TSRC CORPORATION

2022
TSRC Sustainability Report

TSRC CORPORATION

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In 2022, TSRC started a new sustainable journey with an ESG strategy.

Risk prevention is the priority for governance to face a changing environment.

In addition, TSRC has committed to creating a safe and happy workplace for five decades.

Innovation and cutting-edge chemical technology are key to reducing environmental impacts and moving toward a sustainable future.

About this Report

This is the 2022 Sustainability Report of TSRC and discloses corporate environmental (E), social (S), governance (G), and sustainability plans and implementation. TSRC has reported in accordance with the GRI Standards for the period from January 1, 2022 to December 31, 2022. The report discloses information according to chemical industry standards of the Sustainability Accounting Standards Board (SASB), and discloses climate-related risks and opportunities according to the framework recommended by the Taskforce on Climate-related Financial Disclosures (TCFD). The report has been reviewed by the CEO and the Executive Leadership Team responsible for ESG strategy, and has been approved by the Chairman.

Scope of Reporting

This report covers the economic, social, governance, and environmental practices and results of TSRC Corporation (including the global business headquarter, Kaohsiung Factory, and Gangshan Factory) and six subsidiaries with manufacturing operations, including Shen Hua Chemical Industrial Co., Ltd., TSRC (Nantong) Industrial Ltd., TSRC-UBE (Nantong) Chemical Industrial Co., Ltd., TSRC (Shanghai) Industries Ltd., TSRC (Vietnam) Co., Ltd., and TSRC Specialty Materials LLC, and two controlled trading subsidiaries (Polybus Corporation Pte Ltd and TSRC (Lux.) Corporation S.à.r.l). The reporting boundary is consistent with all operational entities included in the consolidated financial statements. The global business headquarter of TSRC is located in Taipei City, Taiwan. For readers to understand the titles of related organizations, explanations are provided below:

Shen Hua Chemical	Refers to Shen Hua Chemical Industrial Co., Ltd.
Nantong Industries	Refers to TSRC (Nantong) Industries Ltd.
TSRC-UBE	Refers to TSRC-UBE (Nantong) Chemical Industrial Co., Ltd.
Shanghai Industries	Refers to TSRC (Shanghai) Industries Ltd.
TSRC Corporation	Refers to TSRC Corporation located in Taiwan, including the global business headquarter located in Taipei, Kaohsiung Factory, and Gangshan Factory.
TSRC	Refers to Shen Hua Chemical, Nantong Industries, TSRC-UBE, Shanghai Industries, TSRC (Vietnam) Co., Ltd., TSRC Specialty Materials LLC, global business headquarter, Kaohsiung Factory, Gangshan Factory, Polybus Corporation Pte Ltd, TSRC (Lux.) Corporation S.à.r.l. The terms TSRC, TSRC Group, the Company, and the entire group are used interchangeably in this report.

Reporting Period and Frequency

This report covers the period from January 1, 2022 to December 31, 2022, which is consistent with the reporting period of the Company's financial statements. TSRC publishes a sustainability report once a year. This report is published in June 2023 and available on TSRC's website.

Restatements of Information

The supplier evaluation results and the total number of non-compliance with laws and regulations in 2021 in this report are revised due to data errors in the previous report. The greenhouse gas emissions in 2021 is revised in this report as it has completed the third-party verification. The data of hazard waste generation in 2021 is revised in this report with actual data as the hazard waste amount of TSRC Specialty Materials LLC disclosed in the previous report was estimated according to the amount of production. Explanations are provided below the statistic charts and tables if the data is restated.

Third Party Verification and Assurance

The company's sustainability report is verified and assured by the independent third parties with the consent of the Executive Leadership Team, and the results of the verification and assurance is reported to the board of directors. The company commissioned SGS Taiwan to provide assurance that this report is in accordance with the GRI Standards and AA1000 Type 2 moderate level. The SASB indicators and TCFD information disclosed by TSRC also are obtained SGS assurance. All statements are provided in the Appendix.

KPMG Taiwan was commissioned to provide limited assurance of four SASB indicators for this report in accordance with the Assurance Standard No. 3000 "Assurance Engagement of Examinations or Audits of Non-historical Financial Information" (established according to ISAE 3000 Revised) issued by the Accounting Research and Development Foundation. The independent assurance statement issued is in the Appendix.

This Report can be downloaded at: https://www.tsrc.com.tw/sustainability/downloads/

Contact

Welcome any advice/ suggestion or inquiries for TSRC ESG plans/ implementations

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Letter from the CEO

2022 was a challenging year. TSRC's overall profitability was affected by the decline in global consumer demand and inflation. Still, TSRC leveraged its flexibility and product portfolio to mitigate the impact and stabilize its operations. For the year, consolidated sales reached NT$33.841 billion, gross profit reached NT$5.513 billion, and net operating profit was NT$2.675 billion.

TSRC has formulated a comprehensive Environmental, Social, and Governance (ESG) strategy for sustainable management, with "Promoting Environmental Protection," "Enhancing Positive Social Impact," and "Strengthening Governance" as the main axes of the strategy. TSRC has developed nine strategic directions to improve the company's ESG performance with short-, medium- and long-term goals. In response to climate change, TSRC assesses climate risks and opportunities, sets targets, implements specific action plans, and discloses climate risks in accordance with the Taskforce on Climate-related Financial Disclosures (TCFD).

TSRC's key environmental, social and governance initiatives and annual achievements are as follows.

Environment

TSRC has set targets to reduce GHG emissions by 2.5% per year and increase the use of renewable energy. In 2023, TSRC will gradually finalize the installation of solar power facilities and increase the use of renewable energy to achieve our GHG reduction goal.

Social

Emphasizing talent development and employee safety and health, TSRC has set the goal of increasing employee diversity and reducing occupational hazard, and continues to promote talent development through functional training. To plant the seeds of ESG in the organization, we have conducted global ESG education and training for employees, and organized ESG green innovation activities to accelerate the Company's ESG program. Despite the epidemic, TSRC promoted the Employee Assistance Program (EAP) and provided physical and mental health seminars and a life coach hotline to support employees' health, and continued to participate in social engagement and industry-academia exchange activities.

Governance

Corporate governance is at the core of TSRC's operations. In 2022, TSRC has strengthened its systems and improved organizational management by revising policies and conducting training about integrity. In view of the ever-changing environment, TSRC will continue to strengthen its risk management mechanism. In addition to operational risks, cyber security is an important point of strengthening for TSRC, and through the establishment of protective measures and simulation drills, TSRC will improve its protection against cyber security risk.

TSRC continues to innovate new and sustainable products, develop renewable raw materials to meet the market demand for electric vehicles and green tires. TSRC develops new-generation rubbers such as Solution Styrene-Butadiene Rubber (SSBR) to improve tire wear resistance, promote vehicle fuel efficiency, and help reduce greenhouse gas emissions from driving. Meanwhile, TSRC is developing materials with recyclable properties for medical devices and footwear, as well as specialty styrene block copolymers (SBC) for plastics modification. In the future, TSRC will pursue the integration of the upstream and downstream value chains to create sustainable value for the environment and people.

Looking forward to the future, TSRC will continue to develop new products and markets with cutting-edge chemical technology to enhance business growth, and work with business partners to achieve coexistence with the environment and society.

Joseph Chai

CEO of TSRC Corporation

Awards, Recognitions, and Ratings

Awards and recognitions

SUSTAINALYTICS
ESG Risk Rating (Industry Group: Chemicals):
Medium

CDP DISCLOSURE INSIGHT ACTION
Climate Change: **B**

TAISE 台灣永續能源研究基金會
Taiwan Institute for Sustainable Energy (TAISE)
Sustainability Report Award - **Silver grade**

ESG Rating by the College of Business, National Taipei University
BBB

TAIWAN STOCK EXCHANGE
The 9th Corporate Governance Evaluation (2022)
6~20%

ESG Performance

Environmental

Scope 1+2 greenhouse gas emissions decreased by **2.5%** in 2022 (base year: 2021)

Reclaimed water reuse rate reached **14.58%** in 2022

Wastewater recycling rate reached **21.18%** in 2022

Society/People

The total recordable incident rate (TRIR) of employees was **0.35** in 2022

208 employees participated in the 2022 ESG Innovation Action Learning

110 students participated in the 2022 Chemistry On The Go Event.
In total **1000+** students engaged in the decade

Governance

R&D expenses increased by **5.5%**, compared to 2021

10 patents were granted in 2022, and the number of accumulative approved patents reaches **429**

Local procurement accounts for **80%** of total procurement spent in 2022

Outstanding Achievement for Environment and Safety Performance

Shen Hua Chemical, TSRC-UBE and Nantong Industries

- Selected as a **Grade A** enterprise in the key industries of Jiangsu Province's air pollution prevention and control performance classification, and qualified for exemption from emergency control in heavy polluted weather
- Selected as Nantong City's **Environmental Protection Demonstration Enterprise**
- Selected as one of the **top 30** enterprises in Nantong in its safety production score
- Rated as **"Green level"** in the environmental protection credit dynamic rating

ESG Stories 1

New Innovative Materials - toward Circular and Low-Carbon Economy

ESG Strategy
Environmental

Plastic makes human life easier and safer, but it also brings environmental problems. Even though most packaging and products are labeled as recycled, they cannot be restored to their original quality because of the limitation of the material's characteristics and can only be downcycled to lower quality or less functional products. For example, polypropylene (PP), a common plastic film material, is often shredded when being recycled which reduces its impact resistance, resulting in downcycling application.

TSRC has focused on developing innovative polymer technologies and a variety of product applications for many years, including the industry-leading styrene-ethylene/butylene-styrene copolymers (SEBS). TSRC's SEBS has excellent compatibility and easy processing characteristics with PP, which enhances the impact resistance of the product when remanufactured and increases the possibility of recycling. In addition, SEBS has good weather resistance and is not easily affected by high temperature or UV rays, which helps to extend the service life of products, reduce waste generation, and realize circular economy.

People's demand for footwear and its diverse functions is increasing year by year. As a lot of composite materials are utilized to meet the function enhancement, the complexity of materials also causes difficulties in footwear recycling. With global sales of athletic shoes reaching more than $100 billion in 2022, it is estimated the amount of footwear waste will be considerable. TSRC's non-cross-linked supercritical fluid (SCF) technology, which is different from common cross-linked polyurethane (PU) and ethylene vinyl acetate (EVA) sole materials, can turn shoes to be recycled. The non-cross-linked structure makes the material easy to be processed and reused, which can extend the life cycle of footwear and reduce waste. In addition, TSRC's SEBS-based foam has a low carbon footprint, with a carbon footprint of only 5.016 kg CO_2e per ton of product, which is 28.3% - 58.2% lower than the carbon footprint of commercially available thermoplastic polyurethanes (TPUs) and thermoplastic polyester elastomers (TPEEs).

Polyvinyl chloride (PVC) has good elasticity and softening properties with the addition of plasticizers, making it the main material for catheters and IV infusion bags. However, PVC has the disadvantages of releasing environmental hormones, releasing plasticizers when the material is exposed to high temperatures, and producing dioxin when it is burned. Therefore, several countries have been actively seeking alternative solutions, including the European Union.

TSRC has developed a medical grade VECTOR® SEBS product series that does not contain phthalate type plasticizers such as DEHP. It not only meets the stringent standards required for medical applications but is also recyclable and suitable for use in intravenous infusion bags, tubing, gaskets, syringe stoppers, and other products. TSRC's safe and non-toxic SEBS products can replace PVC and facilitate plasticizer-free medical care.

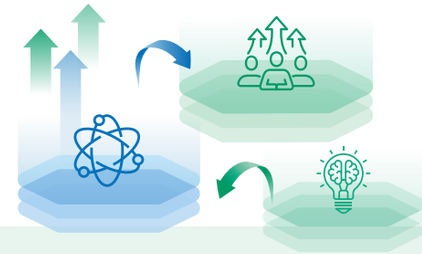
TSRC will continue to develop products with sustainable characteristics, increase product diversification, and join hands with downstream partners to collaboratively mitigate environmental impacts and contribute to the global environment and society.

Note: Based on TSRC's estimations and calculations, the carbon footprint of commercial TPU products is 7–8 kg CO_2e per ton, and the carbon footprint of commercial TPEE products is 11–12 kg CO_2e per ton. Calculating based on the carbon footprint of 5.016 kg CO_2e per ton of TSRC SEBS foam material, the difference in carbon footprint ranges from 28.3% to 58.2%.

ESG Stories 2

Flipping Thinking – Outside the Box and look forward to a Different Future

ESG Strategy
Environmental
Social
Governance



TSRC formulated its ESG strategy in 2022 to address climate change and respond to the global trend toward ESG. By promoting ESG strategy goals and integrating with the Company's long-term development plan, TSRC will continue to develop low-carbon products, reduce environmental impact, and move towards sustainable development.

In the face of the world's transition to a low-carbon era, TSRC is aware of its vital role as a chemical industry. In order to overcome bottlenecks of ESG transition and tackle future uncertainties, TSRC held a Green Innovation Activity in the second half of 2022, bringing together experts from all functional units of the Company to collaborate and share their expertise in courses and hands-on workshops, aiming to solving TSRC's problems and finding new opportunities. The activities supported employees to learn about the purpose of innovation, gain new ideas through innovative cases, apply them to their work and life, optimize work performance and most importantly, to create a different future for TSRC.

Innovation Lectures

External speakers were invited to hold two online learning courses to help employees in Taiwan equip with the basic knowledge and tools for innovation and establish a common language for TSRC innovation. 65% of non-production colleagues in Taiwan participated in this course.

Innovation Mentor Courses

Seven of TSRC's senior executives and corporate advisors completed professional training and became internal innovation mentors. The mentors coached participants in the hands-on workshops and guided them to adopt innovative thinking to explore new opportunities. Through a series of communication and Q&A sessions, the innovation mentors and the trainees jointly incorporated innovative structures and mentalities in the organizational culture and daily operation process, which helped ensure constant improvements in TSRC.

Innovative Action Learning

36 participants, designated by the Executive Leadership Team and with a high willingness to participate, were divided into six groups to conduct a three-month action learning program. As each group member came from different operational units, different creative ideas were generated through their cross-sector professional backgrounds. Each group picked one focus from environmental (E), social (S), or governance (G) goals to design innovative implementation solutions. Through interactive workshops and the guidance from mentors, the participants were able to think outside of the existing framework and take the initiative to develop new concepts. The participants transformed their ideas into concrete actions and proposed six innovative projects for internal presentation. The projects were then assessed by TSRC's Executive Leadership Team about the future development potential in terms of feasibility, the extent of innovation, and the market value.

6 Innovative Projects

Environmental

1 "From the grave to the cradle", HSBC brings sustainable vitality!

Explore how HSBC products can incorporate the concept of circular economy in the product's lifecycle and discover new opportunities for TSRC.

2 Setting sail towards the great ESG journey, TSRC "Gold Carbon" ahoy!

Evaluate the potential of carbon capture, reuse, and recycle through cross-industry cooperation and develop sustainable value for both the company and the environment.

3 Let's save discarded treasures together

Evaluate the amount and reusability of waste heat generated in production processes, such as in the form of electricity, steam, and other innovative uses, thereby making waste heat a new treasure for TSRC.

Social

4 The youth of Taiwan are invited to join the chemical industry!

Discuss the employment situation of Taiwan's fresh graduates, and evaluate chemical industry's attractiveness for talents, with the goal of making TSRC a dream enterprise for future elites

Governance

5 Strengthen the main raw material supply chain to enhance operational resilience

Utilize digital technology information system to strengthen the raw material supply mechanism and management, thereby contributing to TSRC's operational resilience.

6 Now, Recycle Your Shoes

Evaluate the impact of current footwear waste on the environment and the status of recycling, and develop a circular economy business model.

ESG Stories ❸

Strengthen Resilience - Constructing an Information Security Protection Network

ESG Strategy
Governance

In response to the continuous increase in information security risks in recent years, TSRC has developed a comprehensive information security prevention mechanism to prevent all planned, accidental, internal, or external threats, and employed specific measures to protect the security of the company's important information assets.

In 2022, TSRC conducted an information security health check to evaluate the network architecture, malicious programs from the Internet, activities on user-side computers and on server hosts, directory server settings, and firewall settings to ensure the current status and level of security protection are stable. The results were used to strengthen protective vulnerability improvement, enhance the information security protection network, and reduce risks and uncertainty.

We also conducted social engineering drills and training sessions to raise employees' awareness of information security. In recent years, hackers have targeted employees' curiosity with popular subject line of emails or by forging emails from the IT department to trick employees into clicking on links. This has led to many incidents of corporate confidential information being stolen or malicious programs being implanted. In order to strengthen employees' awareness of email security, in 2022, TSRC cooperated with external information security consultants to conduct social engineering exercises, simulate phishing emails, and assess employees' awareness of information security risks. This was supplemented with information security education and training to avoid improper email behavior causing information security risks. In 2022, the results of the simulated hacker phishing email test showed that the number of employees who opened phishing emails decreased by 72.3% compared to 2021, and the number of employees who opened the attachments in the phishing emails decreased by 81.6% compared to 2021, thus demonstrating the significant protective results achieved through training and education. In addition, in 2022, employees' awareness was improved thanks to the quarterly email reminders attached with the analysis of recent cyber security incidents.

TSRC joined the Taiwan Computer Emergency Response Team/Coordination Center (TWCERT/CC) in 2022 to form a joint defense organization, allowing the Company to obtain timely and effective cyber security intelligence and cross-border cyber security exchange information. This enables the Company to work together with domestic and foreign partners to maintain network security. In the future, we will continue to monitor the information security environment and establish closer communication and cooperation with important stakeholders, including customers and suppliers, ensure information security, protect the assets of the company and stakeholders, remain stable daily operations, and strengthen operational resilience.

ESG Strategy

In response to the global trend toward promoting ESG and the increasingly severe climate change, TSRC held an ESG Consensus Building Workshop in 2021 led by the ESG Steering Committee, which gathered relevant executives from the headquarter and production sites. Based on global ESG development trends, the United Nations Sustainable Development Goals (SDGs), and benchmarking ESG strategic planning cases and practices from the chemical and related industries, the Committee came up with TSRC's prioritized SDGs, including: SDG3 Good Health and Well-being, SDG6 Clean Water and Sanitation, SDG7 Affordable and Clean Energy, SDG8 Decent Work and Economic Growth, SDG9 Industry, Innovation and Infrastructure, SDG12 Responsible Consumption and Production, SDG13 Climate Action, and SDG17 Partnerships for the Goals.

Specific Implementation Practices

SDGs 3 Good Health and Well-being

Ensure human health and promote the well-being of people of all ages through the use of TSRC products in medical materials and healthcare products.

SDGs 6 Clean Water and Sanitation

TSRC increases the use of recycled and reclaimed water, increases waste water recycling, and optimizes the efficiency of water use to ensure that there is enough fresh water available for human consumption and reduce water shortages.

SDGs 7 Affordable and Clean Energy

TSRC is committed to increasing the proportion of renewable energy use, reducing energy consumption per unit of product, increasing energy efficiency, and taking action to support renewable energy development.

SDGs 8 Decent Work and Economic Growth

TSRC continues to increase the added value of its products and promote economic growth. TSRC protects labor rights and create a safe and secure working environment for all TSRC employees, and the company uses its influence to help suppliers strengthen labor rights.

SDGs 9 Industry, Innovation and Infrastructure

Continuously optimize the manufacturing process, improve resource efficiency, apply green chemistry principles, and adopt environmentally friendly and clean production technologies. TSRC actively strengthens the company's technology development and innovation to increase the added value of products and industries.

SDGs 12 Responsible Consumption and Production

TSRC fulfills its corporate social responsibility by carefully handling the environmental management of chemicals and all waste, thereby reducing the chance of spills and emissions to the atmosphere, water, and soil during the manufacturing and transportation process. TSRC develops products that can effectively reduce environmental impact and increase product sustainability and recyclability to reduce the potential negative impact on the environment during the product life cycle.

SDGs 13 Climate Action

TSRC has set short- and medium-term carbon reduction targets for 2025 and 2030 respectively in order to move toward carbon neutrality and actively support and implement global climate change initiatives.

SDGs 17 Partnerships for the Goals

TSRC continues to strengthen cooperation with value chain partners and stakeholders, including collaborations in science, technology, innovation, business, environment, and social development, thereby jointly creating sustainable value.

Furthermore, the ESG steering committee also integrated the company's long-term vision and core business goals to develop a specific blueprint framework for ESG strategy in the next decade. The framework is based on the main axis of "Strengthening Governance," "Enhancing Positive Social Impact," and "Promoting Environmental Protection," covering 9 major areas and 24 targets. They will be reviewed based on short-term (2023), medium-term (2025), and long-term (2030) milestones to actively strengthen the ESG performance of TSRC through a positive and practical attitude.

Environmental

- Take actions to global carbon reduction and invest in developing green manufacturing process
- Lift product value and be the first choice for clients to reduce environmental impact and carbonemissions
- Develop an innovative circular economy business model and strengthen the efficiency of energy and resource

Social

- Pursuit the common good of human beings and build a safe and healthy environment for employees
- Create a friendly workplace and cultivate employees with multi-functions
- Maintain good communication with stakeholders
- and support local environment and increase social engagement

Governance

- Implement corporate governance and integrate long-term strategies and operational plan
- Build a corporate culture encouraging innovation and create a diversified business portfolio
- Build operational resilience and cooperate with business partners to create sharing values

Environmental

In response to the international trend of carbon reduction and energy and resource shortages, TSRC cherishes Earth's resources and has set active carbon reduction goals to achieve carbon neutrality. We are accelerating the use of renewable energy, recycled water, and renewable raw materials, and are also developing products and services that can help customers reduce their energy and resource use, jointly engaging in green innovation based on the concept of sustainability together with the value chain. With innovative thinking and business partnerships, we are working together with our partners to enter the era of low-carbon economy.

Focus Area	Target	2022 Achievements	2023	2025	2030
Towards Carbon Neutrality Operation	Reduce total carbon emission (Scope1+2; Base year:2021)	Total emissions were reduced by **2.5%** compared to the base year.	Total carbon emissions reduction by **5%**	Total carbon emissions reduction by **10%**	Total carbon emissions reduction by **22.5%**
	Increase the use of renewable energy	• The Kaohsiung Dashe Factory and the TSRC Shanghai Industries plan to install solar panels and are expected to start using them in 2023. • Nantong Industries has confirmed to purchase green electricity in 2023.	Increase renewable energy to **5%** of total electricity consumption	Increase renewable energy to **10%** of total electricity consumption	Increase renewable energy to **30%** of total electricity consumption
Water Resource Optimization	Increase wastewater recycling	Wastewater recycled accounted for **21.18%** of the total wastewater.	Increase wastewater recycling to **25%** of total volume of wastewater	Increase wastewater recycling to **36%** of total volume of wastewater	Increase wastewater recycling to **40%** of total volume of wastewater
	Increase recycled water utilization	The percentage of recycled water used was **14.58%** of the total water consumption.	Increase recycled water utilization to **15%** of total water consumption	Increase recycled water utilization to **34%** of total water consumption	Increase recycled water utilization to **40%** of total water consumption
Lower Products' Carbon Footprint	Develop eco-friendly products	The new generation of synthetic rubber has contributed to reducing environmental carbon emissions by about **160,000** tons based on its 2022 sales volume.	Develop new-generation synthetic rubber for green and EV tires/ shoe materials to reduce carbon emissions by around **150,000** mt (based on sales projection)	Develop new-generation synthetic rubber for green and EV tires/ shoe materials to reduce carbon emissions by around **300,000** mt (based on sales projection)	Develop new-generation synthetic rubber for green and EV tires/ shoe materials to reduce carbon emissions by around **1,500,000** mt (based on sales projection)
		Continued to develop green foaming products and evaluate feasible solutions for their application in consumer products.	Develop eco-friendly foaming product	Develop eco-friendly foaming products with recyclability	Develop eco-friendly foaming products that use renewable materials and more recyclability
		Continued to develop SBCs to evaluate their recycling properties and contribution to reducing greenhouse gas emissions from customer processes.	Develop Special styrene block copolymer (SBC) for medical equipment, shoe materials, plastic modification, aiming to increase recyclability and decrease medical waste	Develop New type of special styrene block copolymer (SBC) to support customers to reduce energy consumption and organic solvents in production process	Develop Medical TPE products for reducing medical waste by **10%** compared with previous generation products by (based on sales projection)
	Product process optimization	Continued to optimize the TPE production process to increase the particle quantity and reduce steam usage.	Optimize production process of TPE projects and reduce use of steam to achieve **1,800** mt of carbon emissions reduction per year	Optimize production process of TPE products to reduce electricity and energy consumption	Optimize production process of TPE products, reduce electricity and energy consumption to achieve **9,000** mt of carbon emissions reduction per year
	Use of renewable materials[Note1]	Developed renewable material suppliers and continued to engaging customers and evaluating market demand.	Explore and engage with renewable raw material suppliers	Renewable raw materials account for **5%** of total raw material purchase	Renewable raw materials account for **15%** of total raw material purchase
	Increase Sustainable products[Note2]	We are introducing the sustainable product management system ISCC PLUS and conducting product carbon footprint assessments.	The sustainable product portfolio accounts for **3%** of total sales	The sustainable product portfolio accounts for **20%** of total sales	The sustainable product portfolio accounts for **40%** of total sales

Note: 1. Renewable Materials : (1) Agriculture based (2) Bio-based (3) Waste of other products

2. TSRC sustainable product: (1) Reduction: reduce product carbon emission intensity /product for reducing environmental impact/products for reducing customer's energy consumption of process (2) Recycle: product with recyclability (3) Renewable: products using renewable materials (4) Replace: Products that can safely replace other products

Social

To enhance corporate competitiveness, we will continue to strengthen ESG development and talent cultivation, promote multi-functional career development and knowledge learning, and enhance TSRC's long-term sustainable value through cooperation and exchange between industry, government, and academia. Employee safety and health are key elements of TSRC's stable operation, and we will continue to optimize the global operating environment and strengthen the care for employees' physical and mental health to enhance their sense of belonging and engagement. We will use positive influence to extend our concern to human society, dedicate greater effort to sustainability education and social welfare related to chemistry, and benefit local education and community prosperity.

Focus Area	Target	2022 Achievements	2023	2025	2030
Strengthen Organization's Sustainability Capability	Enhance organizational ESG development and employee competency	Completed the manager competency transformation and the evaluation of nurturing sequence and provided global employees with individual development plan training. Enhanced professional competencies, with **63%** of employees having received training in 2022, and achieving a cumulative percentage of **30%**.	**30%** of employees (cumulative) undergone multiple competency training	**60%** of employees (cumulative) undergone multiple competency training	**80%** of employees (cumulative) undergone multiple competency training
		Provided ESG basic training to employees worldwide and constructed ESG management thinking.	Build organizational ESG mindset through completion of ESG training program globally	Strengthen organizational ESG capacity via development and integration of ESG information & management systems	Enhance the ability to analyze ESG performance
	Sustainable cooperative program with business partners or outside institutions	Engaged with university/college internship programs and industry-academia cooperation in product research and development, and developed petrochemical special courses, with a cumulative **336 participants**.	Achieve **> 300 participants** (cumulative) for academic or technology exchange with business partners or outside institutions	Achieve **> 1,000 participants** (cumulative) for academic or technology exchange with business partners or outside institutions	Achieve **> 5,000 participants** (cumulative) for academic or technology exchange with business partners or outside institutions
Improve Health, Safety & Wellbeing of Employees	Enhance global workplace safety	The total recordable incidence rate (TRIR) for employees was **0.35**.	TRIR ≦ **0.36**	TRIR **< 0.3**	TRIR **< 0.3** and achieve one or more years of zero recordable injuries
	Strengthen employee engagement	**74%** engagement score via employee engagement surveys	**70%** engagement score via employee engagement survey	**72%** engagement score via employee engagement survey	**75%** engagement score via employee engagement survey
	Enhance employee's physical and mental care	Promoted the Employee Assistance Program (EAP) and physical and mental health activities, with **770 participants** (cumulative)	**> 500 employees** (cumulative) participated in physical and mental health activities or lectures	More than **half** of global sites provide physical and mental consulting services	All global sites provide physical and mental consulting services
Enhance social engagement	Support environmental protection and social care programs	Participated in local organic farming program and childcare activities, with **540 participants** (cumulative).	**> 300 volunteers** (cumulative) for social care or environmental protection activities	**> 600 volunteers** (cumulative) for social care or environmental protection activities	**> 1,000 volunteers** (cumulative) for social care or environmental protection activities
	Promote science education programs	Organized science education activities with **110 participants** (cumulative).	**> 150 participants** (cumulative) for science education activities	**> 300 participants** (cumulative) for science education activities	**> 1,000 participants** (cumulative) for science education activities

Governance

TSRC is committed to establishing a sound governance framework and improving management and supervision mechanisms. We adhere to the principle of ethical corporate management, implement ethical norms in daily operations, and comply with relevant laws and regulations. We also continuously monitor the risks and challenges faced by our global operations and develop a resilient and flexible supply chain to ensure the stability of our products and services. We actively innovate, develop products, and enhance service value, becoming the best partner for our customers and promoting the sustainable growth of the company.

Focus Area	Target	2022 Achievements	2023	2025	2030
Strengthen Corporate Governance	Enhance risk & crisis management	• Completed the impact assessment of climate risk and established management mechanisms and protective measures. • Regularly report to the Board of Directors and disclose important risk management mechanisms on the sustainability development section of the company's website.	Refine climate risk management mechanism, protection measures, and timely disclosure	Strengthen risk monitoring and improve operation management via digital management system	Continuous improvement on global risk management and crisis response mechanisms
Integrate Sustainability and Business Strategies	Build new sustainable business	Evaluated new sustainable business investment opportunities.	Evaluation of new business	New business contributes **>5%** of total consolidated revenue	New business contributes **>10%** of total consolidated revenue
	Strengthen innovation momentum	Developed products made from renewable raw materials and substituted materials that reduce environmental impact.	Increase new products development activities	New products contribute **>15%** of consolidated revenue	Increase new product revenue contribution
	Uplift customized - service value[Note]	• Sales of easy-to-process synthetic rubber increased by **3.4%** compared to 2021. • Some TPE products were shipped with green packaging.	Increase the sales of easy-to-process synthetic rubber by more than **8%** versus 2021, and evaluate other solutions for customized services	Increase the sales of easy-to-process synthetic rubber by **20%** versus 2021, and pilot other new customized products or services	Increase the sales of easy-to-process synthetic rubber by **> 50%** versus 2021 and commercialize other new customized products or services
Build Resilient Operation	Accelerate reduction of supplier's GHG emission	Among the top 20 suppliers, 11 have clear greenhouse gas reduction targets and action plans.	Require top 20 suppliers (by purchase spent) to implement GHG emission reduction target and actions	Require top 50 key suppliers (by purchase spent) implement GHG emission reduction target and actions	Require all suppliers implement GHG emission reduction target and actions
	Strengthen supply chain integrity	**80%** (total purchase spent) of raw materials from local sourcing and develop local suppliers of renewable raw materials	**>70%** (total purchase spent) of raw materials from local sourcing and develop local suppliers of renewable raw materials	**>75%** (total purchase spent) of raw materials from local sourcing and develop local suppliers of renewable raw materials	**>80%** (total purchase spent) of raw materials from local sourcing and develop local suppliers of renewable raw materials

Note: TSRC customized service: (1) Easy Processibility: Assist customers to reduce production process to save energy or resource consumption (2) eco-friendly packaging: Assist customers to reduce carbon emissions in transportation and logistics process (3) High-value application: cooperate with value chain partners, provide solutions, and assist customers enter green industry chain (4) Others

Company Basic Information

Company name
TSRC Corporation (TWSE Listed Company)

Industry
Rubber industry

Address of corporate headquarter
18F, No. 95, Sec. 2, Dunhua S. Rd., Taipei City

Address of the business manufacturing site
No. 2, Singgong Rd., Dashe Dist., Kaohsiung City

Paid-in capital
NT$ **8,257,099,780**

Number of employees

282 female — **1,346** male

17.32% | 82.68%

Total **1,628** Note

Output volume of main products in 2022

Synthetic rubber products **531,949** metric tons

Non-synthetic rubber products **8,077** metric tons

98.50% | 1.5%

Total **540,026** metric tons

Note: One full-time male employee hired by TSRC (USA), a non-operational holding subsidiary not covered by this report, is included in the total number of employees (1628) for the consistency with the Company's other external reporting.

