviewed the last week’s occupational safety incident at the factory affairs meeting every Monday. The unit where the incident occurred reported to the supervisors of all units and proposed improvement measures. The work safety department and other departments will also give suggestions if there isn't any incident in the factory. It will collect other major occupational safety incidents from time to time for simulation, analysis and review. The Changpin plant is especially aimed at evaluating and managing risks for people, machines and improving equipment and protective equipment for high-risk projects to prevent potential hazards as much as possible. Lukang Plant regularly organizes traffic safety programs for foreign employees to avoid possible commuting accidents.

In addition to occupational safety and health-related training, there are related training, drills, and advocacy courses for emergency events in the factory. For example, hire professionals to conduct CPR courses and AED courses in the factory, or additionally promote the concept of fire prevention, escape and emergency response to employees.

In May and November 2021, the Lukang Factory conducted two emergency response drills with a total of 68 people. In addition, it also conducts occupational safety training publicity courses, holding general safety and hygiene on-the-job training in April, and conducting publicity on the prevention of occupational hazards in noisy places and the use of earplugs in June.

Items listed below are the main contents of the fire drill:

01 general knowledge of fire prevention, fire fighting, and self-rescue escape methods

02 CPR and AED training and hydrant performance, instructions, and drills

03 fire extinguisher functions, instructions, and drills

04 fire hydrant functions, instructions, and drills

Factory	Number of fire drills (2 Times / Year)	Number of participants (People)
Headquaters	2	42
Taoyuan	2	115
Hsinchu	2	159

Factory	Number of fire drills (2 Times / Year)	Number of participants (People)
Taichung	2	30
Lukang	2	68
Changpin	2	74

Hsinchu Factory conducts fire fighting training on-site operation

Taoyuan Plant conducts fire prevention knowledge promotion

Operation Instructions for Fire Fighting Equipment in Lugang Plant

In order to enhance employees' work safety and health knowledge, in addition to conducting occupational safety and health education training, emergency response and fire fighting training, and full-time off-site training for newly recruited employees, TGI conducts monthly environmental safety and health education training for employees in all units. Taoyuan factory conducts occupational safety and health education and training for contractors and supervisors in the factory and conducts course lectures on common lack of work safety and regulations-related requirements.

2021 Zhangpin Factory Occupational Safety and Health Promotion Course

2021 Taichung Plant Occupational Safety and Health Promotion Course

To also improve the safety and health competences of mid-and-senior managers, the Hsinchu Plant conducted "Category C Occupational Safety and Health Business Managers" training in 2021. A total of two training sessions were held that had a total of 81 participants, they all took the test and the pass rate was 100%.

Number of participants	Number of people who passed the test	Pass rate
39	39	100%
42	42	100%

Occupational safety and health business manager

Labor Safety Inspection and Legal Compliance

There were no risks of forced or compulsory labor in any of Taiwan Glass' internal operations, and the relevant labor conditions were handled in accordance with the relevant provisions of the Labor Standards Act. There was no use of child labor, no complaints regarding major labor-related issues, and no discriminatory behavior in 2021. The list of relevant inspections in 2021 and the follow-up improvement methods are as follows:

Plant	Labor Safety Inspections and Regulatory Violations	Penalty Amount	Description of Event	Follow-up Improvement Measures
Taoyuan Plant	**Before dismantling the structure, the unstable parts should be stabilized with support.**	$ 60,000	A worker performing repairs was hit by a collapsed gypsum board and lightweight steel column, which resulted in the worker sustaining a right shoulder contusion and being hospitalized for treatment of traumatic subarachnoid hemorrhage.	1 First remove the lightweight aluminum that has not fallen off to prevent them from hitting people. 2 Coordinate with relevant engineering personnel and occupational safety personnel to determine whether or not the on-site working environment is safe for construction. 3 Before carrying out on-site construction, check to see if there are any potential risk factors, and immediately remove and reinforce those factors. 4 Before carrying out construction, check again to see if personal protection equipment and on-site safety measures are functioning normally. 5 Pay attention to see if there have been any changes to the construction environment when carrying out construction, and suspend and remove any changes that have occurred.
Hsinchu Plant	**Violations of the Occupational Safety and Health Act**	$ 60,000	A worker did not suspend the operations of the bottle pusher to then carry out maintenance and adjustment on the spot, which resulted in a pinched left finger.	1 Review operational safety standards, and carry out hazard identification and risk assessment. 2 When examining and repairing equipment, the equipment should be powered off and Lockout-Tagout (LOTO) before carrying out the operation.
	Violations of the Occupational Safety and Health Act	$ 60,000	When the operator was engaged in the packaging and sorting of the goods, the operator did not pay attention to the rear and was crushed by the forklift.	1 Set up traffic control personnel in the operation area of the forklift 2 Install batches of arced LED warning lights at the rear of the forklift to prevent the forklift from not being visible.
	Violations of the Occupational Safety and Health Act	$ 60,000	The operator tested the air cooling position of the preliminary mold with bare hands instead of using without using tools, resulting in a pinched thumb.	1 Review operational safety standards, and carry out hazard identification and risk assessment. 2 he testing of the air cooling position for the preliminary mold should be done using a brush, and it is forbidden to test using bare hands.
Lukang Plant	**Violations of the Occupational Safety and Health Act**	$ 60,000	When placing trays on racks, the top of the beam should be dropped from the rack a as it rolls forward. Workers should then use their right hand to pull and stop the beam from rolling. When the worker tried to stop the beam, it resulted in the worker’ s right hand being crushed and fractured.	1 Revise the ISO document for handling vehicles, clearly mark the operation procedures and precautions during education and training sessions, and then educate all employees 2 Raise the stoppers at the front/rear end of the tracks 3 The annual education and training session of the Plants should be revised once every quarter instead of once every year to improve personnel safety regulations

Taiwan Glass Occupational Safety and Health Highlights Column

In order to provide a safe and healthy workplace environment for Taiwan Glass' employees, we provide employees with safe working environments by actively improving their safety with improving equipment safety, reviewing risk assessments, and optimizing the content of safety education and training. In 2021, TG Hsinchu Plant installed batches of arced LED warning lights at the rear of its forklifts to improve the safety of the forklifts. The first batch of 16 forklifts completed the installment, and the second batch of 51 forklifts also completed the installment as all 67 forklifts of the Plant were installed with LED taillights to prevent the forklifts from not being visible.

Forklifts are equipped with arced LED lights

In addition, TG Hsinchu Plant has set up traffic control personnel in the forklift operation area to prevent accidents in the future. To effectively prevent future risks, TG Hsinchu Plant requires forklift operators to receive special operational safety and health education and training, and the Plant enhanced the promotion of safety when operating forklifts. We also encouraged migrant workers to apply for licenses to operate forklifts with loads greater than kiloton, and the Plant held the migrant worker forklift technician exam in 2021. A total of 25 employees applied for the exam and 24 employees have passed the exam. The Plant is using various measures to actively reduce the occurrence of related risks in the future.