Mission and Vision

Mission
Be an essential partner to our customers, a socially responsible member of our community, and an enterprise committed to innovation, sustainable growth, and excellence

Vision
A global specialty materials enterprise that enriches the quality of life for humanity through innovative technologies and creates sustainable value and returns for our stakeholders

Core Value
Integrity, Innovation, Teamwork, Excellence, Accountability

CH1
About TSRC

1.1 Industry Positioning

TSRC Corporation (hereafter referred to as "TSRC") was founded in 1973 and was the only synthetic rubber producer in Taiwan at the time. Today, TSRC has become a leading player in the synthetic rubber industry in Asia. TSRC targets the global market in its R&D and technology, and is expanding the international core technology with strong capabilities. The Company continues to develop customized products with excellent and stable quality, in order to expand the product application and sales volume. TSRC actively innovates and develops high-value-added products, including synthetic rubber products and polymers widely used in tires, personal care, and medical materials.

TSRC's rubber business unit is a global leader in synthetic rubber. In addition to the emulsion styrene-butadiene rubber (ESBR) and polybutadiene rubber (BR) products widely used in tires and rubber products, we have also developed solution styrene-butadiene rubber (SSBR) with low rolling resistance characteristics in response to the EU's promotion of green tire labels. TSRC is a world-leading manufacturer of styrene block polymers and the downstream compounding materials. We offer a diversified portfolio of products, including SBS products with butadiene as the compounding monomer, SIS products with isoprene as the compounding monomer, and hydrogenated SEBS products. TSRC continues to discover customer needs and has expanded our sales network in Asia, Europe, and the Americas to provide clients with consistent and reliable solutions.

1.1.1 Globalization

TSRC is headquartered in Taiwan, while it seeks to expand its global presence with locations in Europe, Asia, and America. TSRC's global business headquarters and two factories (Kaohsiung Factory, Gangshan Factory) are located in Taiwan, four subsidiaries are located in China (Shen Hua Chemical, Nantong Industries, TSRC-UBE, Shanghai Industries), the subsidiary TSRC Specialty Materials LLC is located in America, and TSRC (Vietnam) Co., Ltd. is in Vietnam, and trade and sales subsidiaries are located in Singapore and Luxemburg. TSRC also has joint ventures with Japan's UBE Corporation and Marubeni Corporation in BR factories, with Indian Oil Corporation in ESBR factories, with ARLANXEO in NBR factories.

Headquarters

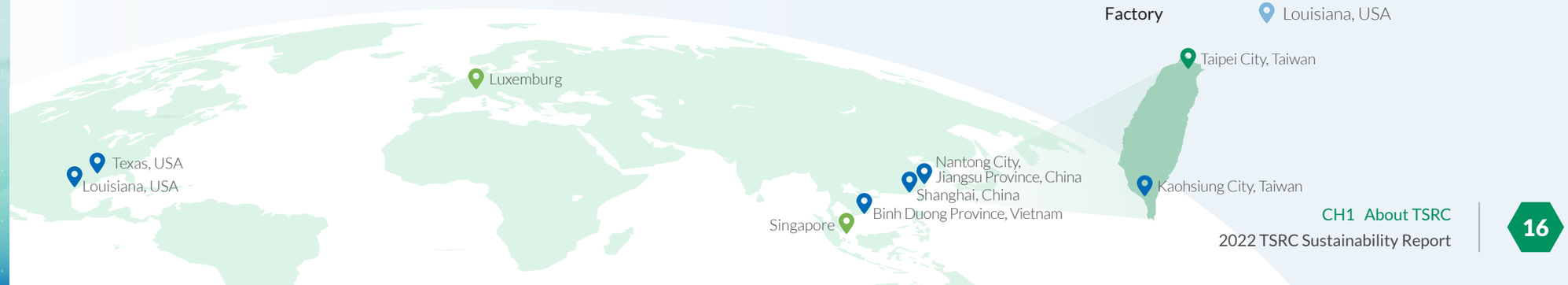
TSRC Corporation Global Business Headquarter	Taipei City, Taiwan

Trade and Sales

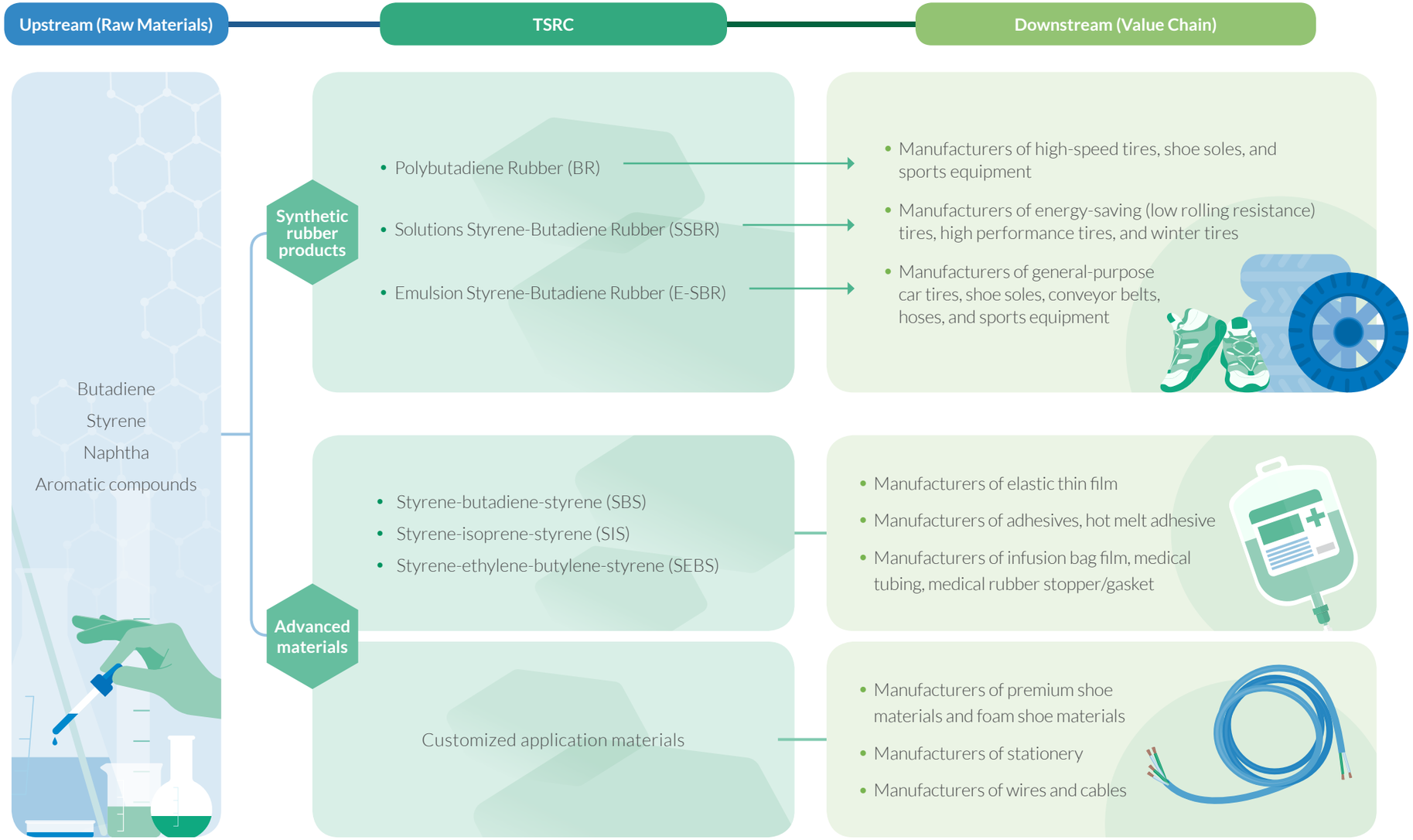
Polybus Corporation Pte Ltd	Singapore
TSRC (Lux.) Corporation S.à.r.l	Luxemburg

Production Plant

TSRC Corporation Gangshan Factory	Kaohsiung City, Taiwan	Advanced materials
TSRC Corporation Kaohsiung Factory	Kaohsiung City, Taiwan	Advanced materials; Synthetic rubber products
TSRC (Vietnam) Co., Ltd.	Binh Duong Province, Vietnam	Advanced materials
Shen Hua Chemical Industrial Co., Ltd.	Nantong City, Jiangsu Province, China	Synthetic rubber products
TSRC (Nantong) Industrial Ltd.	Nantong City, Jiangsu Province, China	Advanced materials
TSRC (Shanghai) Industries Ltd.	Shanghai, China	Advanced materials
TSRC-UBE (Nantong) Chemical Industrial Co., Ltd.	Nantong City, Jiangsu Province, China	Synthetic rubber products
TSRC Specialty Materials LLC	Office: Texas, USA Factory: Louisiana, USA	Advanced materials



1.1.2 Products and Applications



Note:

1. For information about the product brands and applications of TSRC, please refer to the TSRC website.
2. Compared to the previous reporting year, TSRC did not add nor modify industry categories, value chains, and joint ventures in 2022.

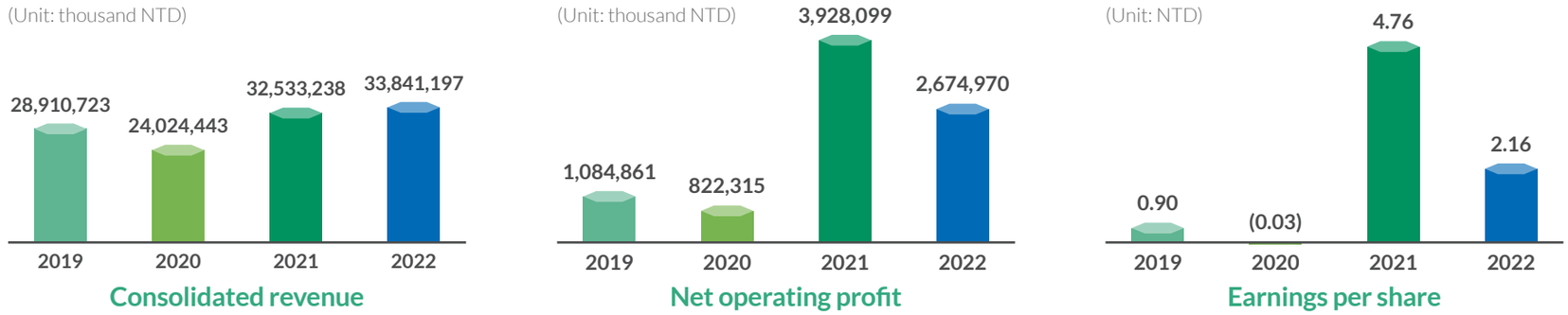
1.1.3 Key Business Achievements

For many years, TSRC has adhered to the concept of stable operations and continuously provided customers with the best solutions through cutting-edge chemical technology and innovative products, enhancing the company's operational growth and moving towards sustainable development step by step.

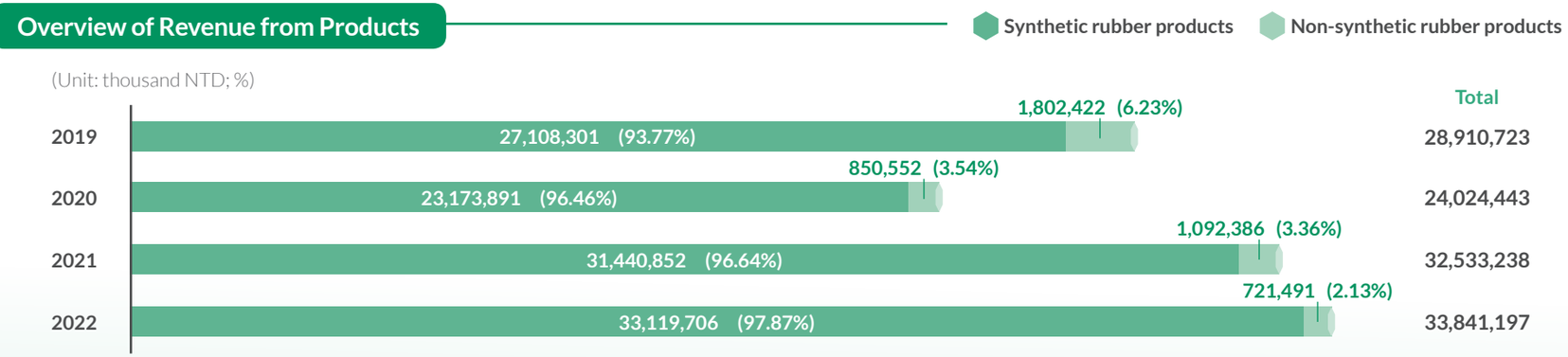
2022 was a turbulent year, with the impact of the pandemic, war, inflation, and extreme climate affecting the lives of people worldwide and causing a global economic recession. In such a challenging year, TSRC's profitability was reduced due to the decline in global demand and the impact of inflation. Still, TSRC has demonstrated resilience and maintained a steady operational performance by adopting flexible controls and proactive pricing strategies to mitigate market impacts through product portfolio advantages.

TSRC's business strategy and operational performance are reported regularly to the Board of Directors by the Executive Leadership Team, who supervises the operational performance and results. We held regular corporate briefings to explain the financial situation to shareholders and investors, and we adopt stakeholders' opinions and suggestions as a reference for operational strategy. For information on the operations of TSRC's Board of Directors and functional committees and financial performance, please refer to section 2.1.2 Board of directors and functional committees and TSRC's 2022 annual report.

Business Overview



Overview of Revenue from Products



1.2 ESG Management

1.2.1 Stakeholder Engagement

TSRC values communication with its stakeholders and actively engages with them through regular and ad-hoc channels to understand the actual and potential impacts of its business activities on stakeholders, as well as take actively preventive and mitigating actions. TSRC identifies six major stakeholders followed the five principles of the AA1000 Stakeholder Engagement Standard and based on daily operations: employees and other workers, customers, local communities, shareholders and investors, suppliers, and government and authorities. TSRC provides convenient and accessible bilingual offline and online communication channels tailored to the characteristics of each stakeholder group. We conduct annual bilingual surveys to gauge stakeholder concerns regarding ESG issues. TSRC also utilizes the stakeholder's questionnaire open feedback to understand the effectiveness of communication and actions. The employee engagement survey and customer satisfaction outcome are considered as engagement performance indicators about employees and customers.

TSRC Stakeholders

Target of Communication	Significance to TSRC	Topics of Concern Note	Communication Channel and Frequency	2022 Communication Results and Actions
Employees and other workers	Employees are TSRC's most important asset. They drive TSRC's continuous optimization of its products and services through their professional skills.	**Governance** Business strategies and performance **Environmental** Climate strategy and GHG emissions **Society/People** Employee welfare and sense of belonging	**Quarterly** • CEO quarterly communication meeting **Multiple times per year/ Irregular basis** • Employee welfare committee meeting • Employee education training • Health promotion forum • Functional questionnaire • Employees complain mailbox **Annually** • Labor union representatives conference	**Governance** • Organized CEO communication meetings to improve employees' understanding of the company's development direction • Established a self-learning platform to allow new employees to quickly understand of the company's vision and long-term development **Environmental** • Conducted global ESG education training for employees to communicate with the importance of ESG strategy and climate related risks **Society/People** • Continued to promote safety and health training and drills to provide a safe workplace • Promoted the "Global Self-Development" project and held presentations to align with organizational development and employee function transformation • Organized online sharing events to provide employees with cross-disciplinary learning opportunities • Provided employees with English language courses • Provided multiple health seminars to improve employee health

Target of Communication	Significance to TSRC	Topics of Concern Note	Communication Channel and Frequency	2022 Communication Results and Actions
 Customers	Customers' trust is the cornerstone of TSRC's sustainable operation. TSRC creates value for customers with innovative products.	Governance Sustainable Innovation Environmental Product accountability Society/People Occupational health and safety	Multiple times per year/ Irregular basis • Annual interactive seminar • Customer meetings or interviews (e-mail, telephone, video chat) • Technology or industry seminars • Domestic and overseas exhibitions • Information disclosure on the company website • Customer ESG audit • Company website Annually • Customer satisfaction survey	Governance • Conduct the customer satisfaction survey each year to maintain high level of satisfaction • Responded to customers' questions and met their needs immediately through TSRC's business units • Conducted interviews to build long-term partnerships with customers Environmental • Discussed with customers to understand sustainable product needs Society/People • Responded to customers' ESG or sustainability-related questionnaires in a timely manner, and explained TSRC's ESG strategy, goals, and action plans to customers • Cooperated with customers' ESG audits
 Local communities	Neighboring residents and local communities provided TSRC with diversified suggestions to drive TSRC's continuous efforts to reduce the potential or actual negative impacts of production activities and to actively expand the positive influence.	Governance Compliance Environmental Climate strategy and GHG emissions Society/People Communication with communities	Multiple times per year/ Irregular basis • Community visits • The Industrial Park Manufacturers Association Meeting • Information on the Company website Annually • The Industrial Park Service Center Meeting	Governance Environmental • Visited nearby communities of the Kaohsiung Factory to understand their concerns Society/People • Supported small organic farmers in Kaohsiung with specific actions and supported environment-friendly soil treatment • Regularly sponsor school lunches for elementary schools around Dashe District of Kaohsiung City every year

Target of Communication	Significance to TSRC	Topics of Concern [Note]	Communication Channel and Frequency	2022 Communication Results and Actions
 **Shareholders and investors**	Shareholders and investors have influence on TSRC's operational decisions, and TSRC continues to respond to shareholders' expectations with excellent operational performance.	**Governance** Business strategies and performance **Environmental** Energy management **Society/People** Talent attraction and retention	**Multiple times per year/ Irregular basis** • Investor service mail- box on TSRC's website • The Market Observation Post System (MOPS) • Website updates and major news announcements, stakeholders' members section, ESG mailbox on TSRC's website **Annually** • Convene 1 shareholders' meeting per year • Live broadcast of investor conference at least twice a year	**Governance** **Environmental** **Society/People** • Convened 1 shareholders' meeting and 2 investor conferences • Updated information on the company website and MOPS from time to time • Responded to all questions of shareholders regarding material issues via telephone and e-mail • Collected post-event questionnaires after investor conferences and compiled investors' feedback and suggestions
 **Suppliers**	The raw materials and services provided by suppliers are the basis for TSRC's high quality products. TSRC and its partners pursue sustainable development to create a win-win situation.	**Governance** Sustainable Innovation **Environmental** Climate strategy and GHG emissions **Society/People** Occupational health and safety	**Multiple times per year/ Irregular basis** • ESG mailbox on TSRC's website • Greenhouse gas reduction target promotion • Annual interactive visits or meetings **Annually** • Annual supplier evaluation once a year	**Governance** • Irregularly interviewed local suppliers and formed partnerships • Explored renewable raw materials suppliers **Environmental** **Society/People** • Regularly visited major suppliers for two-way communication • Completed annual global supplier audits • Updated supplier code of conduct and require all suppliers to comply with it

Target of Communication	Significance to TSRC	Topics of Concern [Note]	Communication Channel and Frequency	2022 Communication Results and Actions
Government and authorities	TSRC maintains smooth communication channels with the government to keep abreast of the latest regulatory trends.	**Governance** Governance, integrity and business ethics **Environmental** Climate strategy and GHG emissions **Society/People** Occupational health and safety	**Multiple times per year/ Irregular basis** • Interviews (telephone, visits, meetings) • Participation in government laws and regulations promotion activities	**Governance** • Responded to public company surveys of the TWSE • Participated in seminars organized by the TWSE • Maintained close contact with the TWSE to inquire about and verify material information and announcements **Environmental** • Participated in forums held by Taiwan's Environmental Protection Agency on strengthening climate change adaptation regulation – Company risks and disclosures under climate change

Note: The survey methodology about stakeholders' topics of concern: In 2022, TSRC sent questionnaires in English and Chinese to six categories of stakeholders located in the U.S., Europe, Singapore, Vietnam, Taiwan, and China, where TSRC operates and its subsidiaries are located, asking stakeholders to rank their concerns about TSR"s actions on 20 issues in three categories: environment, governance, and society/people. A total of 744 questionnaires were collected, of which 740 were valid (234 responses from employees and other workers, 81 responses from customers, 9 responses from local communities, 8 responses from shareholders and investors, 398 responses from suppliers, and 5 responses from government and authorities). A weighted approach was used to analyze the issues of concern for each stakeholder group, and this table presents the environmental, governance, and society/people issues of the most concern for each stakeholder group in the ranking.

1.2.2 ESG Material Topics

TSRC follows the GRI Standards to analyze and identify material topics. Through the five steps of "identification, evaluation, analysis, examination, and approval," TSRC examined the substantive and potential impacts of daily operations on the economy, environment, and society/people, continuously optimizing TSRC's ESG management strategy, and tracking the effectiveness of management impacts and effects accordingly. In the identification phase, TSRC referred to the UNEP Chemicals Outlook, sustainability rating indicators (including DJSI and CDP), the Sustainability Accounting Standards Board (SASB), the UN Sustainable Development Goals, the sector's regulations, upstream and downstream benchmarking enterprises, stakeholders' expectations, TSRC ESG strategy, and external consultants' recommendations to identify 29 potential and actual impacts. In the evaluation phase, TSRC ESG Partners assessed the significance of impacts according to the scope and scale, severity (for negative impacts) and likelihood. Furthermore, the 29 impacts were grouped by topics and the stakeholders' questionnaire was issued to the six categories of stakeholders to understand their concern levels about these issues. After analyzing and sorting the impact assessment results, integrating stakeholders' feedback, and cross-checking with the material topics for the sector, the 8 material topics were identified. The material topics were approved by TSRC's Executive Leadership Team in the 2023 first quarter ESG meeting.

The 8 material topics in 2022 are: business strategies and performance, compliance, risk management, climate strategy and GHG emissions, energy management, water resource management, waste and hazardous substance management, and occupational health and safety. Considering product accountability and circular economy as TSRC's future strategic development direction, relevant planning and performance are also disclosed in the report.

TSRC Material Topics Analysis Process

❶ Identification

- **Six categories of key stakeholders:** Employees and other workers, customers, local communities, shareholders and investors, suppliers, and government and authorities are the main communication targets of TSRC.
- **29 Positive/ Negative impacts:** TSRC refers to the UNEP Chemicals Outlook, DJSI, CDP, SASB, UN Sustainable Development Goals, the sector's regulations, upstream and downstream benchmark enterprises, and stakeholder expectations, and identified 29 actual and potential impacts on its own operations and upstream and downstream activities in its value chain.

❷ Evaluation

Negative impact

- **Scale and scope and Severity:** TSRC ESG Partners evaluates the impacts according to the scale and scope of the impact and the degree that the impact cannot be remediated, divided into three levels - "high, medium, or low".
- **Likelihood:** If the impact has occurred before, TSRC ESG Partners will evaluate the impact on a scale of "high, medium, or low" based on the frequency of occurrence. If the impact has not occurred before, it will be evaluated on a scale of "high, medium, or low" based on the probability of future occurrence.

Positive impact

- **Scale and scope:** Evaluate the impacts according to the scale and scope of the impact, with three levels - "high, medium, or low".
- **Likelihood:**If the impact has occurred before, it will be evaluated according to the frequency on a scale of "high, medium, or low". If the impact has not occurred before, it will be evaluated on a scale of "high, medium, or low" based on the probability of future occurrence.

Assessing the significance of impact:

The significance of Impact = Scale and scope x Likelihood

❸ Analysis

- **Group topics:** Refer to the GRI topic guidelines and group the related impacts into one topic.
- **Ranking:** Positive/negative impacts are ranked separately, and the top 33% is used as the threshold value, where anything above this threshold is considered a material topic.

❹ Inspection

- **Reference to chemical industry topics of concern:** Inspect material topics including those of interest to the chemical industry in the DJSI and SASB.
- **Reference to Stakeholder Feedback** [Note1]**:** We examined the material topics based on 740 valid online questionnaires from stakeholders.

Selection of eight material topics:

Formulating TSRC's material topic matrix and selecting the material topics

❺ Approval

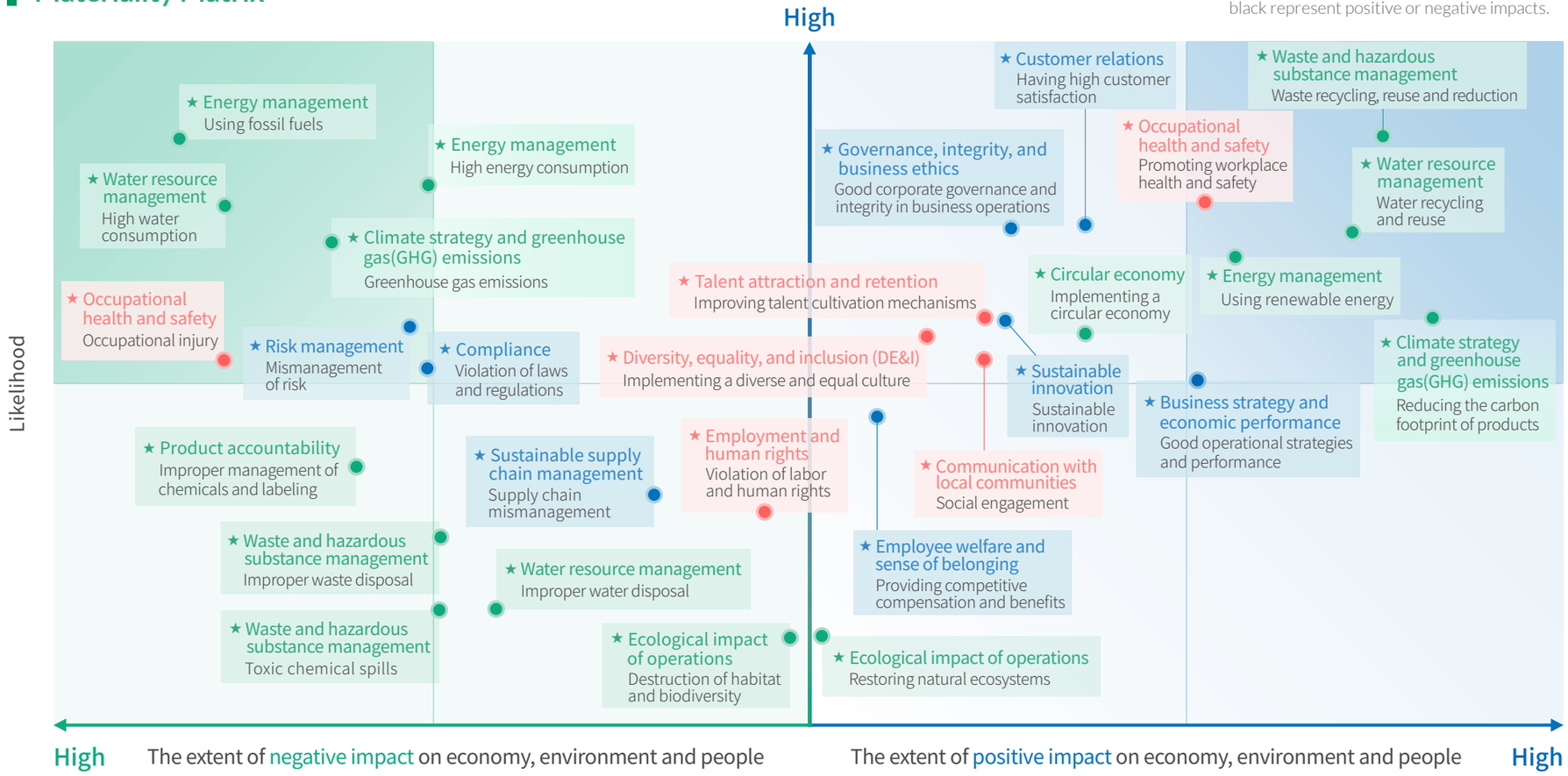
- **TSRC Executive Leadership Team** [Note2] **approval:** Reviewed and approved by the TSRC Executive Leadership Team at the ESG meeting in the first quarter of 2023.

Note: 1.In 2022, TSRC sent questionnaires in English and Chinese to six categories of stakeholders located in the U.S., Europe, Singapore, Vietnam, Taiwan, and China, where TSRC operates and its subsidiaries are located, asking stakeholders to rank their concerns about TSR''s actions on 20 issues in three categories: environment, governance, and society/people. A total of 744 questionnaires were collected, of which 740 were valid (234 responses from employees and other workers, 81 responses from customers, 9 responses from local communities, 8 responses from shareholders and investors, 398 responses from suppliers, and 5 responses from government and authorities). A weighted approach was used to analyze the issues of concern and the most concerned topic in the governance dimension is "governance, integrity, and business ethics," the most concerned topic in the environmental dimension is "climate strategy and GHG emissions," and the most concerned topic in the society/people dimension is "occupational health and safety".

2.For a description of TSRC's Executive Leadership Team, please see 2.1.3 ESG Management Framework.

Materiality Matrix

Note: The star indicates the ESG topics. The words in black represent positive or negative impacts.



Governance

- ★ Sustainable innovation
- ★ **Business strategy and economic performance**
- ★ Governance, integrity, and business ethics
- ★ **Compliance**
- ★ **Risk management**
- ★ Customer relations
- ★ Sustainable supply chain management

Environment

- ★ **Climate strategy and greenhouse gas (GHG) emissions**
- ★ **Energy management**
- ★ Product accountability
- ★ Circular economy
- ★ **Water resource management**
- ★ **Waste and hazardous substance management**
- ★ Ecological impact of operations

Society/People

- ★ Employee welfare and sense of belonging
- ★ Diversity, equality, and inclusion (DE&I)
- ★ Talent attraction and retention
- ★ **Occupational health and safety**
- ★ Employment and human rights
- ★ Communication with local communities

Note: The bold font represents the material topics.

Management of Material Topics

No.	Material Topics	Positive/negative Impacts on the Economy, the Environment and People (including their human rights)	Policies or Commitments	Impact on the Value Chain (Upstream: Raw Material Manufacturing — Product Manufacturing; TSRC Operations: Product Manufacturing; Downstream: Customer Processing and Use — Local Communities)	Impact Mitigation Action Overview and Corresponding Chapter
1	**Business strategies and performance**	**Positive** Good operational strategies and performance **Economy** TSRC's good operating strategies and continuous profitability revitalize the local economy and create momentum in the area where the plant is located. **Society/People** TSRC continues to make profits, creating higher economic value and benefits for shareholders and employees.	*2022 Investor Conferences*		• Adopt a proactive pricing strategy • Utilize product portfolio advantage 1.1.3 Key Business Achievements
2	**Compliance**	**Negative** Violation of laws and regulations **Economy** If TSRC violates corporate governance-related laws and regulations, and ethical integrity and other governance-related failures occur, causing the company to be fined by the competent authorities, the overall economic development and efficiency will be reduced. **Environment** If TSRC violates environment-related laws and regulations, causing pollution or other negative impacts and disrupting the ecological balance, and is subject to penalties imposed by the competent authorities. **Society/People** If TSRC violates labor, human rights, or product labeling-related laws and regulations, and is fined by the competent authorities, the rights of employees, customers, and suppliers will be harmed.	*Corporate Governance Guidelines* *Code of Ethics* *Code of Business Conduct* *Management Procedure for Insider Trading* *Management Procedure for Antitrust Compliance*		• Track law and regulations updates • Host educational training and dissemination 2.1.7 Compliance
3	**Risk Management**	**Negative** Mismanagement of risk **Economy** If TSRC does not manage its finances, strategies, operations, industrial risks, and climate risks properly, the company will suffer losses, which will in turn affect the tax revenue and overall economic development of the region where it operates. **Society/People** If TSRC's mismanagement of risks results in major violations or operating losses, it will cause damage to the rights and interests of employees, shareholders, and customers.	*Risk Management Policy*		• Develop and implement risk management actions • Manage risk responses quarterly 2.1.4 Risk Management

No.	Material Topics	Positive/negative Impacts on the Economy, the Environment and People (including their human rights)	Policies or Commitments	Impact on the Value Chain (Upstream: Raw Material Manufacturing — Product Manufacturing; TSRC Operations; Downstream: Customer Processing and Use — Local Communities)	Impact Mitigation Action Overview and Corresponding Chapter
4	Climate strategy and GHG emissions	**Negative** Greenhouse gas emissions **Economy** TSRC's operations and suppliers emit greenhouse gases, contributing to climate change and related climate disasters, resulting in overall economic losses. **Environment** TSRC's operations and suppliers' greenhouse gas emissions contribute to climate change and result in adverse impact on the environment, ecosystem, and biodiversity. **Society/People** TSRC's operations and suppliers emit greenhouse gases, contributing to climate change and related climate disasters, resulting in damage to the rights and interests of all people in society.	*ESG Strategies and Goals* *Environmental Policies*		• Promote energy-saving and low-carbon manufacturing process • Plan the utilization of renewable energy 3.1.3 Greenhouse Gas and Energy Management
		Positive Reducing the carbon footprint of products **Environment** TSRC commits to reducing the carbon footprint of products in order to reduce greenhouse gas emissions and mitigate the negative impacts of climate change and the environment. **Society/People** TSRC provides customers with low-carbon footprint products to help them achieve carbon reduction goals.			
5	Energy management	**Negative** Using fossil fuels **Environment** TSRC and its suppliers use fossil-based fuels and materials in operations, resulting in the continuous extraction of fossil fuels. The extraction process may pose a threat on water and the ecosystem.	*ESG Strategies and Goals* *Environmental Policies* *Energy Policies*		• Promote energy-saving and low-carbon manufacturing process • Plan the utilization of renewable energy 3.1.3 Greenhouse Gas and Energy Management

No.	Material Topics	Positive/negative Impacts on the Economy, the Environment and People (including their human rights)	Policies or Commitments	Impact on the Value Chain (Upstream — Raw Material Manufacturing; TSRC Operations — Product Manufacturing; Downstream — Customer Processing and Use — Local Communities)	Impact Mitigation Action Overview and Corresponding Chapter
5	Energy management	**Negative** High energy consumption **Environment** If TSRC uses a substantial amount of energy, it may lead to crowding-out effects on the energy resource in the operation area, resulting in the competent authorities expanding the construction of power plants or related facilities to meet the energy consumption of industries and communities. It may have an adverse impact on the environment, ecosystem, and wildlife habitats. **Society/People** If TSRC uses a substantial amount of energy, it may lead to crowding-out effects on energy resources, causing damage to the rights and interests of energy usage of local communities.	*ESG Strategies and Goals* *Environmental Policies* *Energy Policies*		• Promote energy-saving and low-carbon manufacturing process • Plan the utilization of renewable energy 3.1.3 Greenhouse Gas and Energy Management
		Positive Using renewable energy **Economy** If TSRC's demand for renewable energy increases, it will promote the development of renewable energy technologies and facilitate the development of the green chemical industry and the transformation of the low-carbon economy. **Environment** If TSRC uses renewable energy to reduce its dependence on fossil fuels, it will help mitigate climate change and negative environmental impacts.			
6	Water resource management	**Negative** High water consumption **Environment** If TSRC has high water consumption, it may lead to crowding-out effects on the water resource in the operation area, resulting in the competent authorities expanding the construction of reservoirs or other water storage facilities to meet the water consumption of industries and local communities. The construction may have an adverse impact on the environment, ecosystem, and wildlife habitats. **Society/People** If TSRC has high water consumption, it may lead to crowding-out effects on the distribution of water resources, causing damage to the water rights and interests of local communities.	*ESG Strategies and Goals* *Environmental Policies*		• Promote wastewater reuse • Increase recycled water usage percentage • Optimize wastewater treatment facilities 3.4 Optimize Water Resource Usage

No.	Material Topics	Positive/negative Impacts on the Economy, the Environment and People (including their human rights)	Policies or Commitments	Impact on the Value Chain (Upstream: Raw Material Manufacturing — Product Manufacturing; TSRC Operations; Downstream: Customer Processing and Use — Local Communities)	Impact Mitigation Action Overview and Corresponding Chapter
6	Water resource management	**Negative** Improper treatment of wastewater **Environment** If the wastewater generated by TSRC is discharged directly without proper treatment, it may lead to environmental and water pollution and affect the balance of the ecosystem. **Society/People** If the wastewater generated by TSRC is discharged directly without proper treatment, it may affect the physical health of employees and local community residents.	*ESG Strategies and Goals* *Environmental Policies*		• Promote wastewater reuse • Increase recycled water usage percentage • Optimize wastewater treatment facilities 3.4 Optimize Water Resource Usage
		Positive Water recycling and reuse **Economy** TSRC's expansion of reclaimed and recycled water promotes the development of reclaimed water technology and green economy transition. **Environment** The increase of the wastewater recycling rate and reclaimed water use will reduce TSRC's tap water use and its reliance on water resources, and decrease the impact on the ecological environment.			
7	Waste and hazardous substance management	**Negative** Improper waste disposal **Environment** If the waste generated by TSRC is disposed of or discharged without proper treatment, it may cause ecological impacts. **Society/People** If the waste generated by TSRC is discharged or discarded without proper treatment, it may affect the health of the local community.	*ESG Strategies and Goals* *Environmental Policies*		• Optimize production process to reduce waste • Reuse waste materials 3.3.2 Waste Management

No.	Material Topics	Positive/negative Impacts on the Economy, the Environment and People (including their human rights)	Policies or Commitments	Impact on the Value Chain (Upstream: Raw Material Manufacturing — Product Manufacturing; TSRC Operations; Downstream: Customer Processing and Use — Local Communities)	Impact Mitigation Action Overview and Corresponding Chapter
7	**Waste and hazardous substance management**	**Negative** Toxic chemical spills **Environment** If TSRC generates harmful chemicals and discharges them into water or soil, it may cause the death of animals and plants, resulting in ecological disaster. **Society/People** If TSRC discharges harmful chemicals into water or soil, the local community or end-users are directly exposed to the toxic substances, resulting in physiological disorders or chronic poisoning through biomagnification and long-term accumulation in the human body.	*ESG Strategies and Goals* *Environmental Policies*		• Optimize production process to reduce waste • Reuse waste materials 3.3.2 Waste Management
		Positive Waste reduction, reuse and recycling **Environment** TSRC promotes waste recycling and reuse to avoid the mining of raw materials and reduce the impact on the environment. By reducing waste generation, TSRC avoids the use of energy resources and potential ecological impacts required during waste treatment.			
8	**Occupational health and safety**	**Negative** Occupational injuries **Society/People** If TSRC's occupational health and safety measures are not properly managed, it may lead to occupational injuries and occupational diseases, affecting employees' work rights and health.	*ESG Strategies and Goals* *Safety and Health Policies*		• Establish an HSE incident management mechanism • Establish global HSE awards 4.2.3 Occupational Health and Safety
		Positive Promoting workplace health and safety **Economy** TSRC advocates workplace health promotion measures to improve the health of employees and increase the overall productivity of the economies in which it operates. **Society/People** TSRC continues to optimize workplace environment and health to provide employees with a positive and safe working environment.			

CH2 Governance

TSRC continues to strengthen corporate governance, improve risk supervision and management mechanisms, and make innovative breakthroughs to develop new products and services, becoming the best partner for customers to achieve sustainability. At the same time, TSRC monitors the risks and challenges at sites, to build a resilient and responsive supply chain, ensuring high stability of products and services.

The increase of R&D expense compared to 2021

5.5%

The R&D expenses in 2022 was NT$390 million, increased by 5.5% compared to 2021

Accumulated patents granted

429 cases

In total 10 patents were granted in 2022

Local sourcing in a Group

80%

Local procurement accounts for 80% of total procurement in 2022

2.1 Strengthen Corporate Governance

2.1.1 Vision and Management Approach

TSRC has upheld the mission of stable operations for years, with ethical corporate governance and adherence to laws and related regulations as the principle, and established a sound governance structure and supervision mechanism. TSRC views governance as the cornerstone for the ESG development. The Board of Director commissioned the CEO to lead the Executive Leadership Team to implement of ESG strategy and regularly reports the performance and future work plans. TSRC has established a comprehensive corporate risk management mechanism, integrating potential risks and opportunities affecting the operations, combining the long-term development strategy, and promoting sustainable business operations.

2.1.2 Board of Directors and Functional Committees

Duties of Board of Directors

The election of TSRC Board of Directors is conducted in accordance with the "Rules for Election of Directors" unless otherwise provided by law and regulations or other articles. The nomination of candidates and the allocation of the total number of members are also regulated by the board diversity policy set out in the "Corporate Governance Guidelines." The election of the TSRC Board of Directors follows a candidate nomination system, whereby candidates are nominated by the Board or by shareholders holding more than 1% of the shares. Candidates nominated by the Board are considered on the basis of their professional background, expertise, and independence. When the Board is re-elected, the major shareholders shall nominate candidates in consideration of relevant qualifications and the Company's strategic development. The Board will consider relevant proposals and discuss the nominated candidates based on the Company's needs, diversity policy, and succession plan. Once approved by the Board, the nominated candidate will be proposed for election at the shareholder meeting. The TSRC Board of Directors consists of 7 members, including 1 female director (14%) and 3 independent directors (43%). The term of office of the directors is three years, and there are no spouses or relatives within the second degree of kinship among the directors. The Board is led by the Chairperson and meets at least once a quarter to decide on the business policy, implement a good corporate governance system, strengthen supervision, and improve management functions (including environmental and social risks, opportunities, and impacts), making every effort to maximize the rights and interests of stakeholders. To avoid conflicts of interest, the Chairperson of TSRC does not serve as the CEO. For more details on the disclosure of conflict of interest, please refer to TSRC's 2022 Annual Report.

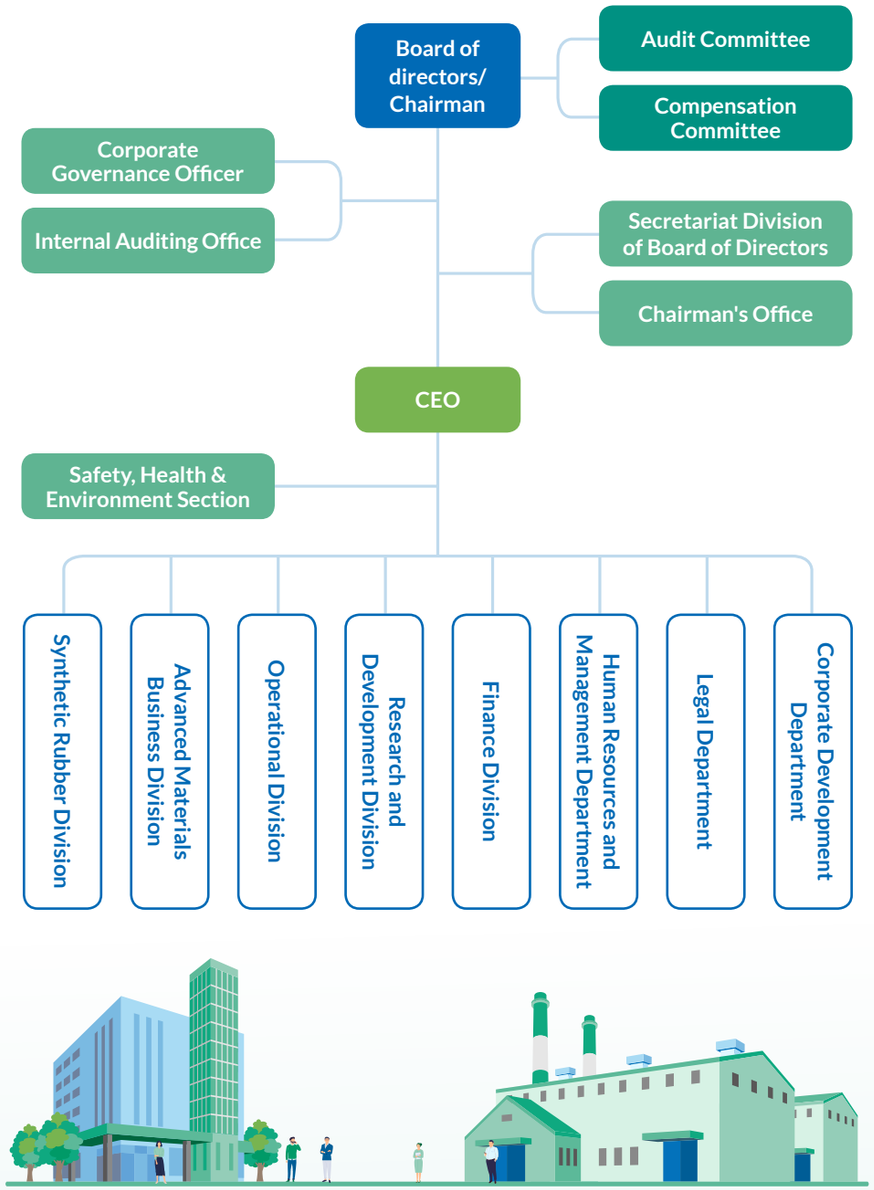
To enhance the diversity and improve the degree of profession of the Board of Directors, TSRC has included the diversity policy in Section 21 of the "Corporate Governance Guidelines". Members of the TSRC Board of Directors should possess the necessary knowledge, experience, and skills to perform their duties, and having the ability to embed TSRC's business characteristics, operation, market, and future development into the decision-making. The current Board members come from various professional backgrounds and have experience as senior executives in multinational corporations. The board members have the skills, leadership, and global market perspective to perform their duties. The abilities of the current Board are in line with the diversity policy and future operation needs of TSRC.

In addition, training courses for Board members and senior management are organized each year to enhance the skillset of Board members and to increase the overall knowledge of the highest governance body on economic, environmental, and social issues. Please refer to TSRC's 2022 Annual Report for more information on the profiles, backgrounds, terms of office, and training taken by the Bard members.

To prevent and mitigate conflict of interest, the TSRC "Procedure Rules of the Board of Directors meeting" and "Audit Committee Organizational Charter" both clearly state provisions for the recusal of directors' interests. When the Board of Directors discusses matters that are of interest to the directors themselves or the legal entities they represent, they are required to declare the material content of their interests at the Board meeting in question. If there is a risk of damage to TSRC's interests, the director shall not participate in the discussion or vote and should exit the meeting. They cannot act on behalf of other directors in exercising their voting rights. In addition, the TSRC Chairman and the CEO should not be the same person to avoid a conflict of interest.

Regarding ESG and sustainable development, the Board approved TSRC ESG strategy and long-term goals in 2022. Through the CEO's report to the Board on the status of ESG implementation and the sustainable development plan, the Board proposed suggestions to the CEO to strengthen the ESG adoption. The Board was highly concerned about climate-related physical and transition risks. In January, May, August, and November of 2022, the Executive Leadership Team reported to the Board on the operational status, including the climate-related risks and response measures taken by each site. Climate-related risks were considered by the Board when planning the annual budget, and TSRC's investment plans about energy conservation and carbon reduction are increasing each year to respond to risk. For more information on the management of ESG issues by the Board of Directors and the Executive Leadership Team, please refer to section 2.1.3 ESG Management Framework.

Corporate Organization Chart



TSRC has established two functional committees under the Board: The Audit Committee and the Compensation Committee. The members of the two functional committees are all independent directors, and each committee consists of three members. The members of the Audit Committee must have accounting or financial expertise. In order to implement corporate governance and support the work of the Board of Directors and shareholders' meetings, TSRC has established an internal Auditing Office under the Board of Directors to assist the Board and managers in reviewing and evaluating the effectiveness of internal controls and assessing the results and efficiency of operations, and to make timely recommendations for improvement. Please refer to the 2022 Annual Report for details on the committee members, the head of corporate governance, and the operation of the internal audit system.

Audit Committee

- Composed of three independent directors
- Responsibilities include supervising the fair presentation of financial statements; the appointment (dismissal), independence, and performance of accountants; the effective implementation of internal controls; compliance with related laws and rules, and the control of the company's existing or potential risks.
- Holds at least 1 meeting every year.

Compensation Committee

- Composed of three independent directors
- Responsibilities include establishing and periodically reviewing director and manager performance evaluation standards, and the remuneration policy, system, standards, and structures. The committee regularly evaluates the attainment of performance goals by the Company's directors and managers, and determines the contents and amounts of their individual remuneration.
- Holds at least 2 meetings every year.

Performance Evaluation of the Board of Directors

TSRC attaches great importance to the responsibilities and performance of the Board of Directors. In accordance with the "Procedure of performance evaluation of Board of Directors", the internal performance evaluation on the Board of Directors (including functional committees and individual directors) is conducted once a year, and the external one is conducted by an external professional and independent organization at least once every three years. The results of the evaluations are reported to the Board as a reference for continuous improvement.

In 2022, TSRC commissioned an external independent organization to conduct a performance evaluation of the Board of Directors. After a comprehensive evaluation of the Board's structure, membership, processes, and information transparency, the overall performance was deemed to be "exemplary." The recommendations provided by the external expert, which suggested increasing the number of independent directors' seats and specific expertise, was considered in the future improvement for strengthening the Board's functions. The Board also conducted an internal self-assessment. The results of the evaluation were rated as "meeting expectations," and the results of the Board's self-assessment were considered as a reference for reappointment of directors. For more information regarding the performance evaluation, please refer to the "Results of External Performance Evaluation of Board of Directors" and the 2022 Annual Report.

Remuneration Policy for the Board of Directors and Senior Management

In accordance with the "Article of Incorporation" and the "Compensation Committee Charter", the Compensation Committee and the Board of Directors regularly review the system of director's compensation, taking into account the director's participation in the company's operations, including meeting attendance, the performance of material topics (such as business strategy, operational performance, risk management, the promotion of ESG and sustainable development goals), and the Board of Director's performance evaluation result. The compensation also refers to the domestic and international director's compensation structure and trends. TSRC adopts fixed compensation and differentiates the compensation between independent directors and general directors. All independent directors of TSRC serve as members of the Audit Committee and the Compensation Committee and participate in the review of the remuneration policy, and policy is approved by the Board of Directors.

The director's compensation includes salaries, director's fees, and business execution expenses, but does not include signing bonuses or recruitment bonuses, and there is no clawback mechanism. The compensation for independent directors is based on their responsibilities and the level of participation, the meeting attendance per year, and the additional time they invest. Reasonable compensation is provided based on the TSRC's operating performance and the industry's standards. According to the "Article of Incorporation", if the Company is profitable that year, it will allocate not less than 1% as employee bonus and not more than 1% as directors compensation. TSRC does not have remuneration consultants involved in determining remuneration. The director's remuneration in 2022 will be reported in the 2023 shareholders' meeting once it was agreed by the Board.

The remuneration policy for the CEO and the Vice President level is performance-based, taking into account the sustainability and operating performance and factors such as individual experience and ability, level of responsibility, contribution to the operating objectives, market salary levels, and internal equity. Bonus and compensation include recurring payments and non-recurring payments based on a combination of the Company's and individual performance. The Company and individual performance indicators include the Company's annual operating performance (including the implementation of the ESG strategy and objectives), the performance of each functional unit, and the achievement of individual financial and non-financial performance targets. Each year, the human resources unit submits the above performance standards to the Compensation Committee for review and approval by the Board.

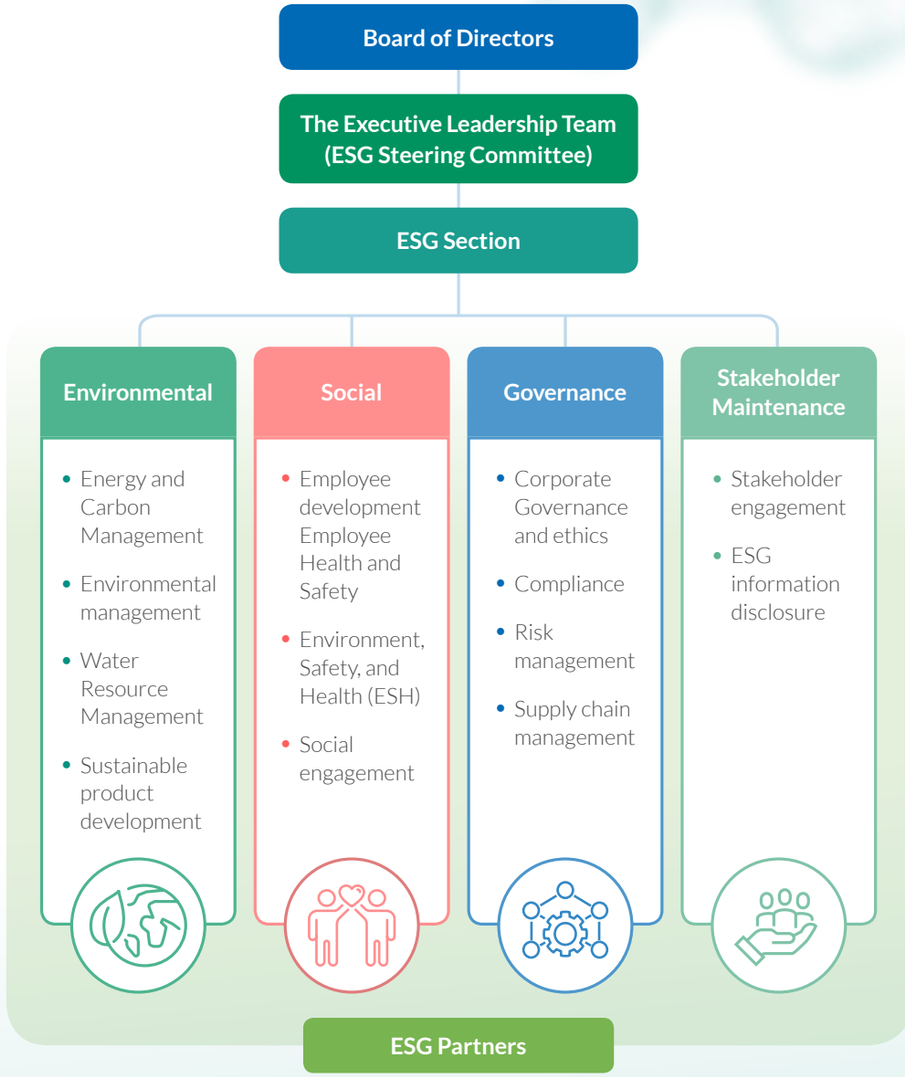
For more information on directors and executives' compensation, please refer to the 2022 Annual Report.

2.1.3 ESG Management Framework

ESG is a key element for TSRC's sustainable development. The Board of Directors has commissioned the CEO to lead an eight-member Executive Leadership Team (also named ESG Steering Committee) consisting of the heads of each functional unit to formulate ESG strategies and medium- and long-term goals. The CEO and the Executive Leadership Team are empowered to promote and implement ESG strategies. In 2022, the Executive Leadership Team reported to and gain approval by the Board of Directors on the ESG organizational structure, the planning framework, and the ESG strategy and goals. The CEO and the Executive Leadership Team report to the Board of Directors at least twice a year on the progress against ESG goals, material actions, and results of stakeholder communications. The Board oversees the overall process and provides advice to the Executive Leadership Team. In 2022, the CEO and the Executive Leadership Team conducted four reports to the Board on ESG-related matters, including the Company's ESG framework, sustainable development strategies and goals, climate-related risks and responding plans, details of stakeholder communication and engagement (including critical concerns), material ESG issues and responses, greenhouse gas emissions and verification, and annual capital expenditure budget for ESG topics.

To effectively implement ESG strategies and goals, an ESG Sustainable Development Team has been established under the Corporate Development Department, which is responsible for promoting TSRC's ESG and sustainable development. The Team coordinates ESG activity and information integration, develops actions planning and related process management, assesses achievement, and proposes improvement plan. In addition to facilitate ESG implementation, a cross-functional TSRC ESG Partners has been established. The members of TSRC ESG Partners are from each functional unit according to ESG attributes, aiming to effectively implement ESG measures, monitor progress, and implement suggestions. TSRC ESG Partners is composed of the Environmental, Social, Governance, and Stakeholder Maintenance sub-groups. Each sub-group is led by a member of the Sustainable Development Team in the Corporate Development Department, along with staff from various functional units. TSRC ESG Partners reports regularly to the Executive Leadership Team on progress and implementation outcomes, supporting the Executive Leadership Team to regularly monitor ESG performance and realize TSRC's short-, medium-, and long-term ESG goals.

ESG Management Framework Chart



2.1.4 Risk Management

Policy and Structure of Risk Management

TSRC has established the "Risk Management Policy", which sets forth clear risk management principles, responsibilities, and operating mechanisms. TSRC has also established the "Risk Management Operating Procedures" to carry out all risk management procedures and related operations, and to implement risk management in all aspects of its operations and decision-making. The Board of Directors is the highest governance body to oversee the management of risk, and the CEO and the heads of functional units are responsible for developing strategies, and the Risk Management Taskforce implements improvement measures. In January, May, August, and November 2022, the Executive Leadership Team reported the operating situation and the Company's operational risk management and response to the Board. In response to the climate-related risks, TSRC has established a Climate-related Risk Taskforce under the Corporate Risk Management System. For the climate-related risk management mechanism, please refer to 3.1.2 Keeping Abreast of Climate Risks and Opportunities.

TSRC's Risk Management Framework

Board of Directors
- Highest risk management governance unit
- Supervise the risk management system, process, and implementation results

The Executive Leadership Team
- Responsible for the management of TSRC's corporate risk management
- Supervise risk identification, assessment, prioritization, action plans, and risk disclosures (including climate related risks), which are promoted by the Corporate Development Department.

Risk Management Taskforce
- Implement risk management items or projects
- Team members come from various function units
- Risk management and improvement actions are updated regularly every year, and risk management (including climate related risks) is reported to the Board of Directors in quarterly operation reports.

Internal Auditing Office
- Check the risk management performance of each unit through annual and project audit

Risk Identification Process and Management

Risks are classified into nine categories based on operational activities and business characteristics, including strategic, contract management, and regulatory compliance. The Risk Management Taskforce every year identifies risks based on the previous year's risk management results, taking into account the external environment, the Company's operational needs, and emerging risks to identify annual risks. After evaluating the "likelihood of occurrence" and "impact level" of the risks, the Executive Leadership Team identifies "priority risks" and "risks requiring immediate actions" and prepares countermeasures and actions accordingly. In 2022, 20 priority risks have been identified, and 7 among them requires immediate actions. For those risks requiring immediate actions, the Risk Management Taskforce has formulated and implemented corresponding measures. After implementation, the Risk Management Taskforce reviewed the risk response measures and outcomes and will report the implementation results to the Executive Leadership Team by the end of the first quarter of 2023. TSRC recursively reviews the outcomes in the previous year and revises the process for the next year to ensure the effectiveness of risk management.

Risk Management Process

Q1 | Risk identification and assessment
- Review the actual status of risk management actions taken in the past year.
- Identify risks based on the external environment and the company's operational needs.
- Evaluate the likelihood (X-axis) and impact (Y-axis) of risks, and develop risk matrix.

Q2 | Risk Priority and Response
- Based on the risk assessment results, risks are classified as Level 1 (high), Level 2 (moderate), and Level 3 (low) risks.
- Select the "priority risks" for the year from Level 1 and Level 2 risks.
- If there is no management action or the existing management action is insufficient for the "priority risk," take immediate action.

Q3 | Management and response to "risks that require immediate action"
- Evaluate "priority risks," identify risks requiring immediate action, and take action in response.
- Review the effectiveness of management and response measures for "risks that require immediate action".

Q4 | Review and Improvement
- The Risk Management Taskforce will review the risk response measures and implementation status, and report it by the end of the first quarter of the following year.
- The risk management process is reviewed and revised based on the process and results of risk management in the current year.

9 Major Risk Categories at TSRC

7 risks that required immediate action and response measures in 2022

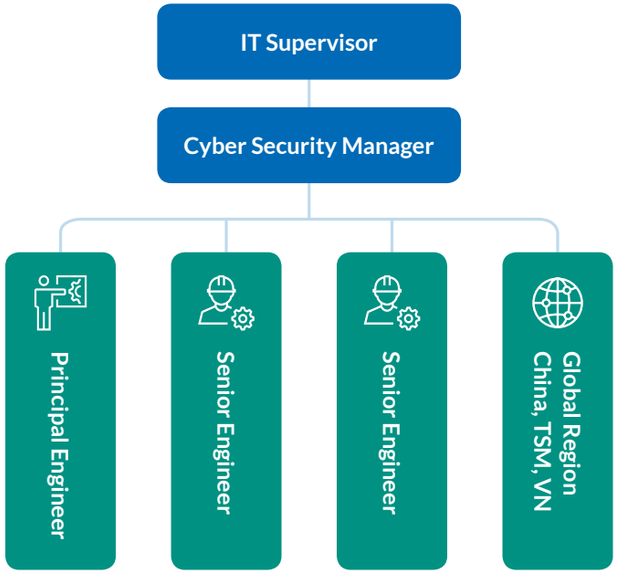
No.	Risk Category	Risk Contents	Response Measures	Management Goals or Targets	Implementation Results
1	 Strategy risks	Economic downturn	• Developed new markets and product portfolios • Co-developed product applications or new products with customers	**Synthetic Rubber Business** • Sales of SSBR and non-tire products achieve the annual target **Advanced Materials Business** • Sales of new products achieve the annual target	**Synthetic Rubber Business** • Developed new-generation synthetic rubber and provided customers with technical knowledge and services in the design and production process. In addition, we provided customized products that were certified by leading companies around the world. • Optimized BR product formulas and processes, expanded new application markets, provided customers with better processing performance, and obtained certification from major companies to increase sales volume in the advanced materials business. **Advanced Materials Business** • Applied supercritical fluid foaming technology to develop recyclable products, which are being certified by international brands.
2		Oversupply in the market	• Implemented flexible product portfolio control strategy • Co-developed product applications and new products with customers	• Establish flexible product portfolio control mechanism to maintain sales volume and revenue • Develop at least one new customer for medical grade SEBS and protective film	• Adjusted TSM SIS products to meet market demands and comply with global regulations. • Completed the development of medical grade materials, and international customers have completed testing and medical-grade certification. The product was officially launched.
3	 Geographical and industrial risks	Uncertainty of downgrading of Dashe Factory	• Continued to communicate with local manufacturers and the government	• Advocate for downgrading to grade A industrial area	• Regularly discussed countermeasures and action plans with members of factory associations and petrochemical associations.
4	 Operation risks	Price competition	• Set aggressive pricing strategies • Continued to improve product quality and safety	• Achieve annual profit goals • Reduce customer complaints and improve product quality • Optimize product portfolio	• Adopted an aggressive pricing strategy for synthetic rubber and to reduce environmental impact. Sales in 2022 were better than expected.

No.	Risk Category	Risk Contents	Response Measures	Management Goals or Targets	Implementation Results
5	**Operation risks**	Labor shortage	• Established a succession plan and talent pool • Improved cross-functional training	• Promote succession planning to subsidiaries • Conduct employee engagement surveys • Introduce systematic knowledge management into the organization	• Regularly reviewed and discussed the succession plan. • The approval rate of the 2022 employee engagement survey reached 74%, representing a 7% increase in overall global approval compared to the previous survey in 2019. • Continued to implement talent development projects.
6	**R&D and innovation risks**	Competitors' R&D and innovation capabilities	• Improved our own product quality • Developed new products and new product applications	• Reduce customer complaints and improve product quality • Collaborate with external vendors to develop new product applications	• Optimized the performance of existing production lines, not only to save energy and reduce consumption, but also to increase production capacity, while providing customers with higher quality products. • Developed a range of compounded materials that are used in a full range of products by international athletic footwear brands, and are actively developing new applications in the eyewear and transportation industries.
7	**ESG-related risks**	The increasing reduction rate of GHG emissions in response to laws or regulations	• Developed low-carbon technologies and process improvement solutions.	• Reduce GHG emissions 2.5% per year • Reach 5% renewable energy of total energy use by 2025	• In 2022, the Scope 1+2 GHG emission reduction reached 2.5%, and the Scope 1+2+3 GHG emissions reduction reached 3.77%, compared to the base year (2021). • Increased investment in renewable energy. The Kaohsiung Dashe Factory and the TSRC Shanghai Industries plan to install solar panels and are expected to supply renewable energy in 2023. • Will increase renewable energy usage in subsidiaries in China in 2023.

Cyber Security

TSRC actively protects the Company's important information assets, defends and prevents internal and external cyber security threats, whether planned or unintended, and has established the "Cyber Security Policy and Management". The head of the IT Department of the Finance Division also serves as the head of the Cyber Security Unit, which consists of a cyber security supervisor and several professional IT staffs who are responsible for planning the internal information security policy and planning and implementing information security operations. The the Company's cyber security status is reported to the Board every year. For more information, please refer to TSRC website for details on the implementation in 2022.

Cyber Security Organization Structure



2.1.5 Customer Relations

TSRC has provided customers with products and services that best meet their needs through its global network. We insist on striving for better quality, safety and services, and firmly believe that high quality will provide great customer service to meet and even exceed customers' expectations. TSRC builds close relationships with customers through accountability and has achieved a high level of trust and understanding of customers' needs. With TSRC's triangular business strategies, we deliver maximal value to customers.

In response to global ESG trends, brand customers have increasingly be requesting suppliers' ESG data and performance outcomes. Customers also tends to obtain data provided by the international third-party rating agencies (such as Ecovadis, CDP, etc.). To respond to customers' expectations and to better communicate with customers, in addition to the third-party rating agencies, we also provide data to customers and adjust our business strategy to meet customers' ESG needs.

Global Customer Relationship Management

TSRC has established sales and supply bases across Europe, the United States, and Asia, together with five key operating bases in Taiwan, China, Luxembourg, the United States, and Vietnam. As TSRC's two major businesses (synthetic rubber and advanced materials) have different product types, in order to provide customized services, TSRC implements global and local (glocal) customer relationship management strategies to ensure that both businesses provide the highest quality and prompt service to customers.