Forklift License Exam for Migrant Workers

Employee Health Promotion and Management

Health Risk Issues	Amount of Impact	Control Measures	Actual Results
Employee Health	High Risk	1 Consultation services by on-site doctors and nurses. 2 Provide sphygmomanometers for colleagues to measure and monitor their blood pressure. 3 Health check items that are better than the ones stipulated in laws and regulations. 4 Management of the health of new and in-service employees by level. 5 Sports Club Subsidies.	1 Handle 24 on-site health services. 2 35 employees consulted the doctors and nurses for health services. 3 New health check items: prostate cancer screening, ovarian cancer screening, uric acid testing, and blood urea nitrogen testing. 4 Passed the "Healthy Workplace Certification" by the Ministry of Health and Welfare Health Promotion Administration. 5 warded with "Sports Enterprise Certification" by the Ministry of Education Sports Administration.
Workplace Safety	Moderate Risk	1 Implement the Four Major Programs for Occupational Safety 2 Regularly hold occupational safety and health committee meetings. 3 Set up AED first aid 4 Fingerprint identification system controls the access of Company personnel. 5 The office area, entrances and exits of passageways are well illuminated. 6 Security guards are present to entrances to control the traffic in and out of the Plant 7 Handle occupational safety and health education and training for new and in-service employees	1 The implementation rate of the Four Major Programs for Occupational Safety is 100%. 2 Occupational safety and health committee meetings were held as scheduled. 3 Employees, customers, and firms abide the Plant's access control measures. 4 There were no incidents of intrusion or injury. 5 Occupational safety and health education and training for new and in-service employees was attended by a total of 89 employees that accumulated a total of 267 hours of training.
Maternity Health Protection	Moderate Risk	1 Set up a feeding room for colleagues to use. 2 Provide maternity leaves, accompanying prenatal visit leaves and paternity leaves, prenatal visit leaves, and breastfeeding leaves. 3 Applications for parental leave without pay.	1 The rate of reinstatement without pay for parental leave is 100%. 2 There were 15 accompanying paternity leaves and a total of 112 hours of leave. 3 Passed the "Excellent Breastfeeding Room Certification" by the Taipei City Government Department of Health.

Adhering to the concept of "employees are the most important asset", Each plant of TGI set up health centers, equipped with professional factory nurses and special on-site service specialists to jointly promote health management programs including health care, special protection, and health promotion.

2021 Headquarters on-site health consulting services

Recruits must complete the physical examination before registering, and use the report results as the basis for the allocation of personnel to carry out health classification management, health education, and tracking. Regular employees undergo health checkups every two years; those engaged in special hazard operations will undergo special medical checkups and conduct four health and health education and training sessions each year. The full-time factory nurses will organize, analyze, and save the inspection reports. Health status, giving health education to high-risk groups of health, arranging follow-up and treatment, regular care, and assessing the suitability of the current job, assisting in work adjustment if necessary, integrating health status to plan and promote health promotion activities. According to the season and current epidemic situation, TGI regularly provides health education information through the electronic bulletin board. To assist colleagues in prevention, TGI recommends that colleagues in high-risk groups vaccinate and apply the correct information to personal home care for colleagues to click on.

Our health center is equipped with a full-body composition monitor, which can measure body weight, body fat, body age, BMR, visceral fat and the subcutaneous fat and skeletal muscle of the entire body, arms, torso, and feet.

Based on the relevant provisions of the “Regulations of the Labor-Health Protection”, TGI regularly arranges employees to receive physical examinations to provide a healthy and hygienic working environment for employees. The company has commissioned professional physicians to manage the employees' health base on the physical examination results. In 2021, there were 2,171 times general health check-ups and 2,674 special health check-ups, 4,845 times in total.

Year/Item	Special physical examination (person-time)										General physical examination (person-time)	Total
	High Temperature	Dust	Noise	N-Hexane	Lead	Chromic Acid And Its Salts	Ionizing Radiation	Nickel And Its Compounds	Ethyl Mercury Compound	Subtotal		
Headquarter	0	0	0	0	0	0	0	0	0	0	0	0
Taoyuan Factory	0	27	303	0	0	0	0	0	0	330	0	330
Hsinchu Factory	214	165	618	0	62	2	3	64	2	1,130	1,095	2,225
Taichung Factory	161	167	19	0	0	0	92	0	0	439	1	440
Lukang Factory	0	20	603	5	0	0	0	0	0	628	916	1,544
Lukang Flat Factory	58	47	0	2	0	0	38	0	0	145	159	304
Changpin Factory	0	2	0	0	0	0	0	0	0	2	0	2

Due to the high temperature working environment in the kiln area of Taichung Plant, an "Abnormal Workload Promoting Disease Prevention Plan" has been formulated, and relevant prevention and improvement measures have been taken according to the plan to ensure that employees' working hours, rest and vacation conditions are in line with government labor Norm, so that employees achieve physical and mental health and family balance. In 2020, both the Taoyuan Plant and the Taichung Plant will conduct special health inspections for the operating environment of each plant, in order to carry out special health checks for high risks affecting human health, such as: high temperature, noise, dust and ionizing radiation. In 2021, the Hsinchu plant will add two new health check items, "nickel and its compounds" and "ethyl mercury compounds".

Health check of Hsinchu factory employees

Health check of employees in Taoyuan factory

For employees who work shifts or work too long in each unit and have risk factors for cardiovascular diseases such as overweight, smoking, abnormal blood pressure, diabetes, etc. The scale screened out potential risk groups, and based on the collected data to conduct relevant work assessment, physicians made diagnosis, referral for treatment, health education, and recommended work adjustment and restriction if necessary, and continued tracking to maintain the physical and mental health of employees and ensure interests of the company.

In addition, Taiwan Glass also installed a "Weight and Body Composition Monitor and Body Scanner" in the Health Room (which measures body weight, body fat, body age, basal metabolic rate, visceral fat; the subcutaneous fat and skeletal muscle of the entire body, arms, body, and feet) for employees to manage their health and weight loss.

Create a safe and healthy workplace for staff

In 2021, it will continue to be affected by the epidemic. In order to cope with the epidemic, Taiwan Glass will continue to implement epidemic prevention measures in employee working environment, education and training, and employee attendance.

Implementation	Objective	Excution	Achievement
Online attendance system	Reduce the risk of transmission by fingerprint	Open online attendance system access	The total number of online attendances reaches 50,000 times till December 2021
Temporary close staff restaurant	Avoid talking while eating and preventing covid-19 transmission	Due to covid, temporary close staff restaurant	Implementation with 100%
Entry requirements	Filter the possible covid cases by measuring body temperature	Having an infrared thermometer to screen people's body temperature and identify any condition will notice the person with their healthcare provider.	Monitoring the staff, vendors, and clients' body temperature by infrared sensors.
Provide sanitizer	Clean frequently touched surfaces and keep good hygiene prevents the spread of Covid	Provide sanitizer and rubbing alcohol for bathroom uses	Put sanitizing in prominent places for staff, vendors or clients
Virtual meeting/interview	Prevent employees from gathering in groups	Provide meeting rooms, online software, and related facilities	Due to covid, we replaced physical meeting with virtual from preventing employee gather

Elevator buttons protective cover	Reduce the risks for COVID-19 transmission	Require custodial staff regularly cleaning and disinfecting public space	Avoid the virus stay on surface and regularly cleaning and disinfecting
Covid sick leave	Employees who appear to have symptoms will offer them sick leave and notify their supervisor and stay home	Notify their supervisor when staff have any symptoms	The total number of Covid sick leave reach 19,290 hours till December 2021.
Actively care for employees	Provide individual care to the employees to get rid of their doubts and insecurities	Internal announcements promote the latest COVID-19 prevention information, make rolling revisions to the prevention policies for COVID-19, and provide norms that are tighter than the current legal regulations	All colleague follow the Company's COVID-19 prevention policies, and abide by relevant regulations
High-risk Colleagues working from home	Have colleagues from high-risk areas work from home to reduce the risk of contracting COVID-19	Pay attention to the information of the Central Epidemic Command Center (CHCC), have colleagues carry out risk management and control in their residences, and provide software and equipment support for colleagues in high-risk areas to work from their homes.	100% cooperation from our colleagues
Add partitions	Reduce the risk of droplet infection during physical meetings or face-to-face conversations	Adding partitions at conference venues	Colleagues, firms, and customers have all implemented measures in accordance with the regulations

Hsinchu Factory using an infrared thermometer to checkmeasure employee's body temperature

Headquaters using an infrared thermometer to checkmeasure employee's body temperature

Put sanitizing hand rub dispensers in prominent places around the workplace

Provide sanitizer in the restroom for toilet seat

Put the elevator buttons protective plastic cover

Online interview instead of a physical one

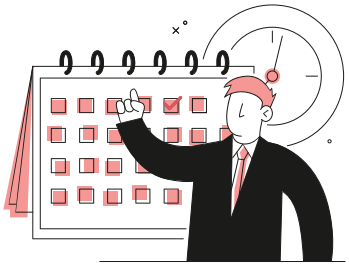
Taiwan Glass Plants have also actively promoted COVID-19 health education for migrant workers, and controlled cross-border traffic to reduce the risk of contracting COVID-19.

Implementation of Measures	Impact Range	Execution Method	Implementation Results
Enhance the promotion of COVID-19 related information and health education concepts to migrant workers	Enhance the health education and COVID-19 related knowledge for migrant workers.	Created a LINE group for migrant workers that provide daily updates COVID-19 related information, and installed hand sanitizers at the entrances and exits of the dormitories.	The willingness of the migrant workers to get vaccinated increased after the LINE group was created.
Implement Infrared Thermometers	To avoid the risk of contracting COVID-19 when responsible personnel are required to come into close proximity with all employees and guests entering the Plants, and measure temperature measurements by using forehead thermometers	All employees and guests entering the Plants can measure their body temperature by aligning themselves with the infrared thermometer at the designated location, and the thermometer will issue alerts if there is an abnormality.	Been in use since November 2020. Employees that have a fever should immediately return home and rest.
Guests and outsourced personnel who enter the Plants and do not have proof of receiving 3 doses of vaccines are required to undergo rapid testing before entering the Plants	In order to reduce the incidence of contracting COVID-19 at the Plants, personnel access will be controlled during the peak of the COVID-19 epidemic	Employees entering the Plants are required to measure their body temperature and undergo disinfection with alcohol. A non-company personnel entering the Plants for business purpose needs to scan the QR Code and present a certificate of receiving 2 doses of COVID-19 vaccines or rapid-test certificate within the past 3 days.	No outsourced employees were quarantined or diagnosed with COVID-19.

Caring and Cherish

Expatriate

- Follow the covid related government policy and reduce the number of travel
- Recognize staff effort due to covid period, and appreciate their unique contributions to TGI so that the company rewarded by giving credit and bonus.
- TGI offers coronavirus-related costs (included: salary of the quarantine period, quarantine hotel fee, PCR test fee, etc.)
- Cause to the covid period, the none redeem flight purchase TGI rewarded by giving bonus.

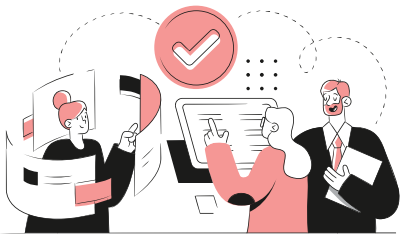


Domestic

- Staff could take sick leave of self-quarantine or self-health management
- Staff could apply for leave to take care of their family member who gets covid or any related symptoms

Recruitment and Selection

- Due to covid, alter the physical interview to the virtual platform to reduce risks for virus transmission. If physical touch is necessary, we will make sure people wear face masks, check their body temperature, use hand sanitizer, etc.



Eduction and Training

- Alter the physical training to the virtual platform like films to control the place with the necessary crowds and reduce the risk of infection.
- Make sure employees will wear face masks, use hand sanitizer with alcohol, and measure body temperature.
- TGI will provide the latest update of covid information and establish policies and practices.

Sports Enterprise

In 2019, Taiwan Glass was awarded the Sports Enterprise Trophy

Adhering to the concept of "employees are the most important asset", TGI continuously promotes various sports clubs, courses, lectures, etc., and actively encourages colleagues to exercise after work. Through the call of club activities, many colleagues have been infected by the atmosphere and joined in one after another. Exchanges and discussions not only enhance the emotions between each other in the moment of sweating but also relax the body and mind and promote their health. Affected by the new crown epidemic in 2021, Taiwan Glass will suspend the planning of related sports activities. After the epidemic situation has eased, it will be handled according to the actual situation.

Taiwan Glass Sports Enterprise Medal

In order to promote the importance of spontaneous sports, and to take root in sports concepts, TGI participated in the selection of "108 Sports Enterprise Certification of the Ministry of Education". Under the competition of many companies, it stood out and won the certification, indicating that each factory is in sports. The hard work is obvious to all, highlighting the core value of "Employees are the most important asset". In the future, we will continue to promote sports concepts and create a sports atmosphere, so that healthy colleagues will become the driving force behind the advancement of TGI.

Healthy Workplace Certification

In 2019, TGI won the "Healthy Workplace Certification" issued by the National Health Administration of the Ministry of Health and Welfare, and valid for three years. In 2022, Taiwan Glass won the "Healthy Workplace Certification" again. The company is committed to creating a comfortable, healthy and safe workplace environment so that all TGI colleagues "will be happy to work and enjoy life."

The Taipei Head Office was awarded the " Healthy Workplace Certification "

Changpin Factory was awarded the "Healthy Workplace Certification"

Plan to Prevent Disease Caused by Unusual Workload

TGI keeps track of and evaluates risks of our employees' health conditions, nature of work (shifts, night shifts, long work hours and unusual workload) and work hours. For employees with potential health risks, TGI arranges for employees to provide them with health education or refers them to seek medical assistance from doctors.