Tire and footwear manufacturers are the main customers of our synthetic rubber business. Our sales and production facilities are mainly located in Taiwan and China, so that local sales offices can serve customers directly. When there are cross-regional (e.g., Europe and Asia) service needs or issues about new product development, staff from regions jointly discuss and explore solutions to meet customer needs, while staff from the local sales office are in charge of responding.

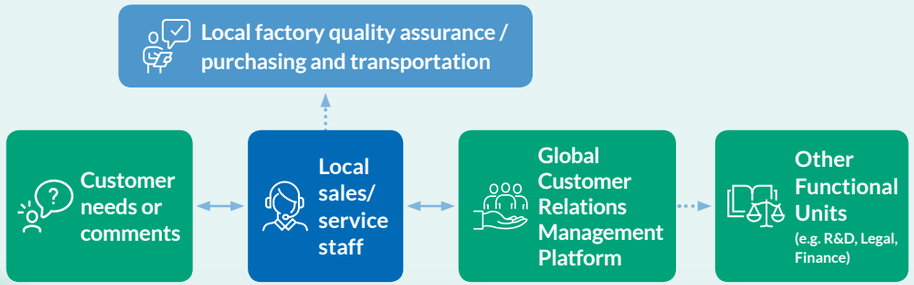
The customers of our advanced materials include medical and healthcare material manufacturers and footwear companies, which locate all over the world. Considering the regional and time differences, we set sites in Luxembourg, the United States, Taiwan, China, and Vietnam as important sales bases. To provide better services to customers and accurately convey customers' opinions to each factory, TSRC has established a global customer relationship management platform, which enables employees at all locations to exchange ideas and opinions received from customers. This accelerates the improvement and adjustment of product quality and enables customers' problems to be addressed promptly.

In the spirit of providing customer-oriented services, TSRC has established standard procedures to properly handle customer complaints and refunds. The Quality Assurance Department of each factory serves as the contact window for customer complaints and specific needs. The Department is responsible for ensuring that product quality and delivery issues can be resolved in a timely manner. If the quality specification does not meet customer requirements, TSRC's knowledge management system will support to provide professional solutions and analyze the root cause of the problem for subsequent improvement.

Global Customer Relationship Management

Synthetic Rubber Business

Advanced Materials Business

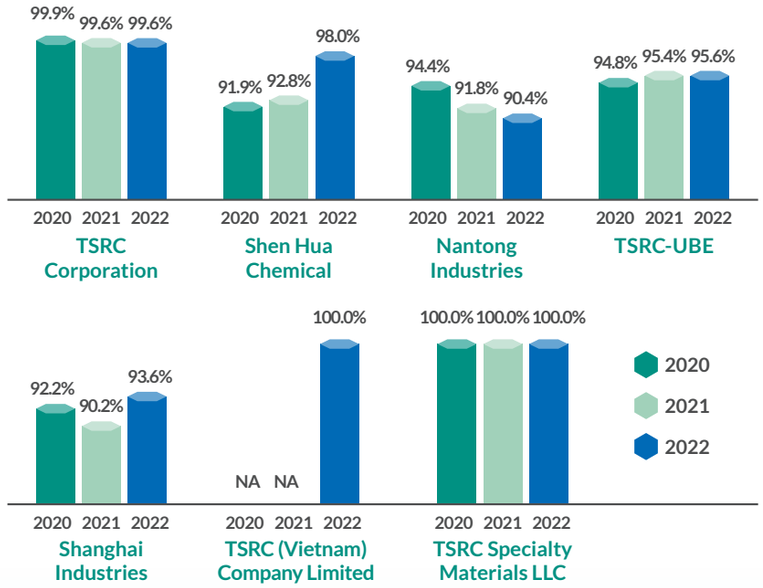


Improve Customer Satisfaction

TSRC's core mission is being an important partner to our customers. We obtain customer feedback through various channels, such as customer meetings and annual satisfaction surveys. Each year, we conduct global customer satisfaction surveys. The survey asks customers' satisfaction about our business services, transportation services, product quality, technical services, and complaint handling. Due to the differences in customer characteristics and product features at each site, the questions of the survey are adjusted to reflect the characteristics between regions and customers.

A total of 152 customer opinions were collected in the 2022 Customer Satisfaction Survey. The overall satisfaction rate was over 90%. Among all subsidiaries and plants, the satisfaction rate of Nantong Industries' customers is significantly lower than others. In response to this situation, we have worked with suppliers to develop improvement plans to continuously enhance customer satisfaction.

Customer Satisfaction



Note:

1. The two trading subsidiaries (Polybus Corporation Pte Ltd, TSRC (Lux.) Corporation S.à.r.l) within the reporting scope do not have any production activities or customers and are therefore not included in this table.
2. TSRC (Vietnam) Company Limited was officially operated in 2021, thus the customer satisfaction has been held since 2022.

2.1.6 Ethical Corporate Management

TSRC values integrity and ethics, and the Board of Directors has established the "Code of Business Conduct" and the "Code of Ethics" to clarify the core business principles of TSRC and to serve as a compliance framework for TSRC and its subsidiaries.

The "Code of Business Conduct" and the "Code of Ethics" were formulated with reference to the Taiwan Stock Exchange's "Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies" and the "Guidelines for the Adoption of Codes of Ethical Conduct for TWSE/GTSM Listed Companies." The content covers anti-corruption and anti-bribery, handling of conflicts of interest, fair trading, prohibition of insider trading, respect for intellectual property, compliance with laws and regulations, responsible management, and the reporting system for violations.

With respect to anti-corruption and anti-bribery, the "Code of Business Conduct" and the "Code of Ethics" strictly prohibit bribery, the acceptance of bribes, and political donations. For necessary business etiquette, such as official gifts or hospitality, the TSRC Human Resources Department has established the "Procedures for Official Gifts and Hospitality" to regulate employees' behavior. In addition, TSRC has specified the levels of corporate donations in its hierarchical management practices to avoid inappropriate charitable donations or sponsorships.

To implement the management of conflicts of interest, the Board of Directors has formulated the "Conflicts of Interest Management Regulations" to specify the disclosure channels and procedures. The Human Resources Department not only provides questionnaires for employees to fill out on a annual basis regarding conflict of interest situations and provides a public channel for employees to disclose the situation at any time.

In addition to regularly monitoring updates in relevant laws and timely adjusting operation practices to comply with legal requirements, TSRC also formulates particular operating procedures for certain areas of requirements. For example, to prevent insider trading, TSRC has established the "Management Procedure for Insider Trading", which specifies the period during which directors are prohibited from trading, and the Legal Department is responsible for conducting regular courses and training. Regarding the respect for fair trade compliance, TSRC has established the "Management Procedure for Antitrust Compliance", which specifies various matters to be followed and prohibited according to the characteristics of the Company's business. In respect of intellectual property rights, in addition to the relevant operating rules developed by the Research and Development Division, each department defines specific confidentiality measures. The Human Resources Department also regularly compiles the results of the trade secret inventories of each department. The Human Resources and Administration Department requires new employees to respect the intellectual property rights of any third parties and refrain from any infringing behavior.

In terms of business ethics, the "Code of Business Conduct" clearly regulates agents, distributors, and suppliers. These companies must agree to follow TSRC's ethical business principles, and to protect intellectual property rights and trade secrets. When signing contracts with suppliers, we also include compliance with the "Code of Business Conduct" in audits and evaluations to serve as a reference for future supplier selection. With regard to products or services, it is explicitly required that products or services should not cause direct or indirect harm to stakeholders.

TSRC has established an internal and external whistleblowing channel to effectively implement the "Code of Business Conduct" and the "Code of Ethics". If an employee has any doubts or needs advice regarding unethical behavior, he/she can use the internal employee mailbox internally for grievance. Meanwhile, anyone (including employees) who is aware of any illegal, dishonest, or unethical behavior can report it through the official website or by mail. If the subject is a member of the Board of Directors or the CEO, the report will be received by the Chairperson; if the subject is other employees, the report will be received by the CEO. The principle of named reporting should be adopted for the acceptance of cases, the identity of the whistleblower should be kept confidential, and no one should threaten, intimidate, or retaliate against the whistleblower. Anonymous reports may be accepted if the content of the report and the evidence are clear. Depending on the nature and content of each case, the Chairperson or the CEO respectively will designate personnel without a conflict of interest to form a taskforce to investigate. If the case involves the CEO or a member of the Board, the investigation will be handled by the Chairperson or the Audit Committee.

TSRC regularly provides training and promotional activities to employees and business partners with the Company's ethical business conduct policy, measures to prevent unethical behavior, and the consequences of violations. We have incorporated the implementation of ethical business management into the performance evaluation system of each department. For details about the implementation of ethical management courses and training and the prevention and management of insider trading in 2022, please refer to the TSRC website.

TSRC Ethical Policy

Code of Business Conduct

Approval Levels Board of Directors

Supervision, Management, and Promotion

- The Board of Directors oversees responsibilities
- The Chief Executive Officer is responsible for the management
- The Legal Department establishes or amends the Code of Conduct.
- The head of departments promotes and implements relevant practices.

Applicable Activities and Targets

- Directors, supervisors, managers, employees, and consultants of TSRC and its subsidiaries
- Suppliers
- Agents
- Distributors

Code of Ethics

Approval Levels Board of Directors

Supervision, Management, and Promotion

- The Board of Directors oversees responsibilities
- The Chief Executive Officer is responsible for the management
- The Legal Department establishes or amends the Code of Conduct.
- The head of departments promotes and implements relevant practices.

Applicable Activities and Targets

- Directors, supervisors, managers, employees, and consultants of TSRC and its subsidiaries

2.1.7 Compliance

TSRC complies with global laws and regulations related to governance, environment, products or services, and finance. As the world focuses on climate change response and ESG topics, many countries have imposed strict environmental regulations including air pollution, wastewater discharge, and waste treatment to strengthen prevention and reduce environmental impact. TSRC closely monitors the latest development of regulations in Taiwan, China, the United States and Vietnam, where our production sites are located. We have set indicators that meet or exceed regulations and continues to tighten factory environmental management. With regard to concerns for occupational health and safety and local communities, TSRC continues to improve the care and protection for our employees based on local laws and regulations.

All employees are requested to comply with the Code of Ethics, uphold the principles of honesty and trustworthiness, and abide by professional standards and related laws and regulations. In 2022, there were no fines or non-monetary sanctions for violations of corporate governance or economic laws and regulations, nor were there any violations of laws and regulations related to consumer health and safety, information or labeling for products, and services.

TSRC did not have any significant instances of non-compliance in 2022. TSRC classifies significant EHS incidents into three categories (severe, moderate, and minor) with reference to OSHA 1904, API RP754, and TSRC's historical incidents. The severe incident is defined as follows:

	Occupational Health and Safety	Environmental Safety and Health penalty	Environment	Fire Accident	Production Process Safety	Others
Severe EHS Incidents	Fatality Lost Time Injury (LTI)	Penalty amounts greater than US$75,000	Loss of more than US$75,000	Loss of more than US$75,000	Tier-1 PSE	Loss of more than US$75,000

In 2022, there were two cases of occupational safety-related fines as two employees at the Kaohsiung Factory got burn injury caused by not complying with the required operating procedures, with the penalty of NT$200,000. Regarding the environment, there were five environmental penalties on air pollution, with fines totaling NT$1.07 million. Penalty for the abovementioned seven incidents was NT$1.27 million. Regarding measures for air pollution improvement, please refer to 3.5 Improve Environmental Management. For the previous year's regulatory violations and fines, please refer to the Appendix - Sustainability Data.

2.2 Develop Innovation Momentum

2.2.1 Vision and Management Approach

TSRC embraces innovation to drive excellent performance and create a virtuous cycle for companies and society to achieve mutual prosperity for sustainable development. TSRC's employees develop new technologies and apply for patents with the incentives from the Company's rewards for innovation and continuality improvement. The TSRC global customer relationship management platform and global R&D centers located in Asia and the United States play a vital role to ensure our innovation meet the market needs.

TSRC focuses on reducing the environmental impact of products, developing renewable raw materials, and providing green services to our customers. We engage with customers to thoroughly understand the processing procedure in order to make our products easier to process, helping customers reducing the procedures and avoiding extra energy and resources and greenhouse gas emissions.

2.2.2 Innovation Capabilities

TSRC has a total of 168 staff delegated for the planning and developing new products and processes, as well as managing relevant technical know-how. These R&D experts accompany with colleagues from the Sales and Quality Assurance Departments to meetings with customers and discuss product application trends; thus, they receive the first-hand information from customers and integrate it in product development. The Company's R&D expenditure in 2022 was approximately NT$390 million with an increase of 5.5% compared to 2021.

Global R&D Center

The TSRC R&D Center located in Texas, USA, was launched in 2021. It is the second global R&D center of TSRC and the first one outside Asia. The R&D Center is co-located with office of TSRC Specialty Materials LLC. It is TSRC's second multi-functional R&D facility after the Global Application Research Center established in Shanghai, China in 2010. The Center provides customers with climate-friendly specialty polymer products and total environmentally friendly solutions.

The R&D Center in the U.S. focuses on SBC product development and provide cost-effective solutions by engaging with different functional units including sales, production, quality assurance, product safety and regulation. The Center integrates process technology development, terminal applications, and technical services for customers in the innovation and development. It leverages TSRC's global sales network and technical capabilities to develop medical-grade materials, hygiene products, adhesives, films, asphalt modification, and elastic nonwovens.

TSRC R&D Center in the U.S.

TSRC Laboratory

Incentives for Innovation

To accelerate transition and innovation, TSRC has established various innovation awards, including awards for Innovation Contribution, Continual Improvement, and Error Cause Removal. The Innovation Contribution Award is given to teams or individuals who have contributed to the development of new products and new production processes. In 2022, a total of 17 awards were given to encourage employees to covert new ideas to actionable projects and improve the quality and value of TSRC products. The award amount was NT$350,000 in Taiwan and RMB140,000 in China. In addition, we organized continual improvement contests with consideration of the changes of the industry environment, customer feedback, and business strategies, creating a corporate culture to enhance the Company's problem-solving ability. In 2022, 7 continual improvement projects were awarded. In addition, the Company encourages employees to use logical and statistical analysis to eliminate root causes of errors, and continues to propose quality and process improvement measures. A total of 1,861 projects were awarded in 2022.

Innovation Contribution Award

Promote innovative ways to develop new products or processes, optimize production, and propose new key projects

"TPE Process Optimization"

- Adjustment of SEBS raw material NBL to reduce NBL consumption in SEBS products by 5-6%.

"BR New Product Trial Optimization"

- Improvement of activated carbon adsorption efficiency and energy consumption in the production area, achieving up to 96% adsorption efficiency.
- Implementation of hot water push measures to improve residual VOC in the polymerization reaction and solvent system equipment/ pipeline after emptying.

Continual Improvement Award

Encourage product improvements and process upgrades

"Activated Carbon Tank Operation and Energy Optimization"

- Increase in total adsorption efficiency to over 95% and a 10% reduction in annual steam consumption.

"SEBS Production Line Electricity Consumption Reduction"

- Reduction of the electricity consumption of Nantong Industries' SEBS production line while ensuring stable quality. The planned reduction was from 928 kWh/t in 2021 to 890 kWh/t in 2022.

Error Cause Removal Award

Encourage the use of logical and statistical analysis to improve product quality and processes

"Reducing Flare Emissions"

- Optimization of the reaction tank operations to smoothly guide nitrogen gas into the distillation tower after operation.

"Improving Water Resource Utilization and Preventing Abnormal Wastewater Quality"

- During heavy rain, the BR production line's rainwater is diverted to the API and a new 4-inch pipeline installed to the SBR plant process ditch.

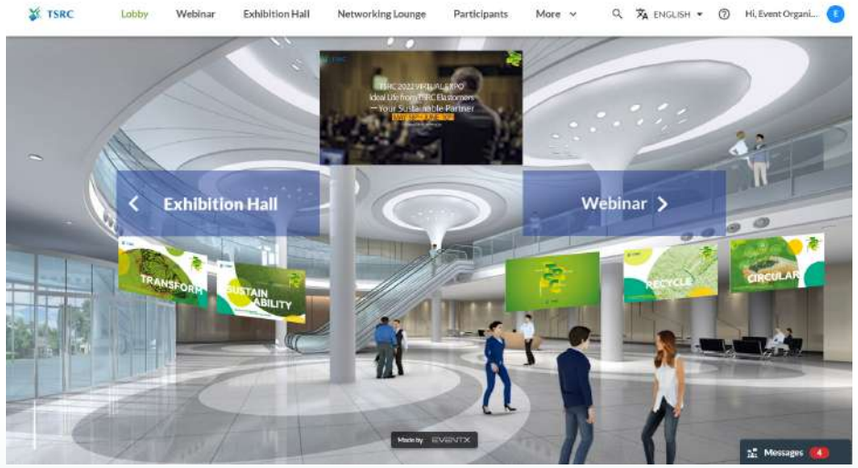
Exchanges of Innovative Technologies

COVID-19 has influenced the way technology exchange events are conducted, leading many companies to use a mix of online and offline marketing methods. As a leading specialty chemical brand, TSRC adopts innovative marketing activities such as virtual exhibitions, live streaming, and social media to respond market demands. We have also strategically collaborated with partners such as machinery suppliers and research institutes to enhance brand image and to explore the business opportunities.

In 2022, we held 16 related innovation and technology exchange events, including webinars and 10 virtual exhibitions showcasing 40 applications of advanced materials business products, with 350 registered participants from 25 countries and more than 2,200 viewers and participants, with a satisfaction rate of 99%. TSRC also used virtual exhibitions, webinars, and social media platforms such as WeChat and LinkedIn to attract specific audiences to our brand. TSRC collaborated with external partners to promote new products and enhance brand reputation in response to industry trends.

To reach out to new customers and create more business opportunities, TSRC's Advanced Materials Division cooperated with foaming machine suppliers to develop foaming markets. In 2022, TSRC held its first joint event with an external supplier to promote our green foam products. The event created tangible benefits, including (1) raising the market awareness and understanding of new foam products, (2) promoting the ESG environmental value of TSRC products, and (3) establishing TSRC's reputation in the footwear industry. The event's video and audio reached over 500 views, showing the great feedback from TSRC's technology exchange strategy and partnership.

TSRC Online Virtual Exhibition

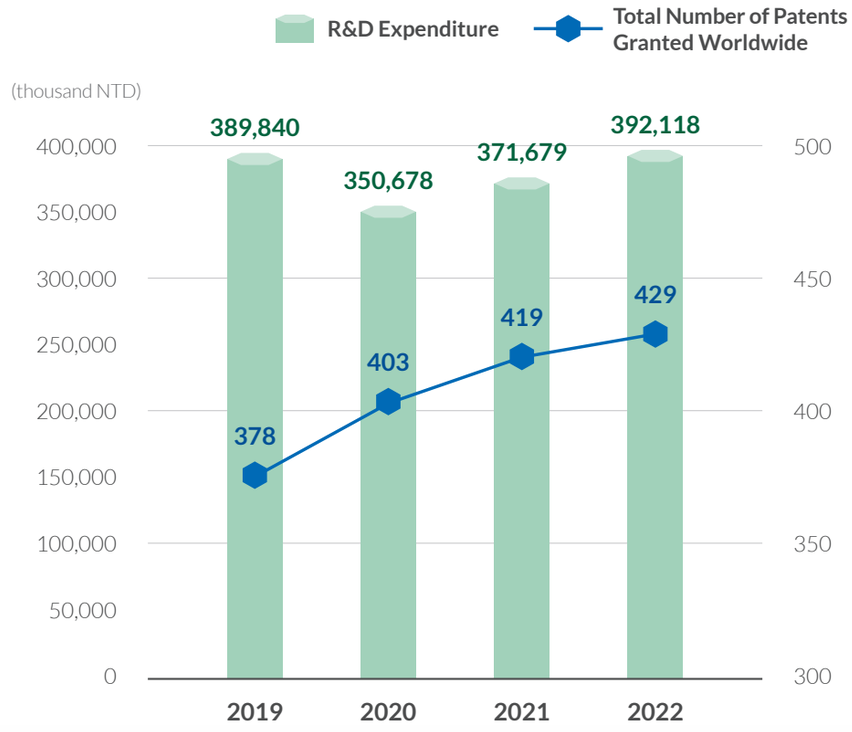


TSRC Patents

Patents are an important indicator of technological innovation and research and development capabilities. TSRC provides substantial rewards to motivate internal innovation. A total of 3 patents in 2022 were granted by a single country, and the TSRC developers has received patent rewards. As of the end of 2022, TSRC has applied for a total of 530 patents worldwide and 429 patents have been granted. In 2022, TSRC was granted 10 patents.

TSRC regularly conducts patent training programs to enhance employees' knowledge and skills and establishes a trade secret award to enhance the Company's competitive advantage. The TSRC Patent Evaluation Committee discusses each invention proposal to ensure the quality and applicability of patents. For more information about TSRC's intellectual property management, please visit the TSRC website.

Granted Patents and R&D Expenditure



2.2.3 Innovative Product and Technology

Synthetic Rubber Products

The main product applications of synthetic rubber are automotive parts, tires, and shoe soles. TSRC's main strategy is "product optimization, emission reduction, and application enhancement" to support the climate initiatives of our value chain partners with innovative products.

New-generation synthetic rubber

- TSRC has developed new-generation synthetic rubber material solutions, including research and testing application, technical platform, and product portfolio for new energy vehicle tires, and provides customers with comprehensive technical knowledge and services in the design and production process.
- The new-generation synthetic rubber has low rolling resistance, anti-slip, and wear resistance properties that improve fuel efficiency and help reduce carbon emissions from tires. Based on the sales volume in 2022, TSRC's green tires made of next-generation synthetic rubber contribute to reduce CO_2 emissions from vehicle travel by 150,000 tons.

Product Applications |
Tires for electric vehicles or energy-saving vehicles

BR optimization

- TSRC optimized the existing BR product formulas and processes and expanded new application markets to provide customers with better processing performance. It has received certification from international companies and the commercial orders are increasing.

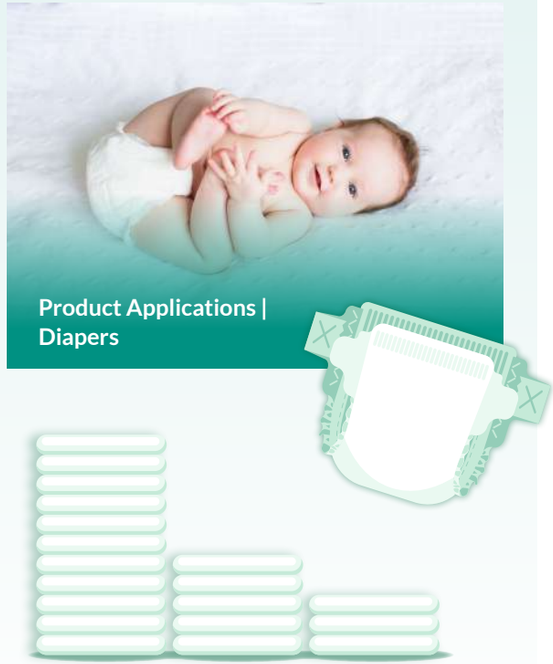
Product Applications | Footwear

Advanced Materials

TSRC's advanced materials include thermoplastic elastomers and other materials for customized applications. The main applications of thermoplastic elastomers are adhesives, elastic films, IV bags/films, and medical tubing; and other materials are mainly used for footwear. TSRC products are non-toxic and recyclable and can replace materials that are hazardous to the environment and human health, simplifying the production process of downstream products and improving production efficiency and performance.

Development of High-Value SBC

- We have developed hygiene materials such as thin elastic films and elastic nonwovens fabrics, and applied them to diapers, masks, and hygiene and nursing products. Some of these have been officially launched in the market.



Product Applications | Diapers

Non-crosslinked SCF technology

- The products developed with SCF technology are recyclable, which is different from conventional cross-linked PU and EVA shoe sole materials. Certification by international brands is in progress.
- Based on TSRC's estimates, the carbon footprint of TSRC SEBS foam material is 5.016 kg CO_2e per ton, which is lower than 7-8 kg CO_2e per ton of commercially available TPU material and 11-12 kg CO_2e per ton of TPEE material.

Product Applications | Footwear

Medical-grade SEBS

- TSRC has completed the development of medical-grade SEBS material. The SEBS material is transparent and contains no plasticizer. Some international customers have completed the testing and certified the product with medical grade quality. These products have been officially launched in the market.

Product Applications | IV bag/film and medical tubing

2.3 Enhance Supply Chain Management

2.3.1 Vision and Management Approach

Suppliers are our partners, and we create value together. TSRC focuses on our partners' environmental, social, and governance performance. We require our suppliers to adhere to the "TSRC Group Supplier Code of Conduct" and the "Code of Business Conduct" to comply with business ethics. Suppliers are requested to provide high-quality products and reducing the risk of business interruption, not at the expense of human rights and labor rights, safe working environment, and environmental impact. TSRC closely engages with suppliers by reviewing and evaluating their operational status to manage the supply chain sustainability risks.

2.3.2 Supplier Management

TSRC relies on petrochemical raw materials purchased from suppliers for polymerization. Upon completion of the synthesis, the raw materials are manufactured into chemical materials and rubber material products, which are sold to downstream customers (including tire manufacturers and medical product manufacturers), and then downstream customers use the materials to produce the end-use product. Upstream raw material suppliers are TSRC's primary value chain partners. In addition, labor contractors and service contractors at each site are partners for TSRC's value creation. TSRC is committed to managing the environmental, social, labor, and human rights practices of our suppliers and contractors to ensure that the products and services provided by the value chain partners meet or exceed TSRC's Supplier Code of Conduct and relevant sustainability standards.

To effectively implement supply chain management, TSRC classifies Tier-1 suppliers into raw material suppliers, packaging suppliers, contractors, and general suppliers. For raw material suppliers, we conduct audits according to our annual audit plan to ensure the suppliers' ability to deliver. We also conduct non-hazardous substance surveys for raw material suppliers and packaging suppliers to ensure that the products provided for use in our manufacturing process do not contain hazardous substances. TSRC conducts annual performance evaluations of contractors and general suppliers to ensure the quality and delivery. Contractors are those provide labor services (including cleaning, security, cafeteria, and administrative services) and equipment, construction, civil engineering, and warehousing and logistics. General suppliers are those other than the above three categories.

Emphasis on Ethical Corporate Management

TSRC is committed to corporate social responsibility and encourages our partners to promote open and fair competitive business activities based on fairness and ethics for the long-term profits and sustainable operations of TSRC and our partners.

Joint Commitment to Social Responsibility

TSRC believes that the members of the supply chain play a vital role in the implementation and development of the corporate social responsibility and expects our partners to agree and make their best efforts to fulfill their social and environmental responsibilities andbecome the guidelines of their business.

Compliance with the Law and Regulations

We expect that our partners to comply with TSRC's Partner Code of Conduct (PCC), including environmental, occupational safety and health, human rights/ethics and labor policies, and to ensure that the products and services provided comply with all local and other applicable laws and regulations.

TSRC

TSRC Group Supplier Code of Conduct

Supplier Sustainability Risk Control and Management

Based on the Responsible Business Alliance (RBA) Code of Conduct, TSRC follows the International Labor Organization (ILO) Convention and the United Nations Convention on the Rights of the Child (UNCRC) to develop the "TSRC Group Supplier Code of Conduct" to regulate suppliers' corporate ethical business management, human rights and labor policies, occupational safety and health, and environmental protection. TSRC requires suppliers, contractors, and general contractors to comply with the requirements, and the compliance status is used as one of the bases for TSRC's procurement decisions. If a supplier has concerns about doing business activities with TSRC or experiences negative impacts, they can report via the whistleblower mailbox on the TSRC's website.

TSRC requires new suppliers to sign the "TSRC Group Supplier Code of Conduct" and existing suppliers to re-sign when the Code is updated and amended. Suppliers are requested to complete a "Sustainability Assessment Form" for self-assessing their compliance with business integrity, human rights, and environmental protection. The TSRC Operations and Supply Department is in charge of assessing suppliers' sustainability risks. Each year, suppliers are selected for annual assessments (either paper-based or on-site). A follow-up investigation is conducted based on the assessment results. Employees who is in charge of procurement is equipped with sufficient knowledge and skills through ESG training to meet TSRC's commitment to sustainable suppluy chain management in their daily operations.

Sustainable Supply Chain Management Process

STEP 1
Follow the Guidelines

All suppliers are required to follow the "TSRC Group Supplier Code of Conduct" to ensure compliance with business integrity, human rights and labor policies, occupational safety and health, and environmental protection regulations.

STEP 2
Assess the Level of Compliance

Suppliers are required to sign the "TSRC Group Suppliers' Declaration of Compliance with Corporate Sustainability" and complete the "TSRC Group Suppliers' Sustainability Assessment," in which TSRC evaluates suppliers' sustainable practices.

STEP 3
Carry out the Assessment

TSRC has established the "General Contractor Evaluation Management Regulations" and annually selects suppliers for annual paper-based or on-site assessment in accordance with the regulations.

STEP 4
Continuous Improvement

TSRC conducts supplier improvement tracking after the assessment, which serves as an important reference for supplier selection.

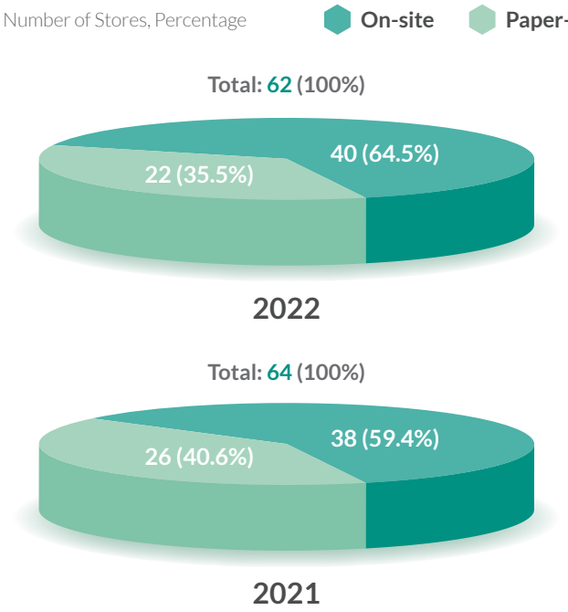
Supplier Assessment

TSRC attaches importance to suppliers' ability to provide products and services with stable quality, and monitors their management and performance in the areas of labor, human rights, safety and health, environmental impact, code of ethics, and social impact. In accordance with the "General Contractor Evaluation Management Regulations," we annually select suppliers through the procurement process after excluding low-risk bulk chemicals (such as BD, SM, KOH, NAOH, etc.), common commercial chemicals (such as KCL, H2SO4, NaNO2, SHS, etc.), raw materials with an annual purchase amount of less than NT$3 million and less than two purchases per year. We have the annual supplier audit program to assess suppliers' actual performance. The audit is mainly conducted through on-site visits, and the paper-based audit is carried out if force majeure happens, such as the global pandemic. For suppliers in Europe and the Americas, a paper-based audit is conducted because labor and transportation costs and distance make on-site audits inconvenient. The audit results are categorized into five levels. If the supplier is rated B, the audit cycle will be three years; if the supplier is rated C, the cycle will be two years. If the supplier does not reach the C level, the supplier is required to submit improvement results within a specified period. If the improvement is not made within the specified time period, the supplier will be listed as unqualified and prohibited from further engagement.

In 2022, TSRC assessed 62 suppliers, 40 of which were assessed on-site and the remainder through a paper-based assessment. The 2022 supplier assessment includes sustainability issues. 18 suppliers were rated as Grade A suppliers, representing 29.0% of all suppliers assessed.

Supplier Assessement Method

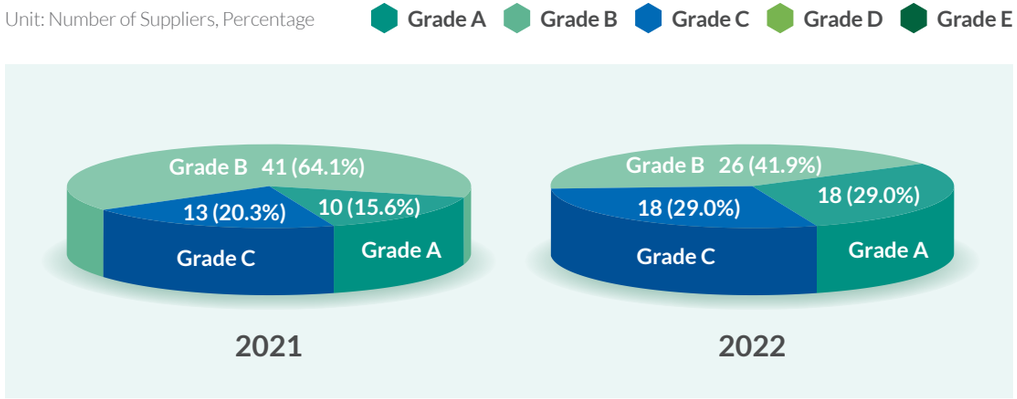
Unit: Number of Stores, Percentage



Note: This table covers TSRC Corporation and its six operating subsidiaries, excluding the two trading subsidiaries (Polybus Corporation Pte Ltd, TSRC (Lux.) Corporation S.à.r.l).