Changpin Factory Stress Relief Lectures

Changpin Factory Stress Relief Lectures

Exceptional Workload Improvement Flow Chart

Overwork self-evaluation survey

↓

Analyze survey result and determine the high-risk group

↓

Promotion and management of the high-risk group's health conditions

1. Individual consultation with the on-site doctor, who will keep records of these consultations
2. Organize health-promoting seminars on overwork, high blood pressure, blood sugar, blood lipids and other health-related issues

↓

Evaluate and adjust accordingly

Phase 1

- Conduct health examinations and health education

Phase 2

1. Follow up with employees with health conditions
2. Evaluate work responsibilities and adjust accordingly
3. iscuss in meetings to formulate a policy accordingly

Man-caused hazard prevention implementation instructions

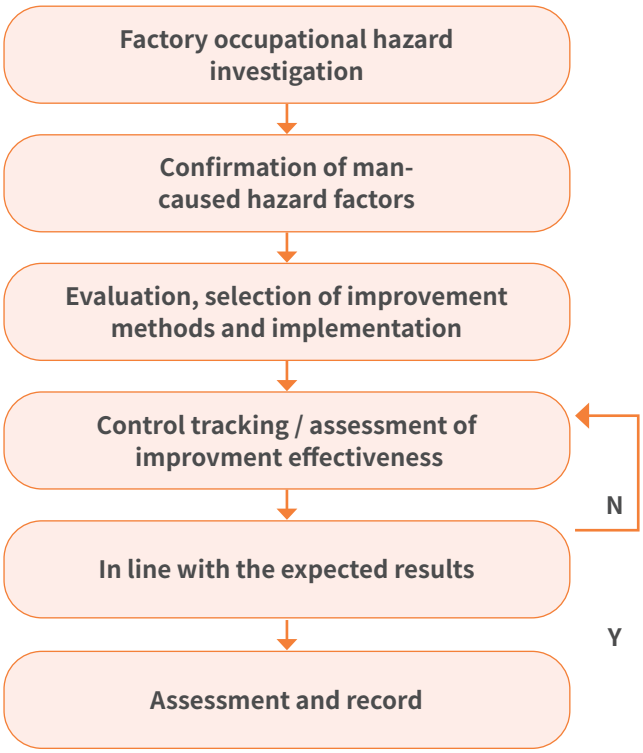
Data collection, analysis, and hierarchical management are implemented according to the work type of colleagues. TGI proposed improvement methods and health promotion to reduce musculoskeletal injuries, improve the work environment, prevent man-caused harm and avoid repeated musculoskeletal injuries to establish a safe and healthy workplace. For example, the procedures of the chopped strand are as follow:

1. The on-site doctor accompanied the chopped strand managers to inspect storage and delivery units and observe how personnel handle glass products.

2. The height of the table that on-site personnel handles the finished glass product is above the waist and below shoulder, which fit the ergonomic work area. The space for handling the product is spacious to ensure correct posture. Products weighing more than 10 kg will be handled by a group of two or more people according to the exact weigh. The work is repetitive, so the prevention of man-caused harm is necessary.

3. The doctor guides the correct handling posture at the site and recommends handling the finished glass products and indeed wearing protective equipment to prevent glass cuts and related musculoskeletal disorders.

Process of man-caused risk analysis and preventio



Chanping- Ergonomic Risk Lecture

Chanping- Ergonomic Risk Lecture

CH6
Social and Community Care

6.1 Contributions to the Society

6.2 Local Engagement

ENVIRONMENT SOCIETY GOVERNMENT

Achievements of Community Care in 2021

2,693 people **31.05 million**
Since 2000, the Taiwan Glass Education Foundation has rewarded 2,693 college students and awarded a total of RMB 31.05 million in scholarships.

120 people
A total of 120 scholarship recipients were awarded in 2021, each with NTD 10,000.

53.20 million
Taiwan Glass' total social donation in 2021 is 53,200,000 dollars.

52 bags
In 2021, Taiwan Glass donated 52 bags of blood.

6.1 Contributions to the Society

To give back to society, TGI founded Taiwan Glass Foundation with the purpose of rewarding young students for their efforts in learning and supporting cultural and educational activities. Since its establishment in 1989, in addition to co-organizing cultural and educational activities, it has awarded 2,693 college/university students with a scholarship of 31.05 million NTD.

Taiwan Glass Foundation was invited by Xuexue Foundation to collaborate on the "Chinese Zodiac Exhibition". With Chinese Zodiac as the theme, domestic and foreign artists were invited to participate. The exhibition was held in Taipei and Kaohsiung and artworks are sold for fundraising. The fundraising proceeds were all invested in the Taiwanese cultural color education courses across counties and cities. As a result, Taiwan Glass Foundation won the 14th Art and Business Award for devoting to Art and Culture.

The Art and Business Award is an award awarded by the Ministry of Culture. The purpose is to pay tribute and praise to the enterprises, groups, or individuals that support the culture and art causes. Cultural literacy is an important backing and driving force for a country. The integration of government and non-governmental resources not only stimulates the participation of corporate groups in arts and cultural activities but also enables the growth and promotion of cultural power and becomes an important soft power of the country.

TGI is committed to transforming social support for us into actions that contribute to the people. This award is an affirmation to us, and it is also the driving force for continuous feedback to society in the future.

Chinese Zodiac Artworks

Art and Business Award from the Ministry of Culture

Taiwan Glass Foundation Activities

Year	Activity	Location	Descriptions
2021	Scholarship	Taipei City	120 students awarded scholarships, each issued NTD 10,000.
2020	Scholarship	Taipei City	50 students awarded scholarships, each issued NTD 10,000.
2019	Scholarship	Taipei City	90 students awarded scholarships, each issued NTD 10,000.
2018	Scholarship	Taipei City	90 students awarded scholarships, each issued NTD 10,000.
	Art Exhibition	Kaohsiung City	Collocated and sponsored the "Chinese Zodiac Exhibition".
2017	Scholarship	Taipei City	80 students awarded scholarships, each issued NTD 10,000.
2016	Scholarship	Taipei City	140 students awarded scholarships, each issued NTD 10,000.
2015	Scholarship	Taipei City	140 students awarded scholarships, each issued NTD 10,000.
2014	Scholarship	Taipei City	129 students awarded scholarships, each issued NTD 10,000.
2013	Scholarship	Taipei City	143 students awarded scholarships, each issued NTD 10,000.
	Culture & Art	Taipei City	131 Beautiful Taiwan (Taiwan from the Air) movie tickets.
2012	Scholarship	Taipei City	196 students awarded scholarships, each issued NTD 10,000.
	Art Exhibition	Taipei City	Co-organized and sponsored "Alvaro Siza: The Beauty of Function".
2011	Scholarship	Taipei City	180 students awarded scholarships, each issued NTD 10,000.
	Art Exhibition	Taipei City	Co-organized and sponsored "Alvaro Siza: The Beauty of Function".
2010	Scholarship	Taipei City	160 students awarded scholarships, each issued NTD 10,000.
	Movie Premiere	Taipei City	Co-organized special screening for "Let the Wind Carry Me" with 200 attendants. The foundation used this opportunity to promote excellent Taiwanese movies and develop more talents in the movie industry.
	Green Building Lecture	Taipei City	"Taipei Beautiful: Green Building Lecture": 300 participants. The foundation worked with the Department of Urban Development, Taipei City Government on this urban renewal plan. In addition to renovating old houses, this project also aims to make buildings more environmental-friendly.

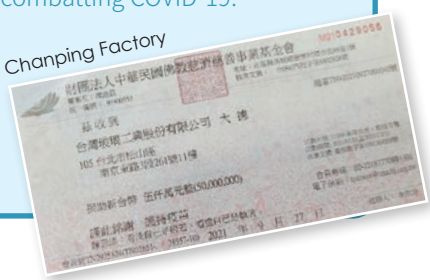
Taiwan Glass COVID-19 Epidemic Prevention Action in 2021

During the outbreak of the COVID-19 epidemic in Taiwan in 2021, the country was unable to purchase and the vaccination rate was low, which greatly impacted peoples' daily life and the economy. In addition to continuing to improving the Company’s COVID-19 epidemic prevention policies, TG hopes to assist the COVID-19 epidemic prevention with practical action and play a positive role in society.

Donated NT$ 50 million to purchase COVID-19 Vaccines

In 2021, the board of directors of Taiwan Glass decided to donate NT$ 50 million to the Buddhist Compassion Relief Tzu Chi Foundation to purchase COVID-19 vaccines for the country’s population, which will hopefully increase the vaccination rate in Taiwan, reduce the number of severe cases, and contribute towards combatting COVID-19.

Chanping Factory



Donated NT$ 3.2 million to purchase 1ml Fine Needle Syringes

The 1ml fine needle syringes have a low-dose residual feature, which increases the injection volume of COVID-19 vaccine dose by 10%-20% and increase the vaccination rate. The Company decided to donate NT$ 3.2 million to purchase 1 million 1ml fine needle syringes through the Chinese National Association of Industry and Commerce, Syringes, which were then donated to the Ministry of Health and Welfare.

Donated Fine Needle Syringes to the CHCC

6.2 Local Engagement

Rooted in the local area, TGI actively contributes to the communities, hiring local talents to create employment opportunities and prosper the local economy. To enhance the corporate image, create the value of a green factory, and establish a comfortable working environment for employees, TGI participated in the green adoption activities in the industrial areas and hoped to contribute to the greening environment. In addition, we also provided TGI products to sponsor schools and associations. We continued to make positive connections with communities.

Blood Donation

Based on the principle of giving back to society, we hoped that employees can participate in charity in response to the concept of “Give blood, save lives”. Taichung Factory hold blood donation events every year, and a total of 52 bags of blood will be donated.

Taichung Factory Blood Donation Activity

Role model

Changhua County's 2021 Outstanding Workers with Disabilities and Overemployment of Persons with Disabilities Excellent Manufacturers Commendation Activity. Lukang Factory and Lukang Flat Panel Factory are committed to improving the working space and equipment, providing a high-quality working environment for disabled friends, so that disabled workers not only have the opportunity to work, can support their families, but also can affirm themselves from work, gain happiness, happiness and The sense of belonging not only enhances the corporate culture, but also makes people with disabilities become the company's right-hand man, creating stronger competitiveness for the company.

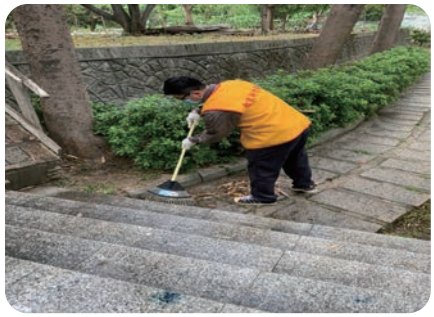
Community Activities and Relationship

Hsinchu City River Water Patrol

In 2021, TG Hsinchu Plant participated in the Hsinchu City Water Environment Patrol Team and sponsored the Patrol Team with NT$ 60,000 in supplies, and the Hsinchu City Government issued a special certificate of appreciation to the Company. To create a friendly urban and rural environment, the Company participated in volunteer street-cleaning activities in the Puqian Neighborhood so that the Company and the community become closer with each other, and work together to contribute to the local environment.

Park Environment Maintenance

TGI arranges for employees to take turns once a month to take turns to assist the environmental protection volunteer cleaning day in Puqian Park and to bring the community closer to them also to encourage employees to recognize Taiwan Glass and participate in the community through activities.



Greenfield Investment in Taoyuan city

TGI Taoyuan Factory adopted a 4000 square meters greenfield near to industrial district where to No.124, the fourth street in the Guanyin area. The field took care of by Taoyuan Factory's staff, they will be watering plants 2-3 times a week, and prune dead branches from shrubs and trees. In every quarter, they will fertilize plants, insecticide to kill bugs, and build support stand to maintain the environment.

TGI Takes responsibility of the cleaning of public toilets next to Mr. Wu's temple from 2018-2021.

Greenfield Investment in Taoyuan city

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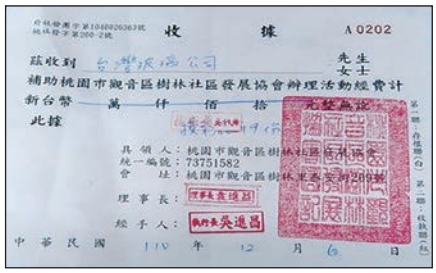
Taoyuan City's Winter Solstice Community and Neighborhood Gathering Activities

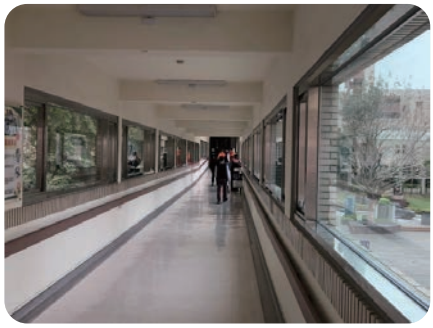
Taiwan Glass is located in the Shulin Neighborhood of Guanyin District, and no events have been held in the past 2 years due to the COVID-19 epidemic. As COVID-19 has slowed down and vaccination rates have increased, the CHCC has also loosened the restrictions on grass-roots events. The Neighborhood Office and the directors and supervisors of the Community Development Association jointly held the "2021 Winter Solstice Community Celebration and Neighborhood Gathering Event."

The Taoyuan Plant sponsored a total of 19 items that included coffee pots, double-layer cups, and food containers.



Taichung Veterans General Hospital Corridor Reconstruction

In 2021, Taiwan donated glass materials and construction fees for the reconstruction of the corridors of Taichung Veterans General Hospital. Construction was be completed in 2021 Q4, and the amount for the donation was NT$ 1,087,409.



Changpin Plant Collection and Donation of Supplies and Funds

The Changpin Plant worked with the Step30 International Ministries to collect used shoes and clothes to help African children combat tungiasis. In areas that lack medical resources, the prevalence of chigoe fleas is upwards of 60% and not wearing any shoes will cause these chigoe fleas to inflict the fatal tungiasis.