Supplier Assessment Results

Unit: Number of Suppliers, Percentage



Note:

1. This table covers TSRC Corporation and its six operating subsidiaries, excluding the two trading subsidiaries (Polybus Corporation Pte Ltd, TSRC (Lux.) Corporation S.à.r.l).
2. Grade description: Grade A indicates an excellent supplier, with no deficiencies. Grade B indicates a reliable supplier, with minor deficiencies that were immediately corrected. Grade C denotes a qualified supplier, the supplier is requested to respond with the improvement actions for major deficiencies. Grade C denotes a conditionally qualified supplier, the supplier must submit improvement results and meet Grade C requirements within the timeframe. Becomes an unqualified supplier if improvements are not completed on time. Grade E is an unacceptable supplier and is considered as an unqualified supplier.
3. 2021 statistics are updated and restated due to errors made during the previous reporting period.

Collaborate for Reducing GHG Emissions

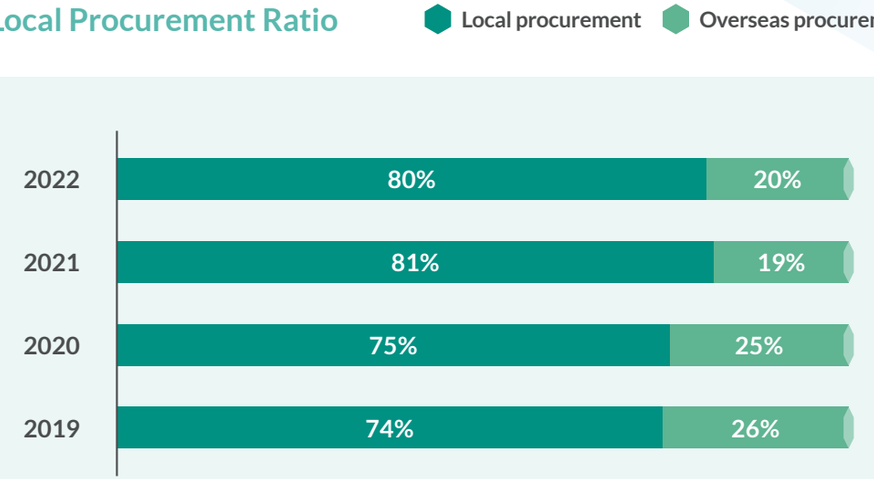
TSRC has developed an ESG strategy plan in 2021 with the vision of carbon neutrality. Supply chains are key partners for TSRC's carbon reduction journey, and TSRC is committed to promoting GHG emission reduction among suppliers to increase operational resilience. Of the top 20 suppliers (by purchase volumes in 2022), 11 suppliers already have carbon reduction targets and plans. In 2023, the "TSRC Group Suppliers' Sustainability Assessment" will be applied to better understand suppliers' GHG emission reduction-related activities and their emissions.

2.3.3 Green and Local Procurement

TSRC pursuits the positive impact on the environment. When purchasing equipment or devices, we consider not only the functions of goods but also the impact on the environment. We implement green procurement practices, giving priority to purchasing products with environmental protection and energy labels, and implementing to the concept of circular economy through the "rent-instead-of-buy" approach. In 2022, the green procurement of TSRC Corporation (including Kaohsiung Factory, Gangshan Factory, and the global business headquarter) amounted to NT$96.48 million. This included replacing synthetic rubber outer packaging with rented metal boxes instead of disposable packaging such as wooden boxes, wooden pallets, or cardboard boxes. Metal crates can be reused and significantly reduce the waste of packaging waste. Rented metal boxes accounted for 94.83% of the green procurement amount, while the rest were energy-saving products such as high-efficiency motors, inverters, and energy-saving lighting fixtures. Our subsidiary, Nantong Industries, has implemented green procurement with totaling RMB1.01 million, which was mainly used to purchase energy-saving refrigerators, lamps, copiers, and inverters.

In addition to promoting local procurement in Taiwan, TSRC has extended this practice to subsidiaries in China, Vietnam, and the United States. We have established independent procurement units in each region to help local plants build a highly efficient and low-carbon chemical supply chain. The primary raw material butadiene and other chemical raw materials (e.g. potassium hydroxide) are sourced locally. The materials are mainly transported by pipeline to ensure the safety of chemical materials and to reduce air pollution and greenhouse gas emissions from tanker trucks. TSRC's domestic local procurement accounted for approximately 80% of the total procurement in 2022.

Local Procurement Ratio



Note:

1. This table is calculated based on the purchase amount.
2. "Local procurement" in this table refers to sourcing in the country where the business is located.
3. This table includes TSRC Corporation (including Kaohsiung Factory, Gangshan Factory, and global business headquarter) and 6 actual operating subsidiaries.

CH3 Environmental

In response to the international trend of carbon reduction and the pressure of energy and resource shortages, TSRC values the Earth's resources and has set aggressive carbon reduction goals to achieve carbon neutrality. We are accelerating our use of renewable energy, reclaimed water, and renewable materials. We also develop products and services to help our clients reduce energy and resource use and jointly engage with all our partners along the value chain for green innovation in the chemical industry.

Greenhouse gas emissions reduced by

2.5%

In 2022, Scope 1 and 2 greenhouse gas emissions decreased by 2.5% compared to the base year, 2021. (The 2023 target is to decrease emissions by 5%)

Reclaimed water use rate

14.58%

In 2022, reclaimed water accounted for 14.58% of total water consumption. (The target for 2023 is 15%)

Wastewater recycling rate

21.17%

In 2022, the reclaimed wastewater accounted for 21.17% of total wastewater. (The target for 2023 is 25%)

3.1 Towards Carbon Neutrality

3.1.1 Vision and Management Approach

Climate change poses a challenge to the society. TSRC continues to dedicate our efforts to energy conservation and carbon reduction with the goal of achieving carbon neutrality, pursuing the development in harmony with the environment. Setting 2021 as the base year, TSRC aims to reduce 10% and 22.5% scope 1 and 2 greenhouse (GHG) gas emissions by 2025 and 2030 respectively. TSRC will power our sites with 10% renewable energy by 2025 and 30% by 2030. At the same time, TSRC will implement innovative process technologies to improve production efficiency and reduce energy consumption, reducing the carbon footprint of our products and enhancing our resilience to climate change.

3.1.2 Keeping Abreast of Climate Risks and Opportunities

TSRC is committed to monitoring the potential risks and business opportunities that may arise from climate change. We follow the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to ensure the transparency of climate-related information disclosure. TSRC sets a climate-related risk and opportunity management mechanism, which is integrated with the company's overall risk management process. We focus on four key pillars (governance, strategy, risk management, and indicators and goals) to promote low-carbon transition and enhance climate resilience.

TSRC's Management based on the TCFD Recommendations		Implementation in 2022
Governance	The Board of Directors supervises climate-related risks, opportunities, responsive strategies, goals, preventive measures, and achievements.	In January, May, and August of 2022, the Board of Directors received reports from the ELT regarding climate-related issues and provided suggestions to the management mechanisms for climate-related risks and the actual implementation status.
	The executive leadership team (ELT) oversees climate-related issues, sets response plans, facilitates risk protection measures, reviews outcomes, and provides regular reports to the Board of Directors.	The ESG Section reports the implementation of climate-related risk responses to the ELT every quarter. The ELT reviews and make strategic decisions and regularly reports to the Board of Directors in the operational or risk management report.
Strategy	Identify short-, medium-, and long-term climate risks and opportunities according to the identification method of the climate-related risks and opportunities.	We assessed the potential impact levels and the likelihood of occurrence and evaluated the financial impact of climate-related risks and opportunities. Based on the assessment, we developed and implemented countermeasures. For further details, please refer to the Appendices titled "Climate-related Risks and TSRC Response Measures" and "Climate-related Opportunities and TSRC Response Measures".
	Analyze the potential operational and financial impacts of significant climate-related risks and opportunities on TSRC.	We conducted the financial impact assessment of significant climate-related risks associated with the increased pricing of GHG emissions. Please refer to the TSRC Sustainability Report 2021 for details.
	Conduct a climate risk analysis in various scenarios and assess short-, medium-, and long-term carbon reduction and carbon neutrality targets and actions.	In 2021, we analyzed the impact of increased pricing of GHG emissions in the International Energy Agency (IEA) - Sustainable Development Scenario (WB2°C) and the Net Zero Emissions Scenario (NZE) by 2050. Based on the analysis, we formulated climate change strategies and related mitigation measures.

TSRC's Management based on the TCFD Recommendations		Implementation in 2022
Risk Management	• Establish a climate-related change risk identification process in accordance with the TCFD framework.	For further details on the climate-related risk identification process, please refer to the 'Climate-related Risks and Opportunities' section.
	• Develop adaptation and mitigation strategies based on the identified climate-related risks. • Integrate the climate risk identification process into the existing risk management process.	The ELT commissioned TSRC ESG Section to develop response strategies and measures for the climate-related risks based on materiality and implement them in daily operations. The ESG Section is responsible for facilitating the integration of the climate-related risk management and the enterprise risk management system.
Metrics & Targets	Establish climate-related indicators to facilitate annual performance tracking.	We established climate-related performance indicators, including GHG emissions, renewable energy use, wastewater recycling rate, reclaimed water use rate, and the volume of products with lower environmental impacts.
	Conduct annual inventory on Scope 1, 2, and 3 greenhouse gas emissions and assess their impacts on the company's operations.	We continued to implement carbon reduction measures and increase the use of renewable, aiming to effectively reduce GHG emissions. For further details, please refer to 3.1.3 Greenhouse Gas and Energy Management.
	Conduct an annual review of our climate management goals.	The ELT regularly reviewed the outcome of projects implemented by various functional units and the achievement against indicators and targets.

Governance for Climate Change

In January, May, and August of 2022, the TSRC Board of Directors held meetings to discuss climate-related issues, including transition and physical risk projects, the severity of climate-related risk, response strategies, goals and improvement measures, and climate-related opportunities. The ESG Section reported on the implemented measures against climate-related risks to the executive leadership team (ELT) every quarter, either in paper-based manner or in meetings. The report includes the latest status of greenhouse gas (GHG) emissions reduction, renewable energy use, water resource utilization, the use of renewable raw materials, the reduction of products carbon footprint, new products and businesses development, and other implementation outcomes. The TSRC climate-related risk management organizational structure is shown as follows.

The highest governing body responsible for overseeing overall climate -related management of TSRC.

The Board of Directors

The Board of Directors serves as TSRC's highest governing body for climate change, playing a supervisory role in promoting climate change and sustainable management strategies. They regularly review the operating reports delivered by the ELT to oversee the management of climate-related risks and opportunities. The Board of Directors discusses and approves significant capital expenditures at the end of each year in conjunction with the annual budget, including expenditure on GHG emission reduction and water use improvement.

The executive leadership team (ELT) reviews and approves projects and initiatives about climate change-related risk and opportunities.

The Executive LeadershipTeam (ELT)

The ELT leads the ESG Sections to implement climate-related risk management projects. During the process of conducting climate-related risk impact assessment, discussions are held among functional units. For instance, in 2022, the management of Financial Department and the ESG Section held multiple meetings to discuss the impact assessment of carbon pricing on TSRC. The management of Production and Manufacturing Department and the ESG Section had several discussions on GHG emission reduction targets, the use of renewable energy, water resource utilization, and wastewater recycling, as well as significant capital expenditure plans for saving energy. The management of the Business Development Department and the ESG Section held discussions on risk integration, key considerations for new businesses, and risk impact assessments. The CEO and the ESG Section discussed overall climate-related risk impact assessment, integrating climate risks into ESG strategies, long-term management objectives, and measures taken by various subsidiaries.

The ESG Section implements projects about climate-related risks and opportunities.

The ESG Section

Climate-related Risks and Opportunities

With reference to risks and opportunities recommended by the TCFD, international sustainability indicators, and industry benchmarks and the consideration of TSRC's operation, TSRC identified 13 climate-related risks and 5 opportunities. Risks include transition risks such as policy and market and physical risks such as acute extreme weather events and chronic risks. Opportunities include products and service development.

To understand the impact of climate-related risks on TSRC's value chain, the ESG Section and executives from subsidiaries assessed the impact of each risk on TSRC's upstream suppliers, own operations, and downstream customers. The degree of impact is ranked in a three-level scale and arranged by serial percentile, and it serves as a reference for business strategies. The scores was calculated respectively per region where TSRC subsidiaries are located (China, Taiwan, the United States, and Vietnam) and aggregated together with the weight of revenue proportion of each region. The scores were arranged by serial percentile to develop TSRC's climate-related risk matrix.

On the basis of the impact of climate-related risks on TSRC's value chain and the risk matrix, the ESG Section discussed relevant opportunities, operational strategy adjustments, and response measures. Strategies and measures were formulated under the ELT's supervision and implemented in daily operations.

Step 1 Propose list of climate risks and opportunities

With reference to the risks and opportunities recommended by the TCFD, international sustainability indicators and industry benchmarks and the consideration of TSRC's operations, the ESG Section held discussion meetings to develop a list of TSRC's climate-related risks and opportunities.

Step 2 Analyze the scope of impact of risks

The ESG Section and executives from subsidiaries assesses the impact of each risk on TSRC's upstream suppliers, own operations, and down stream customers. The executives form different functional units rank the impact level using a three-level scale.

Value Chain Impact Level

(Rating scale is 1-3, with 3 being the highest impact and 1 being the lowest impact)

Top 33.4%: High impact	33.4% - 66.7%: Moderate impact	Bottom 33.3: Low impact

Step 3 Identify materiality

The ESG Section distributed questionnaires to subsidiaries and functional units. The executives assess climate-related risks according to the potential level of impact on TSRC.

Materiality Analysis

(A total score is obtained by multiplying the three major aspects: the potential level of impact on TSRC, TSRC's potential vulnerability against the risk, and the likelihood of occurrence. Taking into account the revenue proportion of each region as a weight, the risks of each region are weighted to obtain the overall risk value of the entire group)

Top 20%: High risk	40% - 80%: Moderate risk	Bottom 40%: Low risk

Step 4 Verify and report

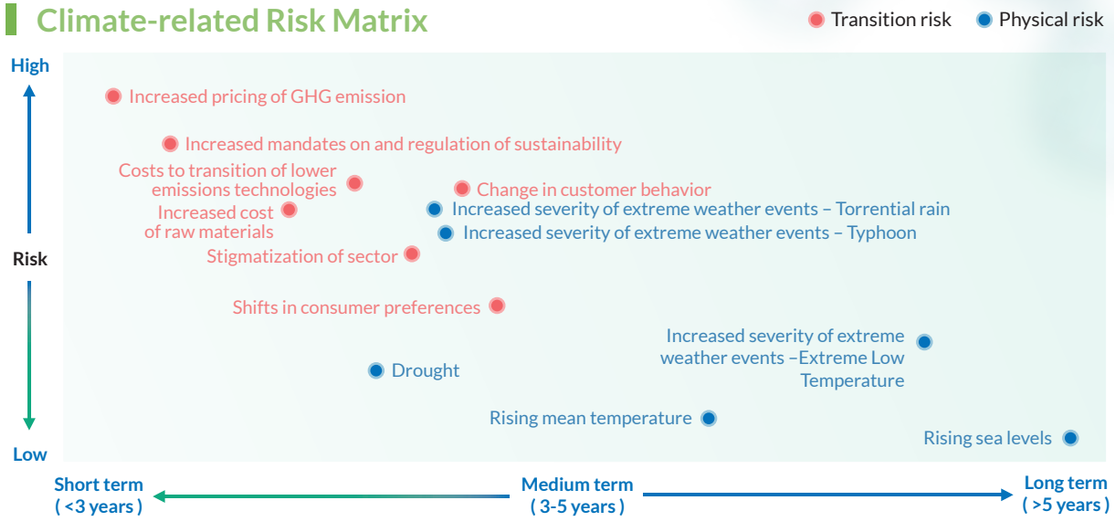
The ESG Section reports the climate-related risk matrix, corresponding opportunities and response strategies to the ELT.

Step 5 Sustainability management and disclosure

The TSRC's Board of Directors is responsible for overseeing the measures against climate-related risks and opportunities, and the ELT is responsible for management and implementation with the assistance from the ESG Section (also known as the climate-related Risk Taskforce) The ESG Section is also in charge of climate-related information disclosure and communication with stakeholders.

TSRC identifies and formulates climate-related risk management strategies based on the materiality. The Company then conducts a quantitative financial impact assessment on high-risk items and adjusts the operating strategies accordingly. TSRC will continue to analyze the financial impact of medium- and low-risk items, and the analysis will be used when reviewing the Company's risk appetite and tolerance and setting countermeasures. For details about climate-related risks and opportunities and corresponding measures, please refer to the Appendices "Climate-Related Risks and TSRC Response Measures" and "Climate-Related Opportunities and TSRC Response Measures".

Climate-related Risk Matrix



Financial Impact Assessment of the Climate-related Risk

With consideration to the company's business strategies and international carbon reduction trends and efforts, TSRC assesses the financial impact of increased pricing of GHG emissions with reference to policies and industry benchmarks. As climate change becomes even more severe, the implementation of carbon border adjustment mechanism (CBAM) and domestic carbon emissions fee may increase customers' costs when importing TSRC's products. Such policies and regulations may affect TSRC and upstream suppliers, causing the increasing cost of raw materials, equipment, and electricity. In light of the knock-on effect, TSRC analyzes the corresponding financial impact of the increasing upstream cost, the policy of GHG emission fee on TSRC and the reducing and transferring orders of customers. For further details, please refer to the TSRC Sustainability Report 2021. The financial impact will be updated gradually once relevant policies become clearer, and TSRC will continue to conduct the assessments on other climate-related risks.

	Selected Climate Scenarios	Scenario Considerations	Assessment Methodology	Assumptions	Financial Impact Quantification	Decision Implications
Transition risks Increased pricing of GHG emissions	• IEA - Sustainable Development Scenario (WB2°C) • IEA - Net Zero Emissions by 2050 Scenario (NZE)	• Investment needs in the energy sector • Global GHG emissions • Pathways for the development of low-carbon energy technology • Trends and factors in political, social, and economic responses to climate-related risks	• Estimation of carbon emissions fee, the change of electricity fees, the cost of carbon border adjustment mechanism, and the change of procurement expenses for TSRC until 2030 due to GHG emission-related regulations	• The global temperature rise is estimated to be within 2.0°C by the end of this century. • The global temperature rise is estimated to be within 1.5°C by the end of this century.	• The increase in upstream operating costs, including the rising electricity fee until 2030 and the increase procurement costs may lead to production cost increases. • Climate-related policies generate additional costs on TSRC such as carbon emission fees and carbon taxes. • TSRC may face challenges in sales markets due to the carbon border adjustment mechanism, which may require importers to pay for GHG emissions generated during the manufacturing process, leading to customers potentially choosing lower carbon footprint products and possibly transferring their purchases to competitors.	• Strengthen energy management and increase renewable energy use • Collaborate with suppliers that have climate adaptation measures • Continuously monitor the progress of climate-related regulations both domestically and overseas. • Develop low-carbon production manufacturing plans • Reduce the carbon footprint of our products • Engage with renewable raw materials suppliers

Targets and Goals

TSRC sets short- and medium- goals to mitigate climate-related risks in response to the potential impact and challenges. These climate-related goals are integrated into the annual work plan and the performance evaluation of the ELT, and TSRC Board of Directors supervises and oversees the performance.

Focus area	Target	Corresponding Climate-related △Risk and ⬡Opportunity	Stage-by-Stage Targets			Corresponding Chapter
			2023	2025	2030	
Towards Carbon Neutrality Operation	Reduce Scope 1+2 emissions (Base year:2021)	△Increased pricing of GHG emissions △Stigmatization of sector ⬡Use of more efficient production and transportation process	Total carbon emissions reduction by 5%	Total carbon emissions reduction by 10%	Total carbon emissions reduction by 22.5%	3.1.3 Greenhouse Gas and Energy Management
	Increase the use of renewable energy	△Increased pricing of GHG emissions △Increased mandates on and regulation of sustainability	Increase renewable energy to 5% of total electricity consumption	Increase renewable energy to 10% of total electricity consumption	Increase renewable energy to 30% of total electricity consumption	3.1.3 Greenhouse Gas and Energy Management
Water Resource Optimization	Increase wastewater recycling	△Increased mandates on and regulation of sustainability △Stigmatization of sector △Drought △Rising mean temperatures ⬡Use of more efficient production and transportation process	Increase wastewater recycling to 25% of total volume of wastewater	Increase wastewater recycling to 36% of total volume of wastewater	Increase wastewater recycling to 40% of total volume of wastewater	3.4.3 Water Resource Recycling
	Increase recycled water utilization		Increase recycled water utilization to 15% of total water consumption	Increase recycled water utilization to 34% of total water consumption	Increase recycled water utilization to 40% of total water consumption	3.4.2 Water Resource Management
Lower Products' Carbon Footprint	Develop eco-friendly products	△Increased mandates on and regulation of sustainability △Change in customer behavior ⬡Development of low carbon emission or low environmental impact products and services ⬡Development of climate adaptation product	Develop special styrene block copolymer (SBC) for medical equipment, shoe materials, plastic modification, aiming to increase recyclability and decrease medical waste	Develop new type of special styrene block copolymer (SBC) to support customers to reduce energy consumption and organic solvents in production process	Develop medical TPE products for reducing medical waste by 10% compared with previous generation products (based on sales projection)	3.2.2 Product Accountability and Green Product Design
			Develop eco-friendly foaming product	Develop eco-friendly foaming products with recyclability	Develop eco-friendly foaming products that use renewable materials and more recyclability	3.2.2 Product Accountability and Green Product Design
			Develop special styrene block copolymer (SBC) for medical equipment, shoe materials, plastic modification, aiming to increase recyclability and decrease medical waste	Develop new type of special styrene block copolymer (SBC) to support customers to reduce energy consumption and organic solvents in production process	Develop medical TPE products for reducing medical waste by 10% compared with previous generation products (based on sales projection)	3.2.2 Product Accountability and Green Product Design

Focus area	Target	Corresponding Climate-related △Risk and ⬡Opportunity	Stage-by-Stage Targets			Corresponding Chapter
			2023	2025	2030	
Lower Products' Carbon Footprint	Product process optimization	△Costs to transition of lower emissions technologies ⬡Use of more efficient production and transportation process	Optimize production process of TPE products and reduce use of steam to achieve 1,800 mt of carbon emissions reduction per year	Optimize production process of TPE products to reduce electricity and energy consumption	Optimize production process of TPE products and reduce electricity and energy consumption to achieve 9,000 mt of carbon emissions reduction per year	3.2.2 Product Accountability and Green Product Design
	Use of renewable materials Note	△Increased mandates on and regulation of sustainability △Increased cost of raw material	Explore and engage with renewable raw material suppliers	Renewable raw materials account for 5% of total raw material purchase	Renewable raw materials account for 15% of total raw material purchase	3.2.2 Product Accountability and Green Product Design
Strengthen Corporate Governance	Enhance risk & crisis management	△Increased severity of extreme weather events - Typhoon △Increased severity of extreme weather events – Storm △Increased severity of extreme weather events–Extremely low temperature △Rising sea levels ⬡Increased access to new financing from stakeholders ⬡Improvement on positive reputation	Refine climate risk management mechanism, protection measures, and timely disclosure	Strengthen risk monitoring and improve operation management via digital management system	Continuous improvement on global risk management and crisis response mechanisms	3.1.2 Keeping Abreast of Climate Risks and Opportunities
Build Resilient Operation	Accelerate reduction of supplier's GHG emission	△Increased cost of raw material	Require top 20 suppliers (by purchase spent) to implement GHG emission reduction target and actions	Require top 50 key suppliers by purchase spent) implement GHG emission reduction target and actions	Require all suppliers implement GHG emission reduction target and actions	2.3.2 Supplier Management
	Strengthen supply chain integrity	△Increased severity of extreme weather events - Typhoon △Changing in customer behavior ⬡Use of more efficient production and transportation process ⬡Increased access to new financing from stakeholders	>70% (total purchase spent) of raw materials from local sourcing and develop local suppliers of renewable raw materials	>75% (total purchase spent) of raw materials from local sourcing and develop local suppliers of renewable raw materials	>80% (total purchase spent) of raw materials from local sourcing and develop local suppliers of renewable raw materials	2.3.3 Green Procurement and Local Procurement

Note: Renewable materials: (1) Agriculture based (2) Bio-based (3) Waste of other products

3.1.3 Greenhouse Gas and Energy Management

Greenhouse Gas Emissions Reduction

Direct Emissions and Indirect Emissions from Energy Use (Scope 1 and 2)

In response to global climate action, TSRC has set a vision to achieve carbon neutrality. Building upon the base year of 2021, TSRC aims to reduce its Scope 1 and 2 greenhouse gas emissions by 5% in 2023, 10% in 2025, and 22.5% in 2030. TSRC is committed to investing in green manufacturing processes, increasing the use of renewable energy, and implementing energy-saving and carbon reduction measures.

TSRC prioritizes reducing greenhouse gas emissions in Scope 1 and 2. The Company optimizes its processes and utility systems, and promotes green process innovations. Regarding Scope 3 emissions and the emissions from product use, TSRC encourages suppliers to reduce carbon footprint and continues to develop sustainable and environmentally friendly products. The Company is developing carbon offset programs as part of its long-term goal for carbon neutrality.

In 2022, TSRC devoted efforts to implement carbon reduction measures in factories and subsidiaries. The scope 1 and 2 GHG emissions in 2022 were 547,362 metric tons CO_2e, a decrease of 2.38% from the 2021 base year. TSRC did not use carbon offset measures in 2022. The main reduction came from reducing the purchased energy in Scope 2. The Kaohsiung Factory, Shen Hua Chemical, and Nantong Industries achieved the most significant reduction. In 2022, the entire TSRC Group implemented six energy-saving measures, saving a total of 1,395,700 kWh, equivalent to reducing 719 metric tons CO_2e. TSRC also implemented six steam-saving measures, saving a total of 29,299.2 metric tons of steam, equivalent to reducing 8,257 metric tons CO_2e. In 2022, the GHG emissions intensity of scope 1 and 2 remained almost the same as the 2021 base year, at 1.01 metric tons CO_2e per metric ton of product.

Pillar 1: Low-carbon Manufacturing

TSRC is committed to energy-saving and carbon reduction, with a focus on optimizing operations and utility systems and investing in high-efficiency equipment. In 2022, the Company replaced energy-consuming equipment, installed energy-saving devices, and implemented steam extraction and heat recovery technologies to reduce electricity and steam use in factories.

Optimizing Process Operations

TSRC promotes process operation optimization in order to achieve its energy-saving and carbon reduction goals. This is carried out by adjusting process parameters and operation methods to improve efficiency and reduce energy consumption and carbon emissions.

In 2022, TSRC achieved energy savings and steam savings through measures such as optimizing process reaction conditions, increasing waste heat recovery, and adjusting chillers, water pumps, and steam extraction towers. These measures achieved electricity savings of 865,700 kWh (3,117 GJ) and 24,299.2 metric tons (54,916 GJ) of steam, and a reduction of 7,066 metric tons of CO_2e emissions (annual).

Optimizing Utility Systems

TSRC utilizes a combination of equipment replacement and operation optimization to save electricity for its lighting systems, air conditioning systems, and other utilities. By replacing less efficient equipment with more energy-efficient alternatives and optimizing operating conditions, TSRC is able to reduce its electricity usage and achieve its energy-saving goals.

In 2022, some factories replaced LED lighting and optimizing the cooling water tower operation. The total energy savings was 224,000 kWh (806 GJ), and a reduction of 114 metric tons of CO_2e emissions (annual).

Investing in High-Efficiency Equipment

TSRC is actively investing in high-energy efficiency process equipment to achieve its energy-saving and carbon reduction goals. By utilizing such equipment, the Company significantly reduces energy consumption and GHG emission intensity, contributing to sustainability.

In 2022, TSRC added new high-efficiency dryers and completed the refining tower for the SEBS AB line, resulting in a total energy saving of 306,000 kWh (1,102 GJ) and steam savings of 5,000 metric tons (11,300 GJ). These efforts led to a yearly reduction of 1,796 metric tons of CO_2e emissions(annual), showing the Company's commitment to sustainability and its efforts to reduce carbon footprint.

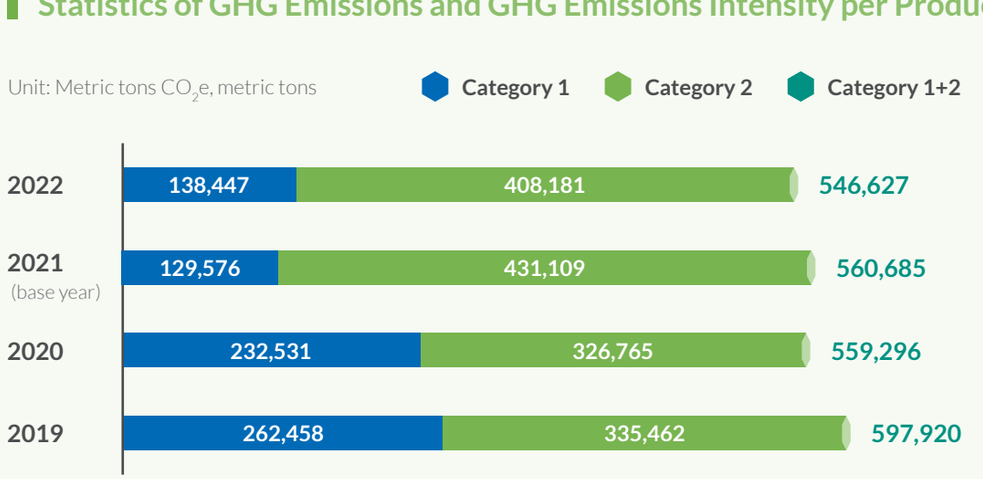
Note:

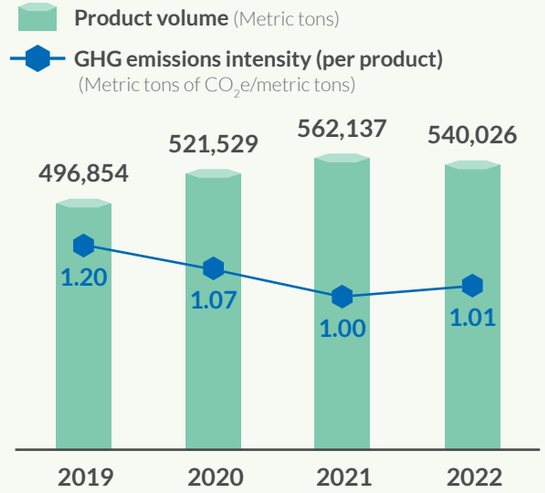
1. 1 kWh = 1 Kilowatt-Hour, 1W = 1 J/S, 1,000 kWh = 1000kW*3600S/H = 3,600,000 KJ = 3,600 MJ
2. The heat absorption needed to vaporize a ton of water = 2,260,000 J/kg / (vaporization heat of water) x 1,000 kg = 2,260,000,000 J = 2,260 MJ.

Pillar 2: Renewable Energy

TSRC has a comprehensive plan to increase renewable energy use at sites in Taiwan and China. The Company plans to achieve 5% of total electricity consumption from renewable sources by 2023, 10% by 2025, and 30% by 2030 through various means, such as building solar energy facilities and purchasing green power agreements and renewable energy certificates. In 2022, TSRC's subsidiary, Nantong Industries, signed a contract with green power suppliers and purchased green power certificates. It plans to start using renewable electricity in 2023. In addition, TSRC is installing solar power generation facilities at Kaohsiung Dashe Factory site and expects to generate renewable energy in 2023, in response to Taiwan's "Renewable Energy Development Act" and the "Regulations for the Management of Setting up Renewable Energy Power Generation Equipment of Power Users above a Certain Contract Capacity." Starting in 2024, TSRC's subsidiaries in China, including Shen Hua Chemical, Nantong Industries, and TSRC-UBE, will increase the use of renewable energy. With self-generated green power, the Company will achieve the target. These efforts demonstrate TSRC's commitment to promoting renewable energy and carbon reduction.