A total of 70 pairs of used shoes, 158 pieces of used clothing, and funding of NT$ 6,020 was raised as all of the materials and donations were sent and transferred to Step30.

The Taichung Media Journalists' Association

The Taichung Media Journalists' Association organized the Journalists' Festival and donated ten boxes of 1,800ml rectangular glass baking pans.

Appendix

Appendix I Global Reporting Initiative (GRI) Standard Index
Appendix II United Nation Global Compact Index
Appendix III SASB Content Index
Appendix IV Sustainable Development Goals(SDGs) Strategy Bluepoint
Appendix V Independent Assurance Report

ENVIRONMENT SOCIETY GOVERNMENT

Appendix I：Global Reporting Initiative (GRI) Standard Index

The following content has been verified by an independent third-party and the result is published in the independent assurance report in Appendix V. 「*」 indicates Material Topics while 「●」 indicates external verification.

General standard disclosure

Option	No.	Disclosure	External Verification	Chapter	Page
Core	102-1	Name of the organization	●	2.1 About TGI	020
Core	102-2	Activities, brands, products, and services	●	2.1 About TGI 3.1 TGI Product	020 037
Core	102-3	Location of headquarters	●	2.1 About TGI	020
Core	102-4	Location of operations	●	2.1 About TGI	020
Core	102-5	Ownership and legal form	●	2.1 About TGI	020
Core	102-6	Markets served	●	2.1 About TGI 3.1 TGI Product	020 037
Core	102-7	Scale of the organization	●	2.1 About TGI	020
Core	102-8	Information on employees and other workers	●	5.1 Talent Structure and Benefits	081
Core	102-9	Supply chain	●	3.5 Sustainable Supply Chain	052
Core	102-10	Significant changes to the organization and its supply chain	●	2.1 About TGI	020
Core	102-11	Precautionary Principle or approach	●	2.3 Risk Management 3.2 Product Quality	032 046
Core	102-12	External initiatives	●	About this Report 3.2 Product Quality	002 046
Core	102-13	Membership of associations	●	2.1 About TGI	020
Core	102-14	Statement from senior decision-maker	●	Message from the Chairman	004
Comprehensive	102-15	Key impacts, risks, and opportunities		Message from the Chairman 2.3 Risk Management	004 032
Core	102-16	Values, principles, standards, and norms of behavior	●	1.1 TGI Sustainable Management 2.2 Integrity TGI	007 028
Core	102-18	Governance structure	●	2.2 Integrity TGI	028
Core	102-40	List of stakeholder groups	●	1.2 Stakeholder Communication	011
Core	102-41	Collective bargaining agreements	●	5.1 Talent Structure and Benefits	081
Core	102-42	Identifying and selecting stakeholders	●	1.2 Stakeholder Communication	011
Core	102-43	Approach to stakeholder engagement	●	1.2 Stakeholder Communication	011
Core	102-44	Key topics and concerns raised	●	1.2 Stakeholder Communication	011
Core	102-45	Entities included in the consolidated financial statements	●	2.1 About TGI	020
Core	102-46	Defining report content and topic Boundaries	●	1.3 Material Topics	014
Core	102-47	List of material topics	●	1.3 Material Topics	014
Core	102-48	Restatements of information	●	About this Report	-
Core	102-49	Changes in reporting	●	About this Report	-
Core	102-50	Reporting period	●	About this Report	002
Core	102-51	Date of most recent report	●	About this Report	002
Core	102-52	Reporting cycle	●	About this Report	002
Core	102-53	Contact point for questions regarding the report	●	About this Report	002
Core	102-54	Claims of reporting in accordance with the GRI Standards	●	About this Report	002
Core	102-55	GRI content index	●	Appendix I	111
Core	102-56	External assurance	●	Appendix III	116

Material Topics

*Material Topics

Topic	No.	Disclosure	External Verification	Chapter	Page
Economic					
Economic Performance	201-1	Direct economic value generated and distributed		2.2 Integrity TGI	028
	201-2	Financial implications and other risks and opportunities due to climate change		4.1 Sustainable Environment Strategy	057
Market Presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage		5.1 Talent Structure and Benefits	081
Procurement Practices	204-1	Proportion of spending on local suppliers		3.5 Sustainable Supply Chain	052
Anti-corruption	205-3	Confirmed incidents of corruption and actions taken		2.2 Integrity TGI	028
Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	●	3.1 TGI Product	037
Tax	207-1	Approach to tax		2.1 About TGI	020
Environmental					
Materials	301-1	Materials used by weight or volume		4.2 Sustainable Resource Management	061
	301-2	Recycled input materials used		4.2 Sustainable Resource Management	061
	301-3	Reclaimed products and their packaging materials		4.2 Sustainable Resource Management	061
Energy	302-1	Energy consumption within the organization		4.2 Sustainable Resource Management	061
	302-3	Energy intensity		4.2 Sustainable Resource Management	061
	302-5	Reductions in energy requirements of products and services		4.2 Sustainable Resource Management	061
*Water and Effluent	GRI 103	Management Approach		1.3 Material Topics	014
	303-2	Management of water discharge related impacts	●	4.2 Sustainable Resource Management	072
	303-3	Water withdrawal		4.2 Sustainable Resource Management	061
	303-4	Water discharge		4.2 Sustainable Resource Management	061
	303-5	Water consumption		4.2 Sustainable Resource Management	061
Biodiversity	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas		4.1 Sustainable Environment Strategy	057
Emissions	305-1	Direct (Scope 1) GHG emissions		4.3 Green Production Management	068
	305-2	Energy indirect (Scope 2) GHG emissions		4.3 Green Production Management	068
	305-4	GHG emissions intensity		4.3 Green Production Management	068
	305-5	Reduction of GHG emissions		4.3 Green Production Management	068
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions		4.3 Green Production Management	068

Material Topics

*Material Topics

Topic	No.	Disclosure	External Verification	Chapter	Page
*Effluents and Waste	GRI 103	Management Approach		1.3 Material Topics	014
	306-1	Water discharge by quality and destination		4.3 Green Production Management	068
	306-2	Waste by type and disposal method		4.3 Green Production Management	068
	306-3	Significant spills		4.3 Green Production Management	068
	306-4	Transport of hazardous waste		4.3 Green Production Management	068
	306-5	Water bodies affected by water discharges and/or runoff		4.3 Green Production Management	068
*Environmental Compliance	GRI 103	Management Approach		1.3 Material Topics	014
	307-1	Non-compliance with environmental laws and regulations	●	4.1 Sustainable Environment Strategy	057
Supplier Environmental Assessment	308-1	New suppliers that were screened using environmental criteria		3.5 Sustainable Supply Chain	052
	308-2	Negative environmental impacts in the supply chain and actions taken		3.5 Sustainable Supply Chain	052
Social					
*Employment	GRI 103	Management Approach		1.3 Material Topics	014
	401-1	New employee hires and employee turnover	●	5.1 Talent Structure and Benefits	081
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees		5.1 Talent Structure and Benefits	081
	401-3	Parental leave		5.1 Talent Structure and Benefits	081
Labor/Management Relations	402-1	Minimum notice periods regarding operational changes		5.1 Talent Structure and Benefits	081
*Occupational Health and Safety	GRI 103	Management Approach		1.3 Material Topics	014
	403-3	Occupational health services		5.3 Safe Workplace and Health Promotion	092
	403-4	Worker participation, consultation, and communication on occupational health and safety		5.3 Safe Workplace and Health Promotion	092
	403-5	Worker training on occupational health and safety		5.3 Safe Workplace and Health Promotion	092
	403-6	Promotion of worker health		5.3 Safe Workplace and Health Promotion	092
	403-9	Work-related injuries	●	5.3 Safe Workplace and Health Promotion	092
	403-10	Work-related ill health		5.3 Safe Workplace and Health Promotion	092
Training and Education	404-1	Average hours of training per year per employee		5.2 Employee Care & Development	089
	404-2	Programs for upgrading employee skills and transition assistance programs		5.2 Employee Care & Development	089
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees		5.1 Talent Structure and Benefits	081
Forced or Compulsory Labor	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor		No related events	-