Statistics of GHG Emissions and GHG Emissions Intensity per Product





Note:

1. This table covers seven greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. The GWP value is from the IPCC AR5.
2. The greenhouse gas emissions data for 2019-2020 covers TSR's Global Business Headquarter, Kaohsiung Factory, Gangshan Factory, Shen Hua Chemical, Nantong Industries, TSRC-UBE, Shanghai Industries, TSRC (Vietnam) Company Limited, and TSRC Specialty Materials LLC. It does not include two trade subsidiaries, Polybus and TSRC (Lux.). The operational control approach is adopted. Only the data of Kaohsiung Factory and Gangshan Factory were verified by a third party.
3. The 2021 data was restated after the third-party verification. The reporting boundary of 2021 covers all factories and subsidiaries identical to the reporting scope of this report. The operational control approach is adopted in accordance with ISO14064:2018. The data is rounded to the nearest whole number.
4. The 2022 data covers all factories and subsidiaries identical to the reporting boundary of this report. The operational control approach is adopted in accordance with ISO14064:2018. The data has been internally verified and the external third-party verification is expected to be completed by October 2023. The data is rounded to the nearest whole number. The emission factors are from:
   - Taiwan – the global business headquarter, Kaohsiung Factory and Gangshan Factor: Use emission factors published by Taiwan Environmental Protection Agency (version 6.0.4).
   - China – Shen Hua Chemical, Nantong Industries, TSRC-UBE, and Shanghai Industries: Use China's provincial electricity emission factors, the United Nations Intergovernmental Panel on Climate Change (IPCC) assessment reports, and the Shanghai Bureau of Ecology and Environment [2022] No. 34 The notice of Shanghai Ecological Environment Bureau on the adjustment of emission factor values related to the city's greenhouse gas emission accounting guidelines.
   - Vietnam – TSRC (Vietnam) Company Limited: Use the electricity emission factors published by Vietnam Ministry of Industry and Trade and Vietnam Ministry of Natural Resources and Environment and the IPCC assessment reports.
   - U.S.A – TSRC Specialty Materials LLC: Use US Environmental Protection Agency database and the IPCC assessment reports.

Other Indirect Emissions (Scope 3, including ISO 14064-1 Category 3 and Category 4)

Since 2021, TSRC has been in compliance with ISO 14064:2018 standards to conduct an inventory of other indirect emissions. Category 3 (indirect GHG emissions from transportation) and category 4 (indirect GHG emissions from products used by an organization) are selected according to its materiality. In 2022, the reduction of category 3 was 10.6% compared to the base year and the reduction of category 4 was 4.13%.

Other Indirect GHG Emissions in 2022

Category 3: Indirect GHG emissions from transportation	Emissions (Unit: Metric tons CO_2e)
Emissions from upstream transportation and distribution (of main raw materials) Description: Emissions from inland transportation of main raw materials for which each site pays its own transportation costs.	2022: 573 2021: 641

Category 4: Indirect GHG emissions from products used by an organization	Emissions (Unit: Metric tons CO_2e)
Emissions from the purchase of products (of main raw materials) Description: Emissions from upstream production activities of major raw materials as defined by each site.	2022: 1,238,889 2021: 1,294,668
Emissions from energy resource-related activities (Excluding Category 1 and Category 2) Description: Emissions from upstream production activities of natural gas, fuel oil, water and electricity purchased at each site.	2022: 82,019 2021: 85,254
Emissions from the removal and disposal of waste generated during operations Description: Emissions from the removal and treatment of solid and liquid waste of the organization.	2022: 25,079 2021: 25,367

Note:

1. This table covers seven greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. The GWP value is from the IPCC AR5.
2. The reporting boundary of 2021 covers all factories and subsidiaries identical to the reporting scope of this report. The inventory was conducted in accordance with ISO14064:2018 and verified by a third party. The data is rounded to the nearest whole number.
3. The 2022 data covers all factories and subsidiaries identical to the reporting boundary of this report. The inventory was conducted in accordance with ISO14064:2018 and verified internally. The third-party verification is expected to be completed by October 2023. The data is rounded to the nearest whole number.

2022 TSRC Greenhouse Gas Reduction Actions

Reduction Measures and Outcomes

Direct Emissions (Scope 1)

Direct GHG Emissions

- In 2022, Shen Hua Chemical successfully implemented two steam-saving measures, resulting in a reduction of boiler fuel usage at the plant and a decrease in carbon emissions by 2,877 metric tons CO_2e.

Indirect Emissions from Energy (Scope 2)

Indirect GHG Emissions (Emissions from Purchased Energy and Steam)

- In 2022, Shen Hua Chemical implemented six electricity-saving measures, resulting in a total steam savings of 139.57 metric tons, which is equivalent to reducing 719 metric tons CO_2e.
- In 2022, Shen Hua Chemical implemented six steam-saving measures, which resulted in a total steam savings of 29,299.2 metric tons, which is equivalent to reducing 8,257 metric tons CO_2e.

Other Indirect Emissions(Scope 3)

Indirect GHG Emissions (Emissions from the Value Chain)

- A reduction of 20,079 metric tons of purchased water reduction in 2022, equivalent to 99 metric tons of CO_2e.

Improved Energy Efficiency

TSRC adopts the PDCA model to regularly analyze the energy use and consumption status of the main production sites and conduct audits on process efficiency and system to ensure the energy efficiency of all TSRC factories. TSRC continues to take measures to improve energy efficiency and reduce energy consumption and to promote low-carbon manufacturing process innovation and equipment replacement in conjunction with carbon reduction goals. The key factories and subsidiaries (including Kaohsiung Factory, Shen Hua Chemical, Nantong Industries, and TSRC-UBE) have annual energy saving targets. The Kaohsiung Factory, Nantong Industries and TSRC UBE are certified with the ISO 50001 Standard.

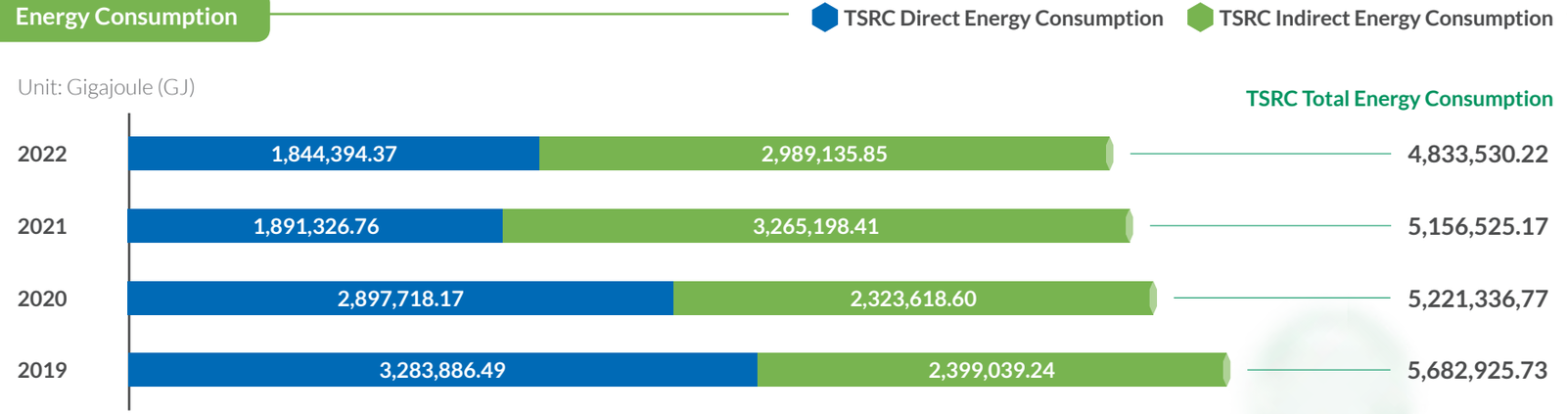
In 2022, all other factories met the energy efficiency target, except for Shen Hua Chemical. Shen Hua Chemical did not meet the target of electricity consumption per unit of product due to the record high temperature of the year and the frequent on-and-off of environmental improvement equipment (including incinerators and activated furnaces), resulting in high electricity consumption. In 2022, factories adjusted the energy portfolio, reduced the use of liquefied petroleum gas and recycled process waste gas as fuel to implement a circular economy. In 2023, we will keep improving energy efficiency by adjusting the on-and-off pattern according to the production plan, investing in new absorption chillers and replacing old facilities.

Key Factories and Subsidiaries	2022 Energy Saving Targets	2022 Outcomes	2023 Targets
Kaohsiung Factory	• Reduce electricity consumption by 384 kWh per year • Reduce steam consumption by 10,000 tons per year	• Reduced power usage 431 kWh per year • Reduced steam usage 11,280 tons per year	• Reduced power usage 750 kWh per year • Reduced steam usage 250 ton per year
Shen Hua Chemical	• Electricity use per unit product ≤ 295 (kWh/ton) • Steam use per unit product ≤ 1.17 (ton/ton)	• Unit product power usage ≤ 297 (kWh/ton) • Unit product steam usage ≤ 1.10 (ton/ton)	• Unit product power usage ≤ 303 (kWh/ton) • Unit product steam usage ≤ 1.14 (ton/ton)
Nantong Industries	• Total consumed energy (tce) ≤ 43,294 • Combined energy consumption per unit product ≤ 0.608 (tce/ton)	• Integrated energy usage tce=43,202 • Unit product integrated energy usage 0.593(tce/ton)	• Integrated energy usage tce ≤ 42,750 • Unit product integrated energy usage ≤ 0.592 (tce/ton)
TSRC-UBE	• Integrated energy usage tce ≤ 26,100 • Unit product integrated energy usage ≤ 0.399 (tce/ton)	• Integrated energy usage tce=25,840.35 • Unit product integrated energy usage 0.384 (tce/ton)	• Integrated energy usage tce=25,470 • Unit product integrated energy usage ≤ 0.382 (tce/ton)

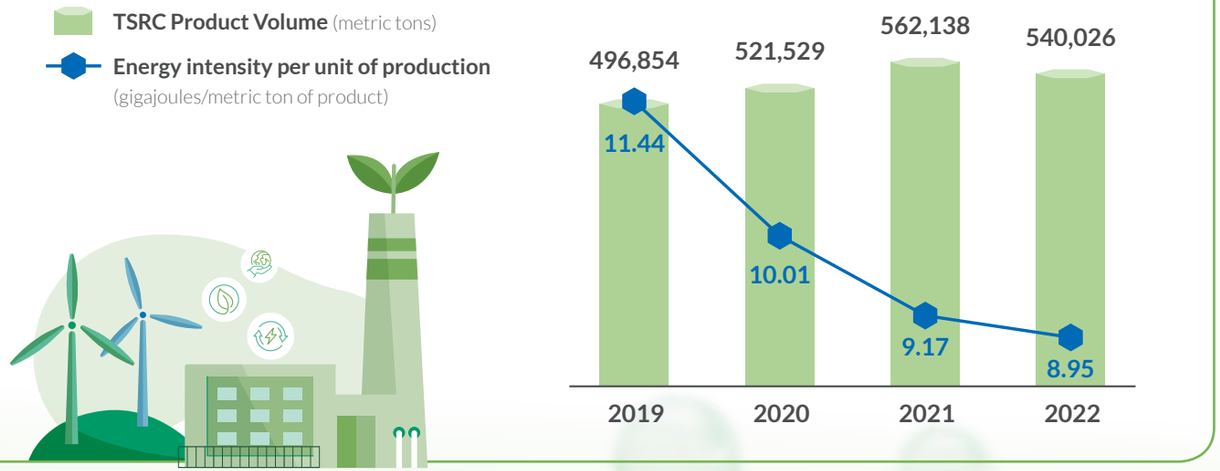
Note: This table is based on the annual targets set by each factory and subsidiary. The outcomes are the aggregation of actual quantitative performance of all energy-saving projects which is calculated at the end of the year.

TSRC Group's total energy consumption in 2022 was 4,833,530 gigajoules (GJ), with a reduction of 6.26% compared to the previous year. TSRC's energy intensity of product has been declining for four consecutive years. The energy intensity in 2022 was 8.95 GJ/ton, a decrease of 2.43% from the previous year. For energy usage of each factory and subsidiary, please refer to the Appendix .

Energy Consumption



TSRC Product Volume and Energy intensity per unit of production



Note:

1. Direct energy consumption includes diesel, natural gas, liquefied petroleum gas, gasoline, and recycled butadiene used in sites.
2. Indirect energy consumption includes purchased electricity and purchased steam.
3. Total energy consumption = internal energy consumption = direct energy consumption + indirect energy consumption.
4. The data is rounded to the second decimal place.

3.2 Design Green Products

3.2.1 Vision and Management Approach

TSRC is committed to developing various green products and offering customers high-performance, high-quality, and differentiated solutions with environmental benefits. The Company follows the four core values of "Reduce, Renewable, Recycle, and Replace," and adopts innovative R&D and energy conservation technologies in the production process with consideration of product safety and the reduction of the negative environmental impact of the product life cycle. TSRC was introducing ISCC PLUS, a sustainable product management system, in 2022 and is continuously conducting product carbon footprint assessments, aiming to reaching the target that sustainable products accounts for 3% of total sales of all products in 2023. TSRC will expand the engagement with suppliers providing recyclable raw materials to reduce the carbon footprint of products. The Company continues to develop solutions that are non-toxic and non-hazardous to the environment and human beings. TSRC aims to have sustainable products account for 40% or more of all product sales by 2030, demonstrating the company's commitment to eco-friendly innovation and a sustainable future.

Note: TSRC's sustainable products: (1) Reduce: products with reduced carbon intensity/products with reduced environmental impact/products that help customers reduce energy consumption in the manufacturing process (2) Renewable: products that use renewable raw materials (3) Recycle: products that can be recycled (4) Replace: products that can safely replace other products

3.2.2 Product Accountability and Green Product Design

TSRC recognizes the importance of environmental protection and is committed to developing eco-friendly circular economy business models. The Company develops green strategies for each phase of the product lifecycle, which effectively lowers the carbon footprint, increases product value, and helps customers reduce energy consumption and the use of organic solvents in their processes. These efforts not only reduce GHG emissions but also position TSRC as an important partner for customers to achieve carbon reduction.

Application of Green Strategy to Product Lifecycle

01 Acquisition of Raw Materials

Explore Renewable Raw Materials

- Explore suppliers provided recyclable raw materials and evaluate the stability of supply
- Evaluate market demand and increase purchase and usage of recyclable raw materials

Promote Local Procurement

- Promote local procurement and reduce carbon emissions from the transportation of raw materials

02 Product evelopment and Design

Development of Innovative Green Products

- Form alliances and collaborate with upstream and downstream companies to jointly develop and use biomass materials/recyclable raw materials
- Develop innovative products to increase product recyclability and reuse rate or reduce procedures on the customer end
- Develop medical grade products that reduce the environmental impact and waste
- Develop synthetic rubber for green tires, improve the fuel efficiency of vehicles and reduce carbon emissions

03 Product Manufacture

Promote Low Carbon Processes

- Reduce the carbon footprint of production sites by replacing high energy-consuming equipment and optimizing processes
- Evaluate the feasibility of the installation of solar panels and purchase renewable energy
- Implement circular economy to recycle and reuse waste

04 Product Transportation and Delivery

Promote Local Services

- Adopt the "local production and local sales"model to reduce carbon emissions from transportation during product logistics and distribution

05 Product Processing and Use

Reduce Customer Manufacturing Processes

- Develop easy-to-process products that help customers reduce processing procedures

Extend Service Life

- Develop durable rubber products to increase the service life of products

06 Product Disposal

Increase the Recyclability of Products

- Adopt the concept of circular economy to increase the recyclability of products

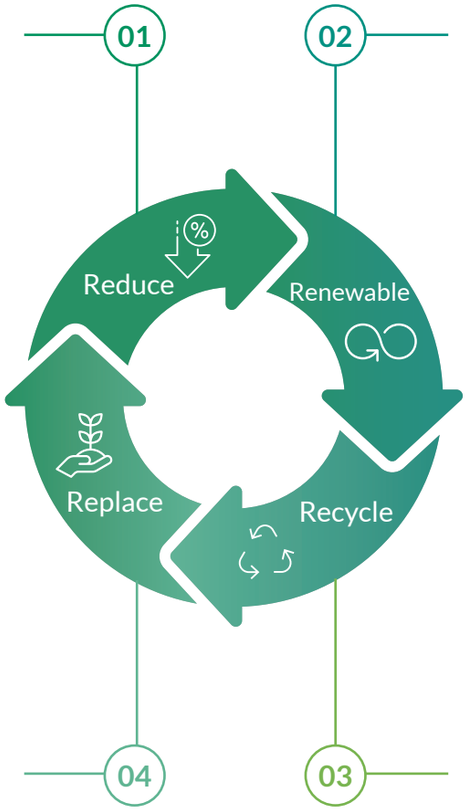
TSRC 4R Core Values and Related Products

- TSRC's products help customers reduce energy use, GHG emissions, and negative environmental impacts. It also makes a positive contribution to the environment.
- TSRC strives to reduce carbon emission intensity per unit of production.
- TSRC continues to reduce product carbon footprint.

Product category	Benefits of product
• TSRC's new generation synthetic rubber (e.g. TSRC SSBR products)	• Reducing the rolling resistance of tires by 10% to make tires more wear-resistant and improves vehicle fuel efficiency, which helps reduce carbon emissions from vehicle operation. • Based on the sales volume in 2022, the new generation synthetic rubber bring about 160,000 metric tons CO_2e reduction to the environment.

- TSRC Uses eco-friendly chemicals that are harmless to the environment and human health and replaces other hazardous substances in the production and operation process
- TSRC products can safely replace other products that have negative environmental impacts

Product category	Benefits of product
• General purpose, high liquidity, and medical grade SEBS	• SEBS can replace vulcanized rubber in high performance applications, avoiding the use and residue of vulcanized rubber additives and plasticizers.
• T-Blend green foaming product series	• The replacing traditional chemical foaming technology with physical foaming technology reduces the use of chemical materials and environmental impact.



- Renewable materials are used whenever possible in the production and operation process

Product category	Benefits of product
• All TSRC products that use renewable materials (e.g. BIO-BD, BIO-IPM, etc.)	• The use of renewable materials can reduce the use of fossil fuel-based materials, reducing GHG emissions from the raw material side.

- Recycled or circular raw materials are used whenever possible in the production and operation process
- TSRC dedicates efforts to increase the recyclability and circularity of products

Product category	Benefits of product
• Highly liquid SEBS	• SEBS polymer has excellent liquidity, compatibility with polyolefins, and is the ideal ingredient for Post-Consumer Recycled (PCR).
• SBS、SIS、SEBS	• SBC with thermos plasticity makes it easy for recycling after processing, which helps with the recycling/reuse of products.
• T-Blend green foaming product series	• T-Blend is a physical foaming technology used in footwear midsoles to improve the recycling rate.

Product Lifecycle Management

TSRC minimizes the environmental impact and GHG emissions at the "raw material acquisition" and "product manufacturing" stages. TSRC will conduct annual carbon footprint audits for major products based on customer requirements. The Company also plans to obtain ISO 14067 certification for synthetic rubber products (including BR, ESBR, and SSBR) and advanced material products (including SEBS, SIS, and SBS) starting in 2023 and continues to reducing the carbon footprint.

GHG emissions during the lifecycle of TSRC products mainly occur during the 'product use' phase. To address this issue, TSRC is striving to optimize its products to reduce rolling resistance and improve fuel efficiency for synthetic rubber used in tires. For advanced material products, TSRC is optimizing the formulation of high-liquidity SEBS products to increase the recyclability and reusability.

3.2.3 Chemical Substance Management

TSRC upholds the principles of abiding by the law and protecting consumers' interests. TSRC complies with Hazardous Substances Free (HSF), ensuring that all raw materials and products are in compliance with the EU's Restriction of Hazardous Substances (RoHS) and provisions related to Substances of Very High Concern (SVHC) of the Registration, Evaluation, Authorization and restriction of Chemicals (REACH). TSRC has also established a "Food Contact Material Safety Policy" and "Toxic and Concerned Chemical Substances Management Procedures" to comply with food contact material regulations, meet product safety requirements, and ensure customer satisfaction. In addition, TSRC adheres to the third principle of the 12 principles of Green Chemistry (for instance, replacing hazardous ingredients with non-hazardous one) and the fifth principle (for instance, replacing harmful additives) while minimizing waste generation and reducing the environmental impact.

In accordance with Article 11 of the Taiwan's Occupational Safety and Health Act, TSRC evaluates the risk level of chemical substance according to the health hazards, distribution and usage status. The risk of chemical substance are classified into 1~4 grades, and corresponding management measures for each grade are implemented. For GHS Class 1 and Class 2 substances that are hazardous to health and the environment, the hazards and risks that may be encountered during operation and the impact on the environment when leaking are identified and managed according to the different grades. The corresponding risk control and mitigation measures are taken through elimination, replacement, engineering improvement, safety management, and personal protective equipment (PPE). Detailed measures include changing the process to use less toxic chemicals (e.g., using cyclohexane instead of benzene), using flange protectors for strong acid and alkaline pipelines, applying anti-corrosion and leak prevention measures on the pumping area, annual monitoring soil and groundwater, analyzing and controlling the process safety, implementing secondary spill prevention and control (e.g., spill containment dikes and rainwater diversion), ensuring chemical operation and personal protective gear well-placed, conducting drills for wearing respiratory protective equipment (such as Class A suits and SCBA), maintaining fire-fighting equipment, and implementing and reviewing emergency response drill.

For toxic substances and chemical substances of concern for which no alternatives have been developed, TSRC continues to actively manage all stages of raw material procurement, transportation, use, storage, and disposal to ensure the safe use of chemical substances with proper procedures. At the raw material procurement stage, we place emphasis on the safety of logistics and transportation, and use underground pipelines to reduce chemical leaks and GHG emissions; at the research and development stage, we adopt high-quality technologies and patents, and strictly comply with global environmental and chemical safety management laws and regulations to reduce the possible impact on the environment during the manufacturing process. In the storage, manufacturing and disposal processes, we introduce a product safety management system to ensure that all stages of the product life cycle are safe and place no harm on the environment and human. The product safety management system is introduced in the storage, production and disposal processes to ensure that all stages of the product life cycle are controlled. During the manufacturing stage, we evaluate the health, environmental and physical hazards to identify potential risks to the environment and human body, adjusting and optimizing the product formulation design. We also strictly monitor the health, environmental and physical hazards of the products at the testing stage to ensure compliance with laws and regulations.

In 2011, the Kaohsiung Factory in Taiwan established QC 080000 hazardous substance management system and certified by the third-party verification, and the rest of the subsidiaries and factories with manufacturing activities reported in this report are managed in accordance with the QC 080000 mechanism. Our Kaohsiung Factory and Gangshan Factory in Taiwan, Nantong Industries and Shen Hua Chemical in China use the Green Data Manager System (GDM) to manage the chemical substance of each product to ensure compliance with international regulations.

TSRC sets annual targets regarding safety and environmental incidents, and the long-term goal is to achieve zero incidents. In 2022, all factories and subsidiaries had no major chemical-related spills and injuries.

All TSRC's products have analysis report. We provide the Certificate of Analysis (COA) for customers and disclose the Safety Data Sheet (SDS) to the public for fully disclosing the chemical composition, its physical and chemical properties, ecological toxicity, and disposal methods. We put efforts to increase the understanding of TSRC's products from our customers and the public, ensuring that all products can be used in a reasonable and safe manner.TSRC does not produce GHS Class 1 and Class 2 substances that are hazardous to health and the environment, including corrosive and irritating substances (such as strong acids or alkalis), substances that cause respiratory hazards or allergies, carcinogenic or mutagenic substances (such as cyanuric acid), and substances that cause acute and chronic aquatic toxicity to the environment. TSRC uses corrosive and irritating substances such as strong acids and alkalis, chemicals with chronic toxicity such as benzene and butadiene, and chemicals that are partially water-soluble and do not easily decompose which may harm the water body, the environment, and human health. Regarding the percentage of TSRC products that contain GHS Class 1 and Class 2 substances that are hazardous to health and the environment, and the percentage of such products that have passed the hazard assessment, please refer to Appendix.

3.3 Develop Circular Economy Model

3.3.1 Vision and Management Approach

TSRC optimizes the process to precisely control material input-output and reduce waste production. TSRC promotes the recycling of by-products within the factories and exploring the utilization of waste outside the factories by collaborating with upstream and downstream value chain partners and other industries. All measures aim to transform waste into valuable resources, expand the secondary raw materials market, and implement the concept of circular economy.

3.3.2 Waste Management

TSRC's main production activities include the polymerization, hydrogenation, and synthesis of primary petrochemical materials (including ethylene, propylene, butadiene, and styrene) to produce rubber and chemical materials. During processing and polymerization, organic compounds are added to improve product performance, resulting in waste rubber, waste liquid, sludge, and waste oil. The main industrial wastes are waste liquids (chemicals) from raw materials and additives used in the production process that cannot be recycled in the factory, and waste rubber released from the production equipment. These two bulk wastes are mainly treated by incineration, and the emission of air pollutants during the incineration process may cause air pollution and environmental impact.

TSRC continues to promote waste management, including reuse and recycling of by-products and resources within the factory to implement the concept of circular economy and reduce waste. We adopt a managing and auditing mechanism to select waste clearance and disposal vendors and to monitor flow of waste to ensure proper disposal. The measures and results are described below.

	Waste Reduction	Reuse of By-products (on site)	Waste Recycling (off site)
Measures	By optimizing the process control, the reaction temperature will be stabilized and the conversion rate will be improved. By increasing the sampling analysis, the process conditions will be more accurate and the waste and by-products will be reduced.	Reduce waste generation through the implementation of reusing by-products within the factory.	If the waste cannot be reused within the factory, we cooperate with the waste disposal companies to convert the waste into resources.

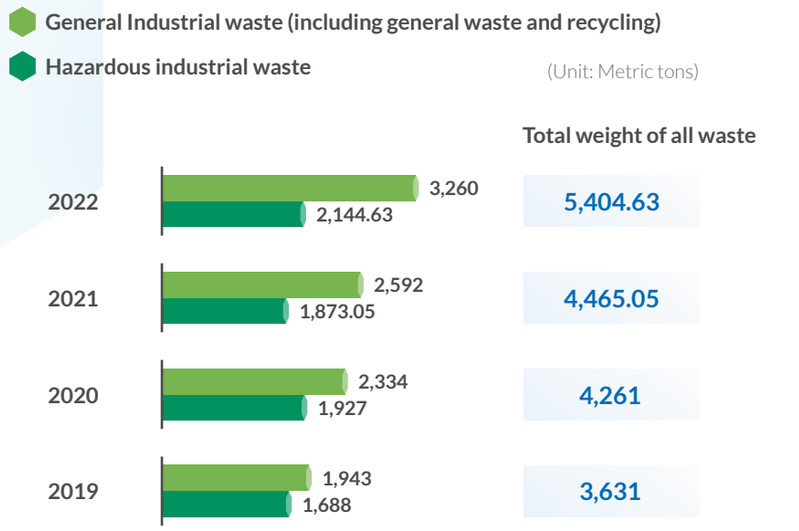
	Waste Reduction	Reuse of By-products (on site)	Waste Recycling (off site)
Results	**Shen Hua Chemical** • The original product manufacturing process generate low purity monomer by-products. Through rolling formula adjustment, the conversion rate is improved, and the reaction temperature is stabilized, and by-product purity mastery is increased to improve the accuracy of by-product isolation, effectively reducing 412 metric tons of by-product in 2022, a 13.44% (476 tons) reduction compared to 2021. The measure also generates GHG emission reduction co-benefits, reducing 144 metric tons CO_2e.	**Shen Hua Chemical** • Distilled and recovered laboratory waste liquid, saving 40 liters of solvent for the year. • Reuse and sell waste glue **Nantong Industries** • Recycling of laboratory waste liquid and he THF is 100% recycled • Partial reuse of waste pallets after sorting • Reuse of waste packaging barrels in the factory • Reuse waste oil through refinery • Remanufacture waste space pack **TSRC-UBE** • Reuse and sell waste glue • Partial reuse of waste pallets after sorting **TSRC Kaohsiung Factory** • Reuse of waste packaging barrels in the factory	**Kaohsiung Factory** • Turned waste rubber into recycled rubber raw materials and reused 31 metric tons in 2022 **Gangshan Factory** • Waste rubber sold to downstream businesses • Scrap metal packing boxes were handed over to steel mills to be remanufactured into steel **TSRC (Vietnam)** • Pallet materials were sold for reuse after repairs. In 2022, 1,093 pieces pallet were sold **Shen Hua Chemical** • Scrap metal packing boxes were handed over to steel mills to be remanufactured into steel **Nantong Industries** • Scrap metal packing boxes were handed over to steel mills to be remanufactured into steel • Scrap electrical machineries were sent to qualified enterprises for dismantling

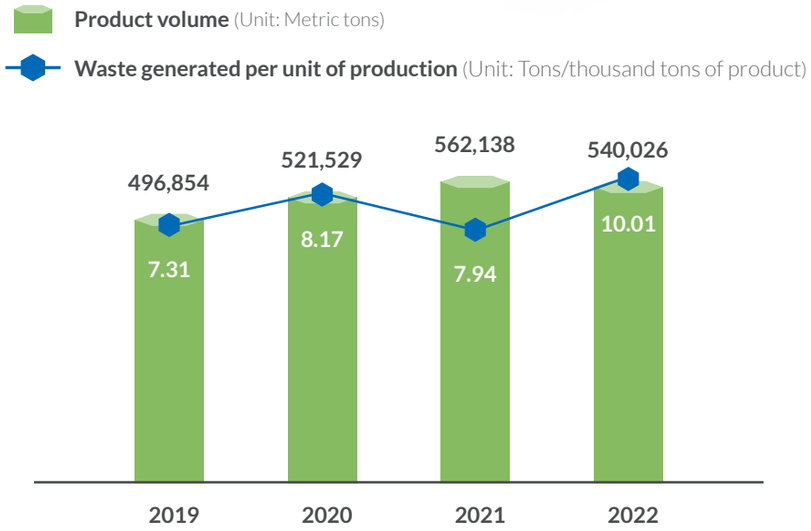
All waste generated is treated by qualified waste disposal operators. To ensure that the waste is properly disposed in accordance with the law, TSRC conducts inspections and audits of waste clearance and disposal companies. TSRC's Kaohsiung Factory conducts regular audits each year on specific waste disposal companies such as hazardous industrial waste, sludge, and waste lubricating oil to ensure that process in accordance with the law. The Gangshan Factory conducts follow-ups from time to time; Shen Hua Chemical tracks the arrival and departure times of waste clearance vehicles. Nantong Industries and TSRC-UBE require disposal companies to send back disposal records on a regular basis in addition to auditing. At the end of the year, TSRC evaluates the operators and the evaluation is a reference for the selection of third-party vendors in the next year. In accordance with local regulations, Shanghai Industries and TSRC (Vietnam) Company Limited require waste clearance and disposal companies to track the flow of waste disposal through online reporting or request companies to provide certification of compliance to ensure proper disposal of waste.

As for the waste that cannot be avoided due to technological bottlenecks, TSRC upholds its responsibility to the environment and carefully controls the waste at each site, and strictly complies with the relevant environmental laws and regulations of the countries and regions where the site is located. TSRC carries out waste clearance, treatment, and reuse with high standards. TSRC formulates waste management plans and management objectives based on the basic principles and structure of the ISO 14001:2015 environmental management system, and regularly monitors and analyzes the effectiveness of waste management. TSRC tracks the weight of waste and the amount of waste generated per unit of product each year to review the effectiveness of TSRC's waste management.

In 2022, TSRC expanded the scope of waste data disclosure. In the past, the general industrial waste data only included general industrial solid waste, but in 2022, recyclable general industrial waste, such as waste plastics, waste packaging materials, and waste steel and electrical machinery, was included for transparent disclosure. Thus, the total amount of general industrial waste increased significantly. The total weight of general industrial waste (including general waste and recycling) 3,260 metric tons in 2022, an increase of 25.78% compared to 2021. For hazardous industrial waste, the total weight in 2022 was 2,144.63 metric tons, an increase of 14.50% compared to 2021. This is mainly because some recycling solvents in the Kaohsiung Factory was no longer recycled due to quality considerations and the non-conventional cleaning of the bottom of the wastewater pond and some barrels in Nantong Industries released hazardous waste. Overall, TSRC waste generation per unit product in 2022 was 10.01 tons per thousand tons of product production, an increase of 26% compared to 2021. In the future, we will continue to strengthen waste management measures through reduction and resource recovery and reuse. For more details of each subsidiary, please refer to the Appendix.

Waste Generation



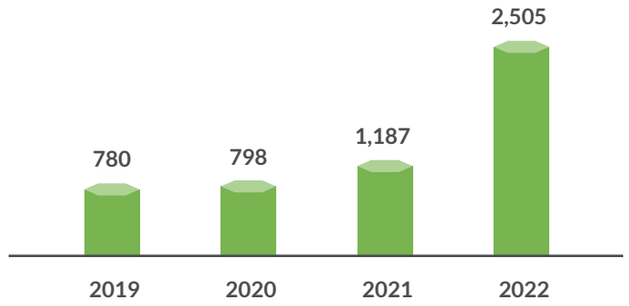


Note:

1. This table only includes factories and subsidiaries with manufacturing activities within the reporting boundary. The two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations, generate only general domestic waste.
2. The data is from waste transfer records, which is rounded to the second decimal place. TSRC Specialty Materials LLC does not have transfer records, thus the data was estimated according to production volumes. The 2021 data of TSRC Specialty Materials LLC has been restated as the transfer records was obtained, and the 2022 data will be restated in the next report.
3. Non-hazardous general industrial waste includes (1) non-recyclable general industrial waste treated by incineration, landfill, thermal treatment, etc., including non-recyclable waste plastic mixtures, inorganic sludge, waste rubber, waste packaging materials, etc.; (2) recyclable general industrial waste, including scrap iron, wastepaper, waste foot glue, waste space bags, waste metal boxes, etc.
4. Hazardous industrial waste includes waste oil, waste liquid, organic waste sludge, sludge, waste chemicals, containers containing hazardous substances, etc., which are identified according to the regulations announced by the competent authorities:
   - 【Taiwan】 Kaohsiung Factory and Gangshan Factory: According to the definition of "Hazardous Industrial waste Recognition Standard" published by Taiwan Environmental Protection Agency.
   - 【China】 Shen Hua Chemical, Nantong Industries, TSRC-UBE, and Shanghai Industries: According to the definition of the hazardous waste list published by the government of China.
   - 【Vietnam】 TSRC (Vietnam) Company Limited：According to the 08/2022/NĐ-CP, 02/2022/TT-BTNMT
   - 【USA】 TSRC Specialty Materials LLC: According to the 40 CFR (Code of Federal Regulations) parts 260 through 273. Louisiana Administrative Code, Title 33, Part V.

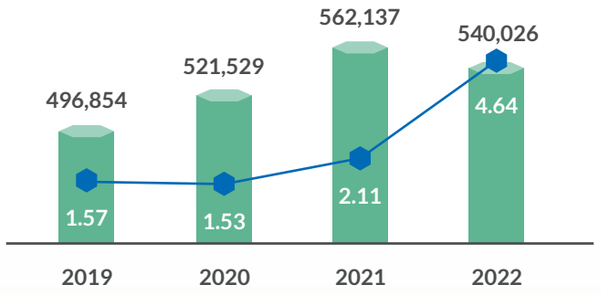
Weight of General Industrial Waste

Weight of recycled general industrial waste (Unit: metric tons)



Product volume (Unit: metric tons)

Recycled waste per unit of production
(Unit: metric tons/thousand tons of product)

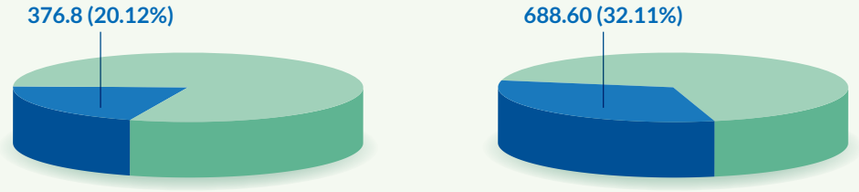


Note:

1. This table only includes factories and subsidiaries with manufacturing activities within the reporting boundary. The two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations, generate only general domestic waste.
2. The data is from waste transfer record and rounded to the nearest whole number.

Weight and Percentage of Hazardous Waste Recycled and Disposed

Weight and Percentage of Hazardous Waste Recycled and Disposed (Unit: metric tons)



2021
Total weight of hazardous industrial waste
1,873.05

2022
Total weight of hazardous industrial waste
2,144.63

Note:

1. This table only includes factories and subsidiaries with manufacturing activities within the reporting boundary. The two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations, generate only general domestic waste.
2. The data is from waste transfer records, which is rounded to the second decimal place. TSRC Specialty Materials LLC does not have transfer records, thus the data was estimated according to production volumes. The 2021 data of TSRC Specialty Materials LLC has been restated as the transfer records was obtained, and the 2022 data will be restated in the next report.
3. Non-hazardous general industrial waste includes (1) non-recyclable general industrial waste treated by incineration, landfill, thermal treatment, etc., including non-recyclable waste plastic mixtures, inorganic sludge, waste rubber, waste packaging materials, etc.; (2) recyclable general industrial waste, including scrap iron, wastepaper, waste foot glue, waste space bags, waste metal boxes, etc.
4. Hazardous industrial waste includes waste oil, waste liquid, organic waste sludge, sludge, waste chemicals, containers containing hazardous substances, etc., which are identified according to the regulations announced by the competent authorities:
   - 【Taiwan】Kaohsiung Factory and Gangshan Factory: According to the definition of "Hazardous Industrial waste Recognition Standard" published by Taiwan Environmental Protection Agency.
   - 【China】Shen Hua Chemical, Nantong Industries, TSRC-UBE, and Shanghai Industries: According to the definition of the hazardous waste list published by the government of China.
   - 【Vietnam】TSRC (Vietnam) Company Limited: 08/2022/NĐ-CP, 02/2022/TT-BTNMT
   - 【USA】TSRC Specialty Materials LLC：40 CFR (Code of Federal Regulations) parts 260 through 273. Louisiana Administrative Code, Title 33, Part V.

3.4 Optimize Water Resource Usage

3.4.1 Vision and Management Approach

Water is a crucial link between human society and the environment, serving as the foundation for sustainable business operations and development. Given its essential role in our manufacturing process, TSRC recognizes the paramount importance of water quality and quantity. We are committed to continually optimizing our use of this precious resource.

TSRC incorporated water-related risks into our overall risk management system, with particular attention to the risk resulting from and resulting in climate change. We conduct annual assessments of water-related risk at each site and review our response measures accordingly. TSRC sets three pillars for water resource management: use water efficiently, recycle water, and discharge without having negative impact on the environment. We are striving to increase the recycling rate of process wastewater, utilize recycled water, and minimize water withdrawal from surrounding areas. Our goal is to minimize the amount of process wastewater entering wastewater treatment plants in industrial parks. By 2023, we aim to recycle 25% of total wastewater, with targets of 36% by 2025 and 40% by 2030. In addition to recycling condensed water and process wastewater, we plan to build recycled water facilities and increase the use of recycled water in each factory, thereby enhancing water resource stability. We target to use 15% of recycled and reclaimed water against the total water consumption in 2023, 34% in 2025, and 40% in 2030. TSRC publicly discloses water resources management data and strategies every year and conducts a stakeholder survey to understand the views and feedback on TSRC's actions.

3.4.2 Water Resource Management

Water Management

TSRC mainly relies on tap water provided by water companies. In recent years, we built process water recycling facilities to reduce the total amount of water withdrawn from outside, aiming to alleviate the pressure on local communities. According to the World Resources Institute (WRI) Aqueduct, among our manufacturing factories and subsidiaries in China, Taiwan, the USA, and Vietnam, China has the highest baseline water stress, reaching a "moderate to high risk (20%-40%)." The USA is at "low to moderate risk (10%-20%)," while Vietnam and Taiwan are both at low risk1. However, at the county or city level, regardless of dry or abundant season, TSRC's Kaohsiung Factory is at high-risk for drought in the past and the future (2015-2039)2. The water-related risk of Shen Hua Chemical and TSRC-UBE, Nantong Industries (in Jiangsu Province, China), the TSRC Specialty Materials LLC (in Louisiana State, U.S.A) and TSRC Vietnam factory (in Binh Duong Province, Vietnam) is low to moderate (10%-20%)1. For information about water consumption and withdrawal in water stress areas, please refer to the Appendix.

Drought is identified as TSRC climate-related risk. TSRC sets short-, medium-, and long-term targets for wastewater recycling and reclaimed water use in response to the water quota for new factory in Jiangsu Province (China) and the decreasing quota permit issued by the local authorities. The ESG Section reports the outcomes of implementation measures to the ELT every quarter. In 2022, the TSRC Board of Directors met in January, May, and August to discuss climate change-related issues and review water-related targets.

To address water risks at the Kaohsiung Factory and take into account the interests of other local industrial water users, Kaohsiung Factory participates in water resource sharing initiatives with neighboring companies in the Dashe industrial park. TSRC connects to the firefighting water source of the neighboring company, Grand Pacific, which has a firefighting water tank with a storage capacity of approximately 4,500 m^3. In 2022, TSRC completed a pipeline connection with USI Corp and shared a total of 8,797 m^3 of water.

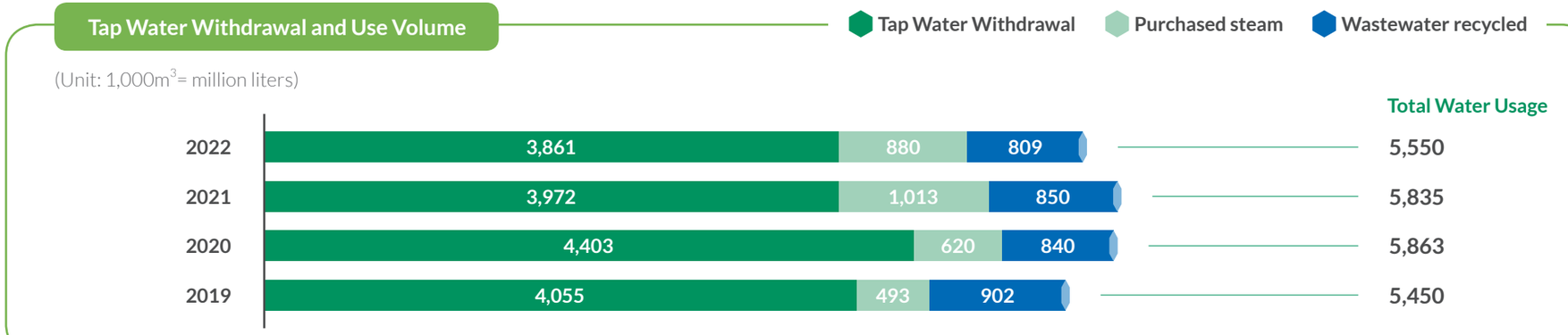
TSRC is aware of the trade-off between water management and GHG emissions. In 2022, Kaohsiung Factory decreased the purchase of steam produced by coal-fired fuels and replace it with self-produced steam with low-carbon fuels, thereby increasing the energy use and direct GHG emissions of Kaohsiung Factory (Scope 1). The overall GHG emissions of Kaohsiung plant (Scope 1 and Scope 2) still decreased by 6.6% in 2022. As the self-generated steam is made of low-carbon fuels, TSRC would still choose to reduce external purchase.

Note:

1. Source: Aqueduct 3.0 Country Rankings | World Resources Institute (wri.org)+ .
2. Source: National Science and Technology Center for Disaster Reduction, 2014, Disaster Risk Map Under the Impact of Climate Change.

In 2022, the total water withdrawal was 3,861 thousand cubic meters, representing a decrease of 2.79% compared to 2021. Kaohsiung Factory and Gangshan Factory, which are located in a high-risk drought area, withdrew 1,559 thousand cubic meters of water, an increase of 6.93% compared to the previous year. TSRC Group's total water consumption in 2022 was 2,539 thousand cubic meters, a decrease of 13.05% compared to 2021. TSRC's total water usage in 2022 was 5,550 thousand cubic meters, representing a decrease of 4.88% compared to 2021. The water usage per unit of product was 10.28 thousand cubic meters per metric ton of production, indicating a 0.96% decrease compared to 2021. The decrease in water usage was attributed to process improvement measures implemented by Shen Hua Chemical and Nantong Industries to reduce steam. For water withdrawal and consumption data of each subsidiary, please refer to the Appendix.

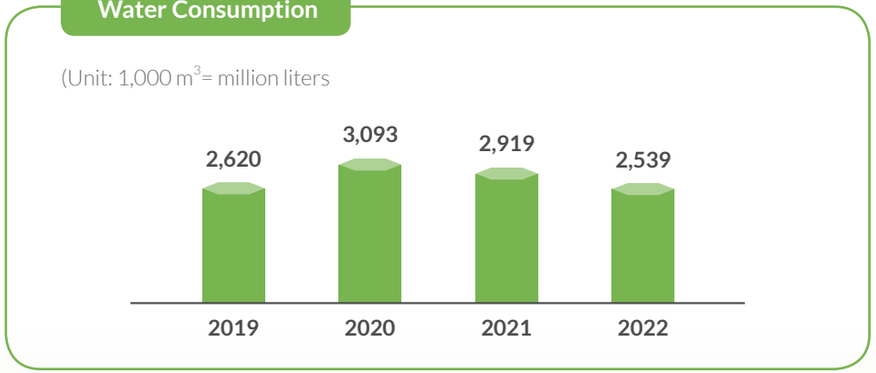
Tap Water Withdrawal and Use Volume



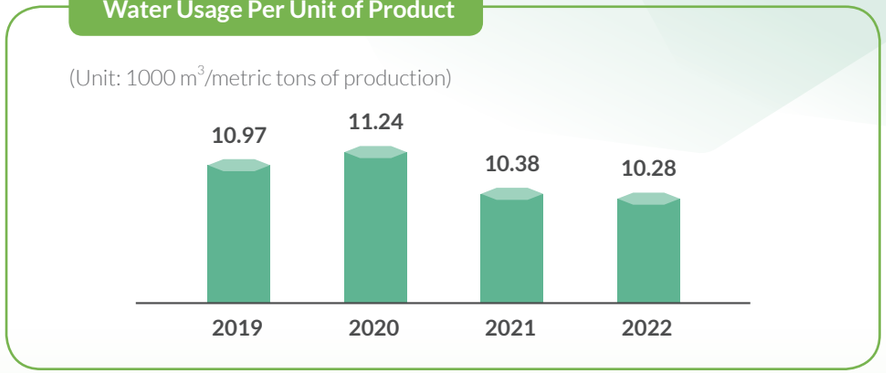
Note:

1. All withdrawal is freshwater water supplied by the local water company (≤ 1,000 mg/L Total Dissolved Solids).
2. Total Water Usage = Tap water withdrawal + Purchased steam + Wastewater recycled. The data is rounded to the nearest whole number.
3. Purchased steam is also used as one of the process water sources after the heat exchange purpose is achieved in the relevant process, and the evaporation amount is not considered.

Water Consumption



Water Usage Per Unit of Product



Note:

1. Water consumption = Tap water withdrawal + Purchased steam + Wastewater recycled - Water discharge. The data is rounded to the nearest whole number.
2. TSRC does not have a permanent water storage facility but makes risk response preparations during water restriction periods according to the conditions of each facility.

Management of Wastewater and Effluent

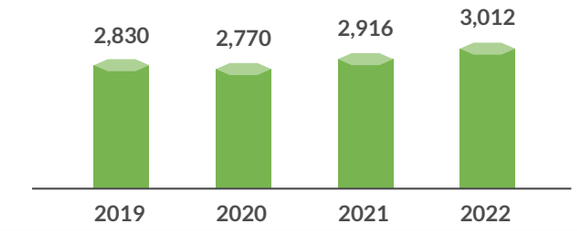
TSRC's main production sites are all located in local industrial parks and the effluent is subject to management and supervision by the competent authority of the industrial parks. To reduce wastewater discharge, TSRC recycles wastewater from manufacturing processes and operations. For the wastewater that cannot be recycled and reused, it undergoes pre-treatment by TSRC until it meets the standards and the substance emission limits. Once all requirements are met, the effluent is discharged into the wastewater treatment system of the industrial park; thus, TSRC's wastewater discharge does not cause direct ecological impact on the surrounding areas. In 2022, TSRC did not violate any regulations related to wastewater and effluent and regulations about the limits of concerned materials. For more information about the discharge volumes of each subsidiary, please refer to the Appendix.

The Gangshan Factory meets the standard and substance limits of Gangshan Benjhou Industrial Park, and the Kaohsiung Factory meets the one of the Ren Da Industrial Park. Shen Hua Chemical, Nantong Industries, and TSRC-UBE are required to meet the tertiary treatment standard of the local competent authority, including the PH value, chemical oxygen demand (COD), suspended solid (SS), and biochemical oxygen demand (BOD). Main TSRC factories have installed online COD analyzers, ammonia nitrogen analyzers, pH meters, and flow meters. Interception facilities for torrential rain and online COD monitors have been implemented to timely monitor the quality of discharged water.

In 2022, Nantong Industries invested in two new wastewater treatment systems. One for the industrial wastewater and the other for general wastewater. The industrial wastewater treatment system collects wastewater with support from the plastic traps, and the treated water is used in the cooling loop water tower. The general wastewater treatment system can reduce the ammonia nitrogen, total phosphorus, and chemical oxygen demand (CODcr) at the end of the pipe to reduce the impact on the environment. The system is expected to reduce the discharge of wastewater by 140,000 metric tons per year.

Water Discharge

(Unit: 1,000 m^3 = million liters)



Note:

1. Except for the two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations, all discharge from factories is treated by the industrial park's wastewater treatment plant.
2. The data is rounded to the nearest whole number.

New Wastewater Treatmenet Systems

3.4.3 Water Recycling

TSRC takes a holistic approach to water management with focus on increasing water recycling and reuse within factories to reduce the impact of water withdrawal and move towards zero discharge. In 2022, the overall wastewater recycling rate was 22%, and the recycled water usage rate was 14%*. Given that the two factories in Taiwan are located in the high-risk water stressed area, the Company devotes efforts to wastewater recycling, resulting in a wastewater recycling rate of 52% in Taiwan in 2022.

To mitigate water-related risks and enhance operational stability, TSRC is increasing capital expenditures to strengthen the Group's wastewater recycling rate. In 2023, wastewater recycling equipment will be installed in Nantong Industries and TSRC-UBE. In response to the water restriction in Kaohsiung in 2023, measures are being implemented in advance, including investing in the water pipelines and exploring the possibility of purchasing reclaimed water. By 2023, the wastewater recycling rate is expected to reach 25% and the reclaimed water usage rate to reach 15%. By 2025, the wastewater recycling rate is expected to reach 36%, and the reclaimed water usage rate to reach 34%. By 2030, TSRC aims to achieve the "Double 40" target, where both the wastewater recycling rate and the reclaimed water usage rate will reach 40%. For more information about water recycling of each subsidiary, please refer to the the Appendix.

Note: Wastewater Recycling Rate= Wastewater recycled volume/total wastewater volume Reclaimed water usage rate = Reclaimed water usage volume / total water usage volume

Wastewater recycling

TSRC promotes the recycling and reuse of water resources within its factories to enhance the utilization rate of every drop and reduce the water footprint.

- The Kaohsiung Factory has a daily recycling capacity of 1,200 tons of wastewater from the post-BR process. The wastewater is reused as supplemental water for cooling towers to replace tap water.
- TSRC-UBE introduced fiber filtration equipment in 2022, which added fiber bundles to the filtration equipment, increasing the recovery rate of wastewater and reducing the amount of tap water replenishment. Compared to 2021, each ton of BR produced in 2022 generated 1.38 metric tons less wastewater, resulting in an annual reduction of 93,000 metric tons of wastewater and saving 50,000 tons of tap water withdrawal.
- In 2022, the process of wastewater recovery and treatment plant of SEBS production line of Nantong Industries was put it into operation. The treated wastewater is replenished to the cooling water tower, reducing tap water withdrawal and wastewater discharge by 50,000 metric tons.

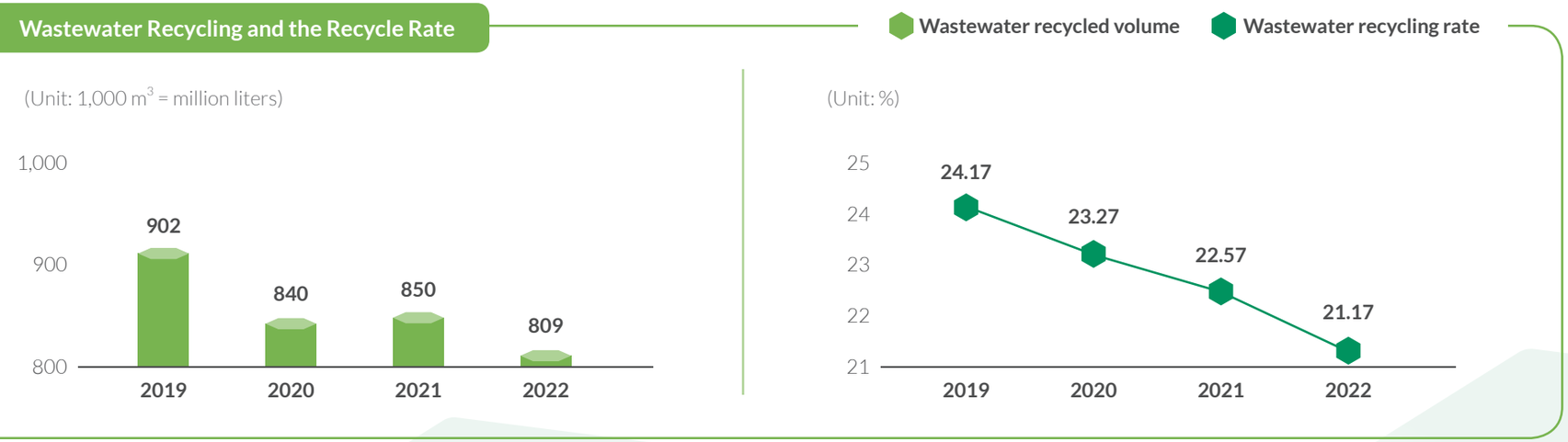
Reclaimed water usage

TSRC strives to increase the use of reclaimed water and decrease the amount of water withdrawn from water body.

- TSRC continues to introduce fiber filtration equipment into the process to increase the amount of reclaimed water.

TSRC-UBE Fiber Filtration Equipment

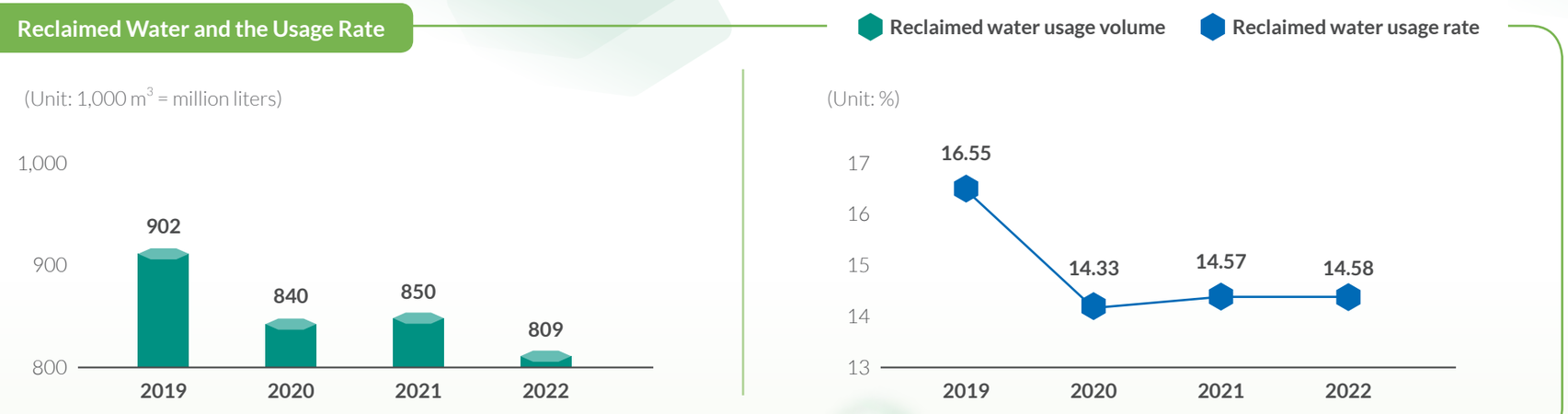
Wastewater Recycling and the Recycle Rate



Note:

1. Wastewater recycling rate = Wastewater recycled volume / total wastewater volume.

Reclaimed Water and the Usage Rate



Note:

1. Reclaimed water usage rate = Reclaimed water usage volume / total water usage volume.

3.5 Improve Environmental Management

3.5.1 Vision and Management Approach

TSRC follows the ISO 14001 Environmental Management Systems and implements measures on energy conservation, waste reduction, air pollution prevention, and wastewater recycling to mitigate the potential negative impact on the environment. We regularly conduct comprehensive inspections and employ technologies to monitor factories and surrounding areas. TSRC's environmental management strategy focuses on "process improvement" and "environment monitoring." The global business headquarters is in charge of developing strategic plans and supervising the implementation outcomes delivered by all factories and subsidiaries. In 2022, TSRC spent NT$139.51 million on environment-related projects such as energy-saving and carbon reduction, air pollution prevention, waste management, and water resources management, representing an increase of 29.85% from 2021.

Process Improvement

TSRC continuously upgrades its equipment and adjusts waste gas treatment methods, which in turn reduces air pollution and the impact on the local community.

Environment Monitoring

TSRC establishes a digital monitoring system to monitor emissions and effluents emitted from factories to the surrounding areas. The Company sets up a real-time connection to keep up-to-date with any potential of negative impact on the environment and people.

TSRC's Capital Expenditures on Environment-related Projects

Unit：NTD	2021	2022
Energy and GHG reduction	61,124,785	65,585,801
Air pollution reduction	38,273,072	57,672,813
Waste reduction	3,315,279	9,096,124
Enhancement of water management	4,722,282	7,154,179
Total	107,435,418	139,508,917

3.5.2 Air Pollution Prevention and Management

TSRC focuses on managing volatile organic compounds (VOCs) among other air pollutants. The Kaohsiung Factory implemented VOCs improvement programs in 2021, replacing cock valves with low leakage type valves, using new gaskets for pipeline flanges, and updating the closed sampling system. A waste gas recovery system was introduced to direct waste gas into boilers for heat recovery and waste gas emissions reduction.

Shen Hua Chemical installs an online VOCs monitor, which sends real-time data to the municipal authorities. It operates an adsorption device with activated charcoal inside to reduce VOCs by 0.554 metric tons (annual). A Leak Detection and Repair (LDAR) system was launched in 2022, inspecting a total of 14,775 conjunctive spots. Other actions are constantly adopted, such as timely closure and replacement of old gaskets at leaks supporting to reduce VOCs by 0.074 metric tons (annual). Nantong Industries uses closed samplers, dry connectors, and air collectors to prevent VOCs emissions. TSRC-UBE improves the M-2 and DEAC configuration tanks and continuously optimizing equipment. Shen Hua Chemical, Nantong Industries, and TSRC-UBE was recognized by the government with the "Free Odor" Award.

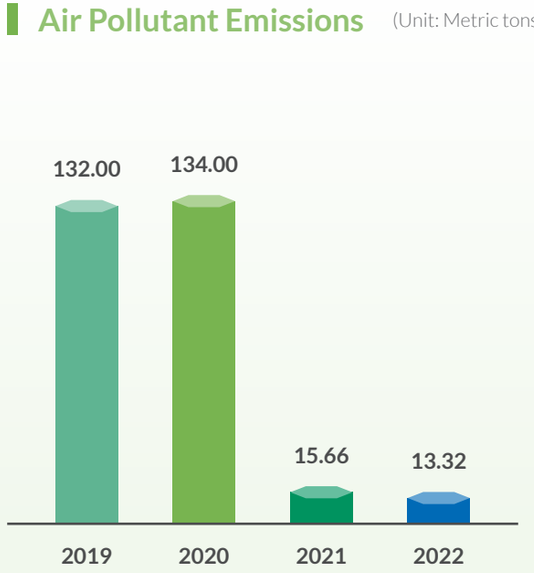
In 2019, TSRC Vietnam installed scrubbers to reduce VOCs fugitive emissions. TSRC also collaborated with partners to conduct on-site VOCs monitoring every quarter to inspect the scrubbers' removal efficiency. TSRC Specialty Materials LLC implements a co-generation system channel waste gas into the co-generation system for electricity and steam generation.

In addition to VOCs, TSRC put efforts on reducing other air pollutants by upgrading equipment and optimizing process. In the last three years, SOx emissions consistently decreased. Since 2020, when all sites phase out of coal-fired boilers (the last one is Nangtong Industries), the Company no longer releases any VOCs from boilers. For more information about the air pollutant emitted by each subsidiary, please refer to the Appendix.

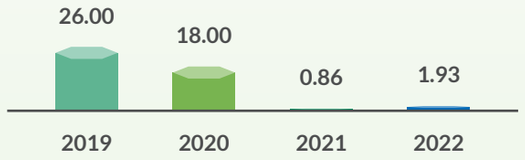
TSRC-UBE DEAC Configuration Tanks Improvement

Shen Hua Chemical, Nantong Industries, and TSRC-UBE Achieved "Oder-Free Plant" Award

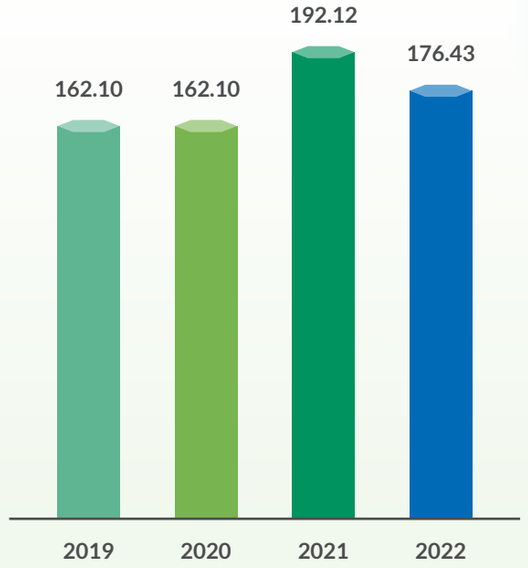
Air Pollutant Emissions (Unit: Metric tons)



Nitrogen oxides (NOx)



Sulfur oxides (SOx)



Volatile organic compounds (VOCs)

Note:

1. This table only includes plants and subsidiaries with manufacturing activities. The two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations, have no production activities and are excluded.
2. Data of TSRC Kaohsiung Factory, Gangshan Factory, Shen Hua Chemical, Nantong Industries, and TSRC-UBE is from continuous measurement. The data of TSRC (Vietnam) Company Limited and TSRC Specialty Materials LLC (USA) subsidiaries are calculated according to the standards published by US EPA.
3. TSRC air pollution detection is conducted by CEMS in accordance with the regulations. As N2O is not the regulated air pollutant, it is not monitored and deducted form NOx.
4. It is not required by air pollution regulations to monitor HAPs, thus there is no data.

In 2022, five incidents of violation of Taiwan's Air Pollution Prevention Act occurred at TSRC's Kaohsiung Factory, and TSRC promptly took remedial measures. These includes setting up a thermal oxidizer (TO) to tackle hydrogen-containing emissions, revising the standard procedures about waste gas treatment, and establishing an aerial work platform to inspect the waste gas ducts every six months to identify leaking points and carry out repairs. Actions were taken immediately reduce the impact on the environment and nearby communities.