Material Topics

*Material Topics

Topic	No.	Disclosure	External Verification	Chapter	Page
Supplier Social Assessment	414-1	New suppliers that were screened using social criteria		3.5 Sustainable Supply Chain	052
	414-2	Negative social impacts in the supply chain and actions taken		3.5 Sustainable Supply Chain	052
Customer Health and Safety	416-1	Assessment of the health and safety impacts of product and service categories	●	3.1 TGI Product	037
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services		3.1 TGI Product	037
Marketing and Labeling	417-1	Requirements for product and service information and labeling		3.1 TGI Product	037
Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data		3.4 Customer Service	049
*Socioeconomic Compliance	GRI 103	Management approach		1.3 Material Topics	014
	419-1	Non-compliance with laws and regulations in the social and economic area	●	2.2 Integrity TGI 3.1 TGI Product 5.1 Talent Structure and Benefits	028 037 092
Topic	**No.**	**Disclosure**	**External Verification**	**Chapter**	**Page**
Others					
*Corporate Governance	Non GRI Standards index			1.3 Material Topics GRI 102-18	014
*Innovation and R&D	Non GRI Standards index			1.3 Material Topics 3.3 Research and Innovation	014 048
*Customer Service	Non GRI Standards index			1.3 Material Topics 3.4 Customer Service	014 049
*Sustainable Operation	Non GRI Standards index			1.3 Material Topics 2.3 Risk Management	014 032

Appendix II：United Nation Global Compact Index

Number	Article	Relevant Sections	Page(s)
1. Human Rights			
1	Businesses should support and respect the protection of internationally proclaimed human rights.	3.5 Sustainable Supply Chain 5.1 Employee and Benefits	052 081
2	Make sure that they are not complicit in human rights abuses.	5.1 Employee and Benefits	081
2. Labor			
3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	5.1 Employee and Benefits	081
4	The elimination of all forms of forced and compulsory labor.	Ch5 Friendly Workplace	079
5	The effective abolition of child labor.	5.1 Employee and Benefits	081
6	The elimination of discrimination in respect of employment and occupation.	5.1 Employee and Benefits	081
3. Environment			
7	Businesses should support a precautionary approach to environmental challenges.	2.3 Risk Management Ch4 Environmental Protection	032 056
8	Undertake initiatives to promote greater environmental responsibility.	Ch4 Environmental Protection	056
9	Encourage the development and diffusion of environmentally friendly technologies.	3.1 Product Introduction 4.2 Sustainable Resource Management 4.3 Green Production and Innovation	037 061 068
4. Anti-Corruption			
10	Businesses should work against corruption in all its forms, including extortion and bribery.	2.2 Corporate Sustainable Governance	028

Appendix III：SASB Content Index

TOPIC	CODE	CATEGORY	ACCOUNTING METRIC	Relevant Sections/ Directions	Page(s)
Greenhouse Gas Emissions	EM-CM-110a.1.	Quantitative	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	4.2 Sustainable Resource Management	063
	EM-CM-110a.2.	Discussion and Analysis	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	4.2 Sustainable Resource Management	063
Air Quality	EM-CM-120a.1.	Quantitative	Air emissions of the following pollutants: (1) NOx (excluding N2O), (2) SOx, (3) particulate matter (PM10), (4) dioxins/furans, (5) volatile organic compounds (VOCs), (6) polycyclic aromatic hydrocarbons (PAHs), and (7) heavy metals	4.3 Green Production and Innovation	068
Energy Management	EM-CM-130a.1.	Quantitative	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage alternative, (4) percentage renewable	4.1 Sustainable Environment Strategy *TGI plans to use renewable energy in 2021.	057
Water Management	EM-CM-140a.1.	Quantitative	(1) Total fresh water withdrawn, (2) percentage recycled, (3) percentage in regions with High or Extremely High Baseline Water Stress	4.2 Sustainable Resource Management * The area where TGI located are not high water stress areas.	066 067 068
Waste Management	EM-CM-150a.1.	Quantitative	Amount of waste generated, percentage hazardous, percentage recycled	4.3 Green Production and Innovation	070
Biodiversity Impacts	EM-CM-160a.1.	Discussion and Analysis	Description of environmental management policies and practices for active sites	4.1 Sustainable Environment Strategy	058
	EM-CM-160a.2.	Quantitative	Terrestrial acreage disturbed, percentage of impacted area restored	Not applicable	-
Workforce Health & Safety	EM-CM-320a.1.	Quantitative	(1) Total recordable incident rate (TRIR) and (2) near miss frequency rate (NMFR) for (a) full-time employees and (b) contract employees	5.3 Safe Workplace and Health Promotion	094
	EM-CM-320a.2.	Quantitative	Number of reported cases of silicosis	5.3 Safe Workplace and Health Promotion	094
Product Innovation	EM-CM-410a.1.	Quantitative	Percentage of products that qualify for credits in sustainable building design and construction certifications	2.1 About TGI	025 027
	EM-CM-410a.2.	Quantitative	Total addressable market and share of market for products that reduce energy, water, and/or material impacts during usage and/or production	2.1 About TGI	027
Pricing Integrity & Transparency	EM-CM-520a.1.	Quantitative	Total amount of monetary losses as a result of legal proceedings associated with cartel activities, price fixing, and anti-trust activities	**TGI has no related affairs in 2021.	**TGI has no related affairs in 2021.
Activity Metrics	EM-CM-000.A.	Quantitative	Production by major product line	2.1 About TGI	2.1 About TGI

Appendix IV: Sustainable Development Goals(SDGs) Strategy Bluepoint

SDGs	POLICY OF SDGs RESPONDING	STRATEGY AND ACTION PLAN	MEDIUM-TERM AND LONG-TERM PLANS
3 GOOD HEALTH AND WELL-BEING **SDG3 GOOD HEALTH AND WELL-BEING**	Human Rights Policy of TGI- Health and safety workplace.	1.The on-site doctor accompanied the chopped strand managers to inspect storage and delivery units and observe how personnel handle glass products. 2.Four Major Programs for Occupational Safety. 3.Conduct fire-fighting drills to improve disaster prevention knowledge.	The implementation rate of the Four Major Programs for Occupational Safety is 100%.
6 CLEAN WATER AND SANITATION **SDG6 CLEAN WATER AND SANITATION**	TGI improves water efficiency by purchasing water-conserving equipment. We promote awareness of green production and reuse water resources.	Part of the process has been improved. Recycled water is used as dilution water. The recycled water system has gradually improved and the increase in water consumption has gradually declined.	The water recycle rate of each factory is average over 90%.
8 DECENT WORK AND ECONOMIC GROWTH **SDG8 DECENT WORK AND ECONOMIC GROWTH**	Set corporate governance policies which included: Establishment of effective corporate governance structure, Protection of shareholders' interests and rights, Strengthening the board functions, Exert the functions of the audit committee, Respecting the interests and rights of stakeholders, Increasing information transparency.	1.Established a new position of Corporate Governance Manager. 2.Formulate and improve talent development and retention policies.	Continuous profit from operation. Provide a starting salary higher than the legal minimum wage.
9 INDUSTRY,INNOVATION AND INFRASTRUCTURE **SDG9 INDUSTRY, INNOVATION AND INFRASTRUCTURE**	Set course of action for the excellent products and services of Taiwan Glass.	Passed various international certifications. Such as ISO, FSSC, CSI, etc. Continue to develop new products and apply for patents.	Low pollution and high recycling products accounts for more than 50% of the total revenue.
12 RESPONSIBLE CONSUMPTION And PRODUCTION **SDG12 RESPONSIBLE CONSUMPTION AND PRODUCTION**	TGI has a "Ethical Corporate Management Best Practice Principles", "Handling Measures for Reporting Cases of Illegal and Unethical or Dishonest Conduct" and a "Guidelines for Integrity for Employees in Performing Duties."	1.All employees have education and training. All employees signed the 'Business Integrity Code of Conduct for Employee Performance of Duties". 2.Set an E-mail box and a special line for complaints.	No corruption, bribery, extortion or other breach of good faith has occurred before.
13 CLIMATE ACTION **SDG13 CLIMATE ACTION**	Introduced TCFD framework with the four aspects of "governance," "strategy," "risk management," and "indicators and targets" to formulate strategies and actions for climate change, which will hopefully mitigate the impact of climate risks.	1.Identify Climate Change Risks and Opportunities. 2.Set out management policies, targets and objectives.	Situation analysis for physical risk and transformation risk.

Appendix V：Independent Assurance Report

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會計師獨立確信報告

台灣玻璃工業股份有限公司　公鑒：

一、 確信範圍

本事務所接受台灣玻璃工業股份有限公司（以下簡稱台玻公司）之委任，對 2021 年度永續發展報告書中所選定之永續績效資訊進行有限確信並出具報告。

有關台玻公司所選定之標的資訊及其適用基準，詳附件一。

管理階層責任
台玻公司管理階層應依據適當之基準編製2021年度永續發展報告書，包括參考全球永續性標準理事會(Global Sustainability Standards Board, GSSB)發布之GRI準則(GRI Standards)，並應設計、執行及維護與報告編製相關之內部控制，以蒐集並揭露報告書內容。

本事務所責任
本事務所係依照財團法人中華民國會計研究發展基金會所發布之確信準則公報第一號「非屬歷史性財務資訊查核或核閱之確信案件」之要求規劃並執行有限確信工作。

二、 確信工作

有限確信案件中執行程序之性質及時間與適用於合理確信案件不同，其範圍亦較小，所取得之確信程度明顯低於合理確信案件。為取得有限確信，本事務所於決定確信程序之性質及範圍時曾考量台玻公司內部控制之有效性，但目的並非對台玻公司內部控制之有效性表示意見。

為作成有限確信之結論，本事務所已執行下列工作：

- 與台玻公司之管理階層及員工進行訪談，以瞭解台玻公司履行永續發展之整體情況，以及報導流程；
- 透過訪談、檢查相關文件，以瞭解台玻公司之主要利害關係人及利害關係人之期望與需求、雙方具體之溝通管道，以及台玻公司如何回應該等期望與需求；

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- 針對報告中所選定之永續績效資訊進行分析性程序；蒐集並評估其他支持證據資料及所取得之管理階層聲明；如必要時，則抽選樣本進行測試；
- 閱讀台玻公司之永續發展報告書，確認其與本事務所取得關於永續發展整體履行情況之瞭解一致。

三、 先天限制

因永續發展報告中所包含之非財務資訊受到衡量不確定性之影響，選擇不同的衡量方式，可能導致績效衡量上之重大差異，且由於確信工作係採抽樣方式進行，且任何內部控制均受有先天限制，故未必能查出所有業已存在之重大不實表達，無論是導因於舞弊或錯誤。

四、 品質管制與獨立性

本事務所遵循審計準則公報第四十六號會計師事務所之品質管制之規範，建立並維護完備之品質管制制度，包含遵循職業道德規範、專業準則及所適用法令相關之書面政策及程序。本所亦遵循會計師職業道德規範中有關獨立性及其他道德規範之規定，該規範之基本原則為正直、公正客觀、專業能力及盡專業上應有之注意、保密及專業態度。

五、 結論

依據本事務所執行之程序及所獲取之證據，未發現台玻公司所選定之永續績效資訊有未依照適用基準編製而須作重大修正之情事。且本事務所未發現台玻公司 2021 年度永續發展報告書有未依據 GRI 準則(GRI Standards)之核心選項編製而須作重大修正之情事。

安永聯合會計師事務所

會計師：蕭翠慧

民國一一一年七月二十九日

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附件一：

編號	頁次	內文標題	標的資訊	適用基準
1	符合性確信		台玻揭露 2021 年度永續發展報告書係依據全球永續性標準理事會(Global Sustainability Standards Board, GSSB)發布之 GRI 準則(GRI Standards)之核心選項編製	GRI 準則(GRI Standards)核心選項
2	37	3.1 台玻產品	2021 年台玻產品無違反產品健康與安全、標示及市場推廣相關法規，亦無發生產品被禁止銷售之事件；亦無涉及反競爭行為、反托拉斯與壟斷措施之法律訴訟	公司適用之商品標示法、食品安全衛生管理法、國際反托拉斯法、消費者保護法
3	61	4.1 永續經營策略-環保法規遵循	2021 年環保違規事件及裁罰金額	公司適用之環境法規及公司統計資料
4	72	4.3 綠色生產管理-水汙染管理	2021 年水汙染管理	公司統計資料
5	83	5.1 人力資源及福利-員工新進率及離職率統計	2021 年員工新進率及離職率統計	公司統計資料
6	93-94	5.3 職場安全與健康-職業安全管理	2021 年失能傷害頻率、失能傷害嚴重率、缺席率	公司統計資料
7	97	5.3 職場安全與健康-勞動安全檢查與法令遵循	2021 年勞動安全檢查違規事件及裁罰金額	公司適用之職業安全法規及公司統計資料

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