TSRC Air Pollution Violations and Improvement Plan

The factory with fines: TSRC Kaohsiung Factory

Regulation violated	Reason	Amount of Penalty	Solution and Improvement Plan
Article 23, Paragraph 2 of the Air Pollution Control Act, Taiwan	The flare (A107) of the Kaohsiung Factory engaged in the petrochemical process did not comply with Article 4 of the Air Pollution Control and Emission Standards for Volatile Organic Compounds.	NT$225,000	TSRC has paid the full amount of the fine and set up another thermal oxidizer (TO) to treat hydrogen-containing waste gas.
Article 23 of the Air Pollution Control Act, Taiwan	The synthetic rubber manufacturing process (M03) at the Kaohsiung Factory did not effectively collect air pollutants. The test value at the front end of the activated carbon adsorption and desorption equipment was 2,407 ppm, which was not in compliance with Article 13 of the Air Pollution Control and Emission Standards for Volatile Organic Compounds, which stipulates that emission pipes should have a closed air collection system.	NT$450,000	TSRC has paid the full amount of the fine and revised the WI Waste Gas Standard Procedure (K31-6400-03) to conduct regular inspection of PC-6601A/B water seal tank piping.
Article 20, Paragraph 1 of the Air Pollution Control Act, Taiwan	The petrochemical processes of the Kaohsiung Factory, such as the synthetic rubber manufacturing process and thermoplastic rubber manufacturing process, were inspected and the measured value of odor pollutants is 100, which exceeded the "Standards for Air Pollutant Emission from Stationary Pollution Sources."	NT$195,000	TSRC has paid the full amount of the fine and arranges aerial trucks to inspect the exhaust air ducts every six months to find out leaking points and repair them.
Article 22, Paragraph 3 of the Air Pollution Control Act, Taiwan	The Kaohsiung Factory's boiler steam and electricity co-generation process (M01) emission pipeline (P001) was not inspected once a week before the completion of the audit of the confirmation report of the monitoring facilities in accordance with the regulations, so the monitoring data could not be considered as valid data during the period. The percentage of effective monitoring hours in Q3 did not reach 85%. This is a violation of Article 18 of the "Regulations for the Administration of Continuous Automatic Air Pollutant Monitoring Facilities for Stationary Sources" and Article 22, Paragraph 3 of the Air Pollution Prevention Law.	NT$100,000	TSRC has paid the full amount of fine and participated in environmental lectures
Article 22, Paragraph 3 of the Air Pollution Control Act, Taiwan	The Kaohsiung Factory's boiler steam and electricity co-generation process (M01) emission pipeline (P001) was not inspected once a week before the completion of the audit of the confirmation report of the monitoring facilities in accordance with the regulations, so the monitoring data could not be considered as valid data during the period. The percentage of effective monitoring hours in Q4 did not reach 85%. This is a violation of Article 18 of the "Regulations for the Administration of Continuous Automatic Air Pollutant Monitoring Facilities for Stationary Sources" and Article 22, Paragraph 3 of the Air Pollution Prevention Law.	NT$100,000	TSRC has paid the full amount of fine and participated in environmental lectures

3.5.3 Ecological Conservation and Prevention of Other Pollution

TSRC's production sites and offices are not located in protected and restored habitats, nor in any of the six protected areas, biologically diverse areas, or genetically diverse areas specified by the International Union for Conservation of Nature (IUCN). None of the species in the industrial park are listed on the "Red List" of IUCN or "National List of Protected Species in Taiwan."

Shen Hua Chemical, TSRC-UBE, and Nantong Industries conduct regular soil and groundwater monitoring inventories every year in accordance with China's "HJ 1209-2021 Technical Guidelines of Soil and Groundwater Self-Monitoring for Industrial Enterprises." There were no spills or contaminations in 2022.

CH4 Social

In response to global ESG initiatives and demands for sustainable development, TSRC enhance the professional skills of our employees with respect to ESG and develop talent cultivation plans. We expand competency development, knowledge learning, and the trilateral cooperation among industry, government, and academic institutions to enhance our competitiveness. As employees are the most important assets, TSRC devotes efforts to keep our employees safe, healthy, and enjoying benefits. TSRC optimizes the work environment and takes care of employees' physical and mental health. Regarding the engagement with the society, we expand our positive influence through chemical sustainable education and social engagement programs to contribute to local education and community integration.

Employee total recordable incident rate (TRIR)

0.35

Employee TRIR in 2022 reached the target ahead of schedule

(Target for 2023 is TRIR ≤ 0.36)

208 employees participated in the ESG Innovation Action Learning

In 2022, the ESG Innovation Action Learning was held

110 participants in the chemical event

About 110 students participated in the Chemistry On The Go events in 2022. Over 1,000 students participated I the decade

4.1 Strengthen Employee's Sustainable Capability

4.1.1 Vision and Management Approach

In the face of the global carbon reduction trend and the transition of the chemistry industry, TSRC launches ESG training program, aiming to develop a diverse, inclusive, and active learning culture to attract and retain the talented and strengthen the company's competitive advantages for sustainable development.

Strengthen TSRC's Stainability Capability

Please refer to 4.1.2 Talent Structure

Diversity and equality

Uphold the principle of equal opportunity, and recruit staff based on professional ability and work experience.

Local recruitment

When job applicants have the same qualifications, TSRC gives priority to local residents.

Diversified recruitment

TSRC provides internship opportunities, open and transparent recruitment and well-organized new employee orientation to recruit appropriate talent.

Please refer to 4.1.3 Talent Attraction and Empowerment - Performance Evaluation

Fair evaluation

Performance evaluation is conducted twice a year according to the Employee Performance Evaluation Regulations.

Equality and transparency

The recruitment, performance evaluation, promotion, and salaries are based on staff's individual abilities and annual performance results. TSRC does not discriminate against age, gender, region, religion, marital status, and sexual orientation.

ESG competency development

We promote ESG training for employees to reaffirm TSRC's ESG strategies and goals.

Personal Development

We promote global employees to set personal development goals and managers assist them in creating a "golden triangle" personal development plan that meets their abilities, willingness, and company requirements to create a reserve of future talent.

Professional learning

TSRC organizes internal and external training courses and general education courses for employees in response to future changes in the market and environment.

Succession Plan

TSRC has the succession plan, regularly taking stock of the competency and technical needs of the Company and develop training program to retain the talented.

Please refer to 4.1.3 Talent Attraction and Empowerment

Rewards and recognition

TSRC implement salary adjustment, promotion, bonus and reward mechanisms to retain outstanding talent. The mechanism adjusts according to the characteristics of the region where the subsidiaries are located.

Excellent benefits

TSRC sets up proper benefits mechanism for employees to retain outstanding talent. The mechanism adjusts according to the characteristics of the region where the subsidiaries are located.

Please refer to 4.2.2 Employee Remuneration and Benefits - Employee Benefits

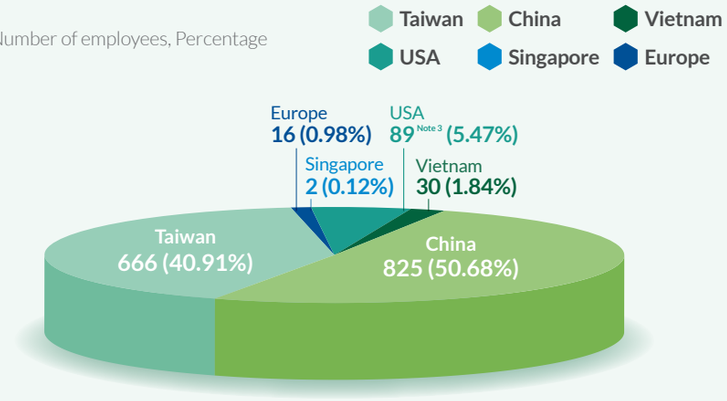
4.1.2 Employee Structure

Employee Profile

As of the end of 2022, TSRC had 1,628 employees, all of whom were employed on a permanent full-time basis. The number of employees increases by 1.5% compared to the previous year because the reporting scope is expanded. Due to the nature of work in the chemical industry, 82.68% of the total number of employees are male. In 2022, there were 414 employees who were not directly employed by TSRC, including security guards, mechanical workers, cleaners, dispatched workers and interns. For the number of employees and other workers of each subsidiary, please refer to the Appendix.

Total Number of Employees (by Region)

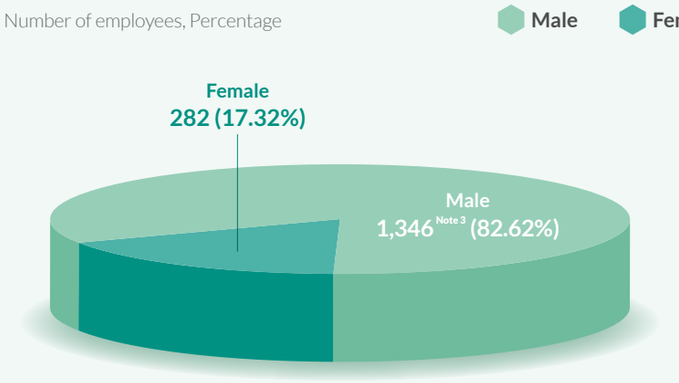
Unit: Number of employees, Percentage



Total: 1,628 (100%)

Total Number of Employees (by Gender)

Unit: Number of employees, Percentage



Total: 1,628 (100%)

Note:

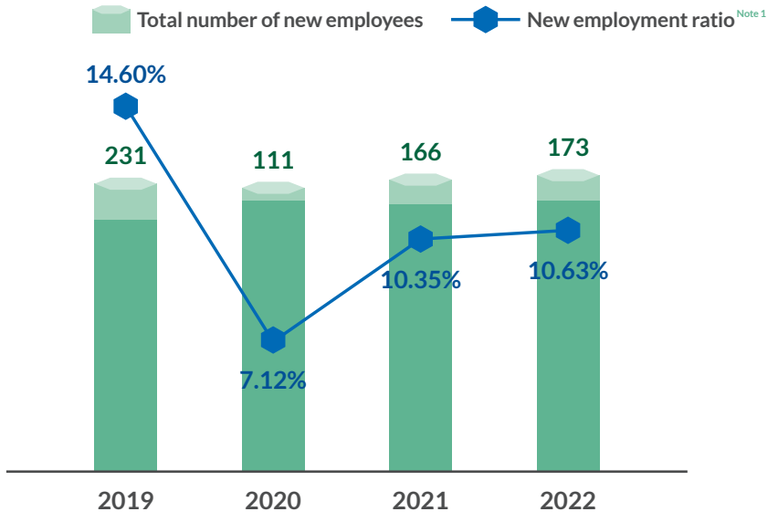
1. The "employees" are all permanent full-time employees. There were no permanent part-time employees, temporary employees, or non-guaranteed hours employees in 2022.
2. The total number of employees in this table is calculated as of December 31, 2022, and the percentages are rounded to the second decimal place.
3. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report.

New Hires and Employee Turnover

TSRC upholds the principle of equal opportunity and follows the Organization for Economic Cooperation and Development (OECD) guidelines for multinational enterprises. We hire staff based on professional competence and experience and do not discriminate against gender, religion, and race. We have an open and transparent hiring process, and we devote efforts to hire and train local employees.

In 2022, a total of 173 full-time employees joined TSRC, accounting for 10.63% of the total full-time employees. The rate of new hires was almost the same as the one in 2021. Most new hires was mainly between 30 and 50 years old, and the second most was those under age 30. In 2022, 146 employees left, and the turnover rate is 8.97%. Since 2021, TSRC optimized the recruitment process, enhanced new employee training, strengthened the leadership of the management to reduce the turnover rate. In 2022, most departed employees was mainly between 30 and 50 years old and the second most was those under 30. TSRC develops diverse career development opportunities to attract and retain outstanding talent. For more information about the number, age, gender, and regional of new hires and departing employees at each subsidiary, please refer to the Appendix.

Number of New Recruits and the Ratio

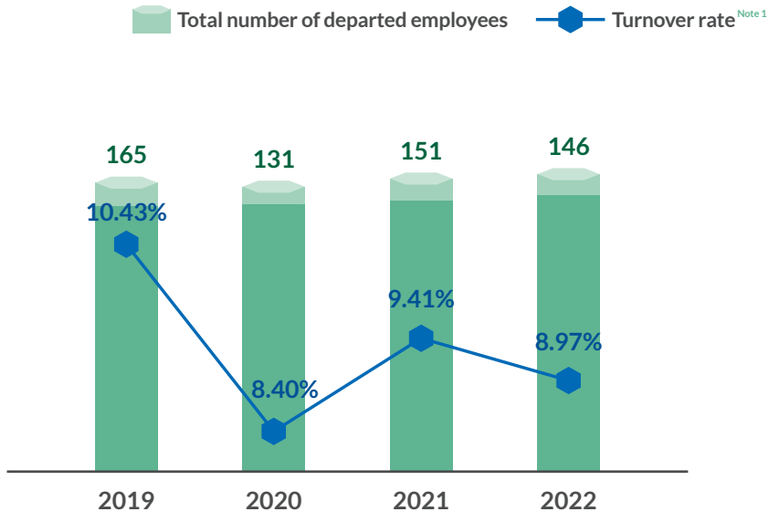


	2019	2020	2021	2022
Total number of full-time employees	1,582	1,560	1,604	1,628

Note:

1. New employment ratio = Total number of new employees / Total number of full-time employees
2. The total number of full-time employees in 2022 is calculated as of December 31, 2022, and the new employment ratio is rounded to the second decimal place.
3. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report. In 2022, TSRC (USA) Investment Corporation had no new hires.

Number of Departing Employees and Turnover Rate



	2019	2020	2021	2022
Total number of full-time employees	1,582	1,560	1,604	1,628

Note:

1. Turnover rate = Total number of departed employees / Total number of employees
2. The total number of full-time employees in 2022 is calculated as of December 31, 2022, and the turnover rate is rounded to the second decimal place.
3. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report. In 2022, TSRC (USA) Investment Corporation had no departed staff.

4.1.3 Talent Attraction and Empowerment

Training, Learning, and Career Development

TSRC builds active learning culture and simulates employees' creative thinking to encourage innovation and transition within the organization. In addition to specific professional training (including production, research and development, warehousing and logistics, and other professional courses) and external courses, TSRC launched a global ESG training course was launched in Taiwan, China, and Europe and the United States in 2022. The training is designed for all employees equipped with the understanding and knowledge of TSRC's ESG strategy. It is expected in the first quarter of 2023 all employees around the world will complete the courses. The ESG course includes topics such as "global ESG development trends," "TSRC ESG strategy and goals," and "TSRC's sustainable products."

In 2022, TSRC launched the ESG Innovation Action Learning program in Taiwan, which consists of two stages of courses aiming to develop innovative thinking of employees for the Companies ESG transition. At the first stage, external innovation lecturers was invited to give lecture, guiding employees to gain the basic knowledge and methods of innovation. A total of 208 people attended in the lecture (65% of the total number of non-production personnel in Taiwan). At the second stage, total of 36 employees from Taiwan who were designated by the ELT and expressed interest in participation formed six learning groups to develop six innovative projects during the three-month "Green Innovation - ESG Sustainable Innovation Action Learning" program. Through practical application, employees better understand sustainable innovation and the Company's determination to move towards net zero. For more details about the six projects, please see ESG Features.

Providing a good environment talent is important for TSRC sustainable development. Based on the employees' ability, interests, and the organization's needs, TSRC establishes learning blueprint for employees. In 2022, TSRC developed the "Global Self-Development Project" for non-production employees, aiming to enhancing employees' diverse abilities, aligning the organization's development, and completing functional transition. The Company facilitates employees to set personal development goal with support and guidance provided through the newsletters, personal development goal-setting courses, and "TSRC Sharing and Exchange" activities. The management assists staffs to connect their self-development goals with the Company's critical needs. A total of 520 employees in Taiwan and China (accounted for 34.88% of the total number of employees and for 76% of non-production employees) have participated in the goal-setting course. In 2022, 100% of non-production employees completed the goal setting. TSRC introduces the Predictive Index (PI) Behavioral Assessment tool to help employees understand self-driving elements and develop their strengths. The tool supports managers to understand the strengths and characteristics of staff, resulting in better providing guidance and assistance.

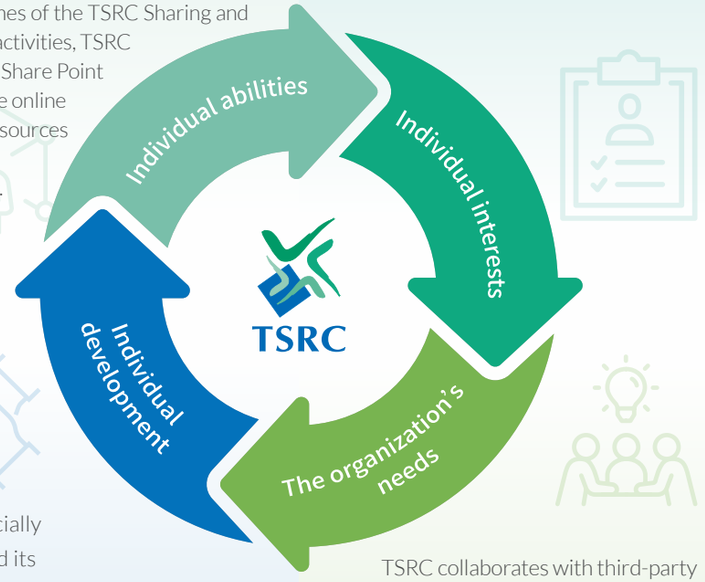
TSRC Learning Blueprint

Individual development goals

In 2022, TSRC encouraged employees to set personal development goals. Learning newsletters and personal development goal-setting online courses were launched. Through the seven themes of the TSRC Sharing and Exchange activities, TSRC also set up Share Point to integrate online learning resources to assist employees.

Introduction of PI behavioral assessments

TSRC assists employees in finding their self-driving elements and adaptively leverage their strengths.



Commitment to sustainability on talent development

TSRC officially announced its participation in the "TALENT, in Taiwan, Talent Sustainability Action Alliance," as talent development is pivotal.

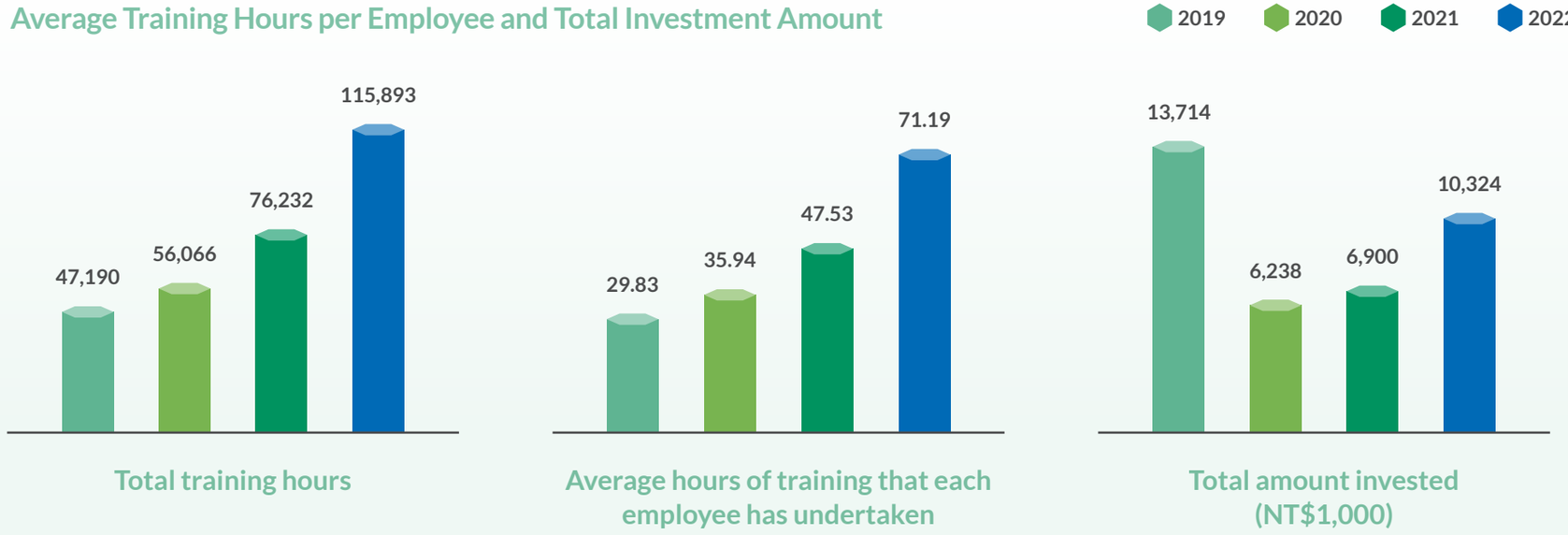
Work-life coaching

TSRC collaborates with third-party institutions and consulting teams from various fields to provide employees with better resources and support for work and life challenges.

TSRC puts efforts on succession planning and conducts analysis every March to check key talent reserves and the development plans for critical positions. The Company also launches different courses according to different job levels, including leadership courses for entry level managers, organizational leadership courses for mid-level managers, and strategic leadership courses for high-level managers. In 2022, TSRC launched Leadership Competency Project for the ELT and set up the global talent competency development index. The inventory of future leadership among global employees and leadership managers were completed and the core leadership index was established in 2022, leading to a comprehensive managerial training plan and talent development.

In response to rapid market and environmental changes, TSRC places more resources for employee education and training. In 2022, TSRC's total investment in education and training reached NT$10.32 million, a significant increase of 49.58% over the previous year. The average training hours per person increase 47.78%. For more details about training of each subsidiary, please refer to the Appendix.

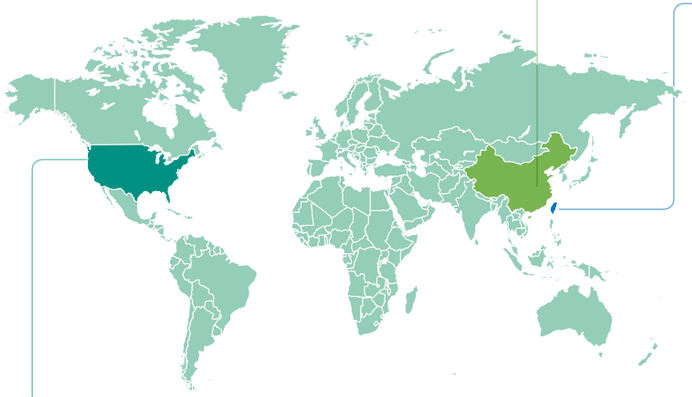
Average Training Hours per Employee and Total Investment Amount



Note:

1. Average hours of training that each employee has undertaken = Total number of hours of employee training / Total number of employees. It is calculated by rounding to the second decimal place.
2. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report.

To facilitate cross-departmental collaboration and innovation, TSRC has held the annual "TSRC Sharing and Exchange" activity series since 2021, inviting experts in various areas of the Company's departments to share their case experiences about finding solutions and breakthroughs when facing challenges and bottlenecks. The online real-time interaction and cross-department discussions allow knowledge and skills to flow between different functional units and inspire innovative ideas and practices. The TSRC Sharing and Exchange not only serves as an important platform for knowledge sharing but also increases the sense of participation and cohesiveness among employees. It also promotes cross-disciplinary integration and collaboration. In the future, TSRC will gradually expand the TSRC Sharing and Exchange to other sites, and the content will be integrated with employees' career paths to create infinite synergies.



USA / Texas, Louisiana

TSRC Sharing and Exchange

8 sessions of the TSRC Sharing and Exchange were held and drew a total of 345 attendees. In 2023, more internal experts will be invited to these sessions.

Taiwan / Taipei, Kaohsiung, Gangshan

TSRC Sharing and Exchange

12 sessions of the TSRC Sharing and Exchange were held and drew a total of 1,682 attendees The overall satisfaction rate reached 93%, with 63% of the attendees giving the highest score of 5. With "Growth and Development" as the main axis, the theme was focused on important issues of company development, including innovation, operation strategy, ESG, and product market development. The expertise of different functional units was connected and shared.

Leadership Talent Nurturing

By introducing the Employee Assistance Program (EAP), several new managers were able to smoothly transition into their new roles with the support of "1:1 Transitions", improving their leadership and adaptability skills. The development map was adopted to assist a production manager in Kaohsiung in successfully relocating to India to serve as Chief Operating Officer (COO). Non-chemical background senior managers were also supported in pursuing a master's program in chemistry.

Green Innovation Action Learning

A total of 36 employees formed six learning groups and completed major innovative projects. Projects were showcased.

China / Nantong, Shanghai

TSRC Sharing and Exchange

Shen Hua Chemical organized 3 sessions of the TSRC Sharing and Exchange and reached 100 attendees. The content covered PI assessment tools, data applications, and digital transition. TSRC-UBE and Nantong Industries organized 3 sessions of the TSRC Sharing and Exchange and drew a total of 108 attendees. The satisfaction rate was 93%.

Mentorship

Shen Hua Chemical provided mentoring mechanism to 20 new employees, Shanghai Industries to 34 new employees (including those who were transferred), and TSRC-UBE and Nantong Industries to 60 new employees.

On-the-Job Training

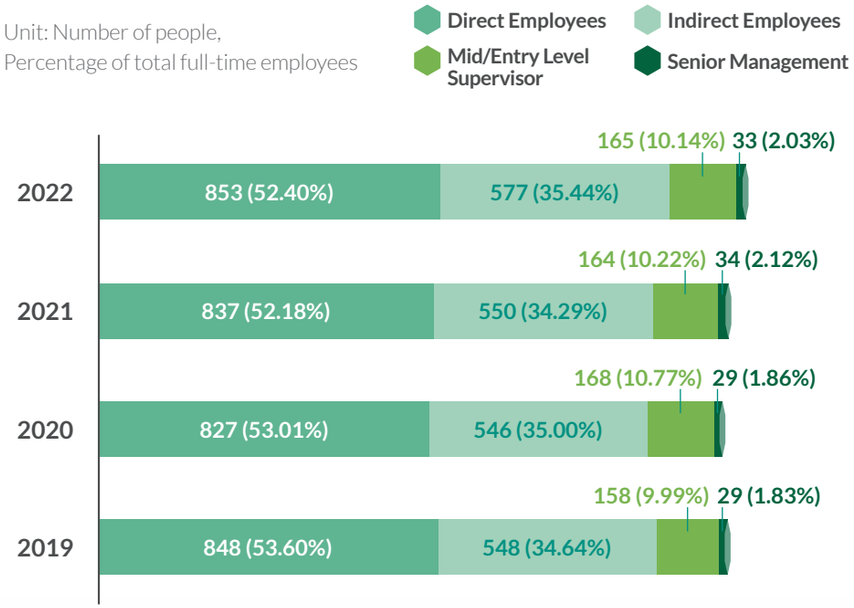
Shen Hua Chemical assisted 22 front-line staff in obtaining professional chemical education through on-the-job training, and TSRC-UBE and Nantong Industries assisted 41 employees in pursuing on-the-job training.

Performance Evaluation

TSRC's performance evaluation includes goal setting, empowerment authorization, communication and counseling, linking performance and compensation, and career development, thereby ensuring the goal setting is linked to the Company's overall strategy and employees' development. All employees are undergone the evaluation twice a year. The management conduct regular performance interviews with employees (including development goal interviews) to provide feedback. TSRC cares employees' career development. In addition to arranging face-to-face communication between supervisors and individual employees from time to time, TSRC also initiates counseling for employees whose performance is worse than expected and provides necessary resources or supporting assignment shifting. We reward senior and exemplary employees for their years of outstanding contributions and service.

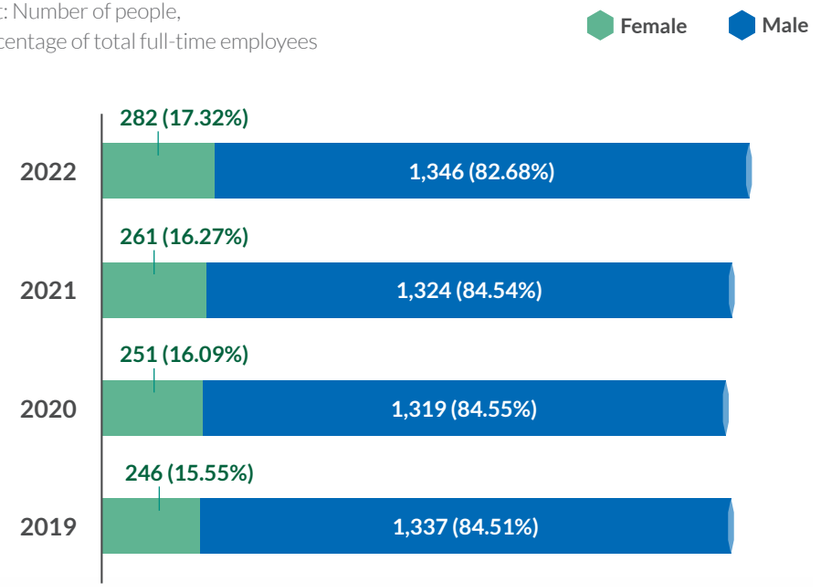
Number and Percentage of Employees Receiving Regular Performance and Career Development Reviews (by Category)

Unit: Number of people,
Percentage of total full-time employees



Number and Percentage of Employees Receiving Regular Performance and Career Development Reviews (by Gender)

Unit: Number of people,
Percentage of total full-time employees



Note:

1. Senior managers refer to G19 and above managers, mid/entry level managers refer to deputy managers and managers. Direct employee refers to staff directly responsible for production lines, including operators, technicians, shift leaders, and analysts. Indirect employees are all employees that are not direct employees.
2. The number of full-time employees in 2019-2021 was calculated based on the information disclosed in the annual reports.
3. The total number of full-time employees in 2022 is calculated based on the number of people at the end of the reporting period, and the percentage calculation is rounded to the second decimal place.
4. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report.

4.2 Improve Health, Safety & Wellbeing of Employees

4.2.1 Vision and Management Approach

Employees are the core for TSRC competitiveness. TSRC devotes efforts to provide a safe working environment, protect human rights and harmony between labor and the management, and enhance employee engagement. TSRC develops the TSRC Safety Culture to enhance employees' awareness and attention to workplace health and safety, reduce the occupational injury rate, and achieve zero accidents and zero injuries. We are committed to protecting employees' human rights, supporting the Universal Declaration of Human Rights (UDHR) and other relevant international human rights concepts, and implementing TSRC's human rights policy. We value employees' opinions and rights and establish a channel for feedback and communication. We organize activities to improve health and provide competitive remuneration and benefits to enhance employee engagement.

4.2.2 Employee Remuneration and Benefits

Employee Remuneration

TSRC provides reasonable salaries to attract and retain chemical engineering talent. We consider the needs of different employees and provide appropriate employee benefits. TSRC abides by labor laws and regulations and does not discriminate against employees with different salaries and benefits whatever their race, skin color, age, religion, nationality, marital status, gender, sexual orientation, gender identity, veteran status, or political stance, which are unrelated to their ability. Due to the nature of work and characteristics of the chemistry, there is a significant difference in salary between genders.

To continuously increase the competitiveness on the labor market, TSRC reviews the remuneration and benefits every year and makes appropriate adjustments with reference to the industry standard. The employee compensation and benefits reached NT$2.354 billion in 2022, up 6% compared to 2021. Average compensation and benefits expenses significantly increased to NT$1.446 million, up 4% compared with 2021. TSRC continues to provide competitive compensation and benefits associated with the annual earning to attract and retain outstanding talent for innovation.

Ratio of Basic Salary and Remuneration of Women versus Men

	TSRC Corporation (includes Global Business Headquarter, Gangshan Factory, and Kaohsiung Factory)		Shen Hua Chemical		Nantong Industries		TSRC-UBE		Shanghai Industries		TSRC (Vietnam) Company Limited		TSRC Specialty Materials LLC		TSRC (LUX)	
Year	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Supervisors	77%	72%	105%	101%	66%	56%	88%	50%	103%	80%	None are male	None are male	88%	86%	None are female	None are female
Indirect Employees	96%	97%	75%	69%	72%	69%	76%	64%	84%	75%	100%	178%	76%	74%	68%	62%
Direct Employees	None are female	None are female	85%	82%	None are female	58%	73%	64%	None are female	None are female	None are female	None are female	73%	86%	N/A	N/A

Note: There were no female managerial staff at the trading-based holding subsidiary Polybus Corporation Pte Ltd in 2022, and the Company has no indirect employees and direct employees.

Salary and Benefits

(Unit: NTD)

	Number of Employees	Number of Non-Managerial Staff	Average Salary of Non-Managerial Staff	Median Salary of Non-Managerial Staff	Salary and Benefits	Average Salary and Benefits Expenses
2019	1,608	1,577	917,622	675,490	1,944,457,000	1,209,239
2020	1,587	1,557	950,624	708,234	1,828,747,000	1,152,330
2021	1,604	1,571	1,064,601	815,555	2,230,365,000	1,390,502
2022	1,628	1,594	1,078,887	820,683	2,354,249,000	1,446,099

Note:

1. In 2020, the company received government-related salary subsidies and insurance reductions due to the impact of the pandemic.
2. The average and median salaries of non-managerial staff are based on the "Non-Managerial Full-Time Employee Salary Information" published by the Taiwan Stock Exchange.
3. The Group's salary and benefit for employees and the Group's per capita remuneration and benefit expenses are based on the financial report, including meal expenses, employee benefits, training expenses, employee remuneration and remuneration to Board of Directors.
4. The exchange rate is the cumulative average exchange rate of the company as of the end of 2022. CNY: TWD = 1:4.42310 VND: TWD = 1:0.00127 USD: TWD = 1:29.78410

Employee Benefits

TSRC provides comprehensive employee benefits and insurance after considering its business performance and market performance, and in compliance with local laws and regulations, so that employees can work with peace-of-mind. For example, the company provides meal allowances, health examination, travel subsidies, cash gifts for weddings, cash gifts for childbirth, and consolation money for injury and illness. All factories of TSRC have a recreation room with table tennis, pool table, fitness equipment, and other sports and exercise equipment, allowing employees to relax and expand their interpersonal relationships after work.

Pension
- Pension

Insurance System
- Group insurance (including dependents)
- Maternity insurance
- Unemployment insurance

Annual Personal Subsidies
- Year-end dinner
- Meal and transportation allowance
- Health examination subsidy
- Travel subsidies
- Housing allowance
- Education allowance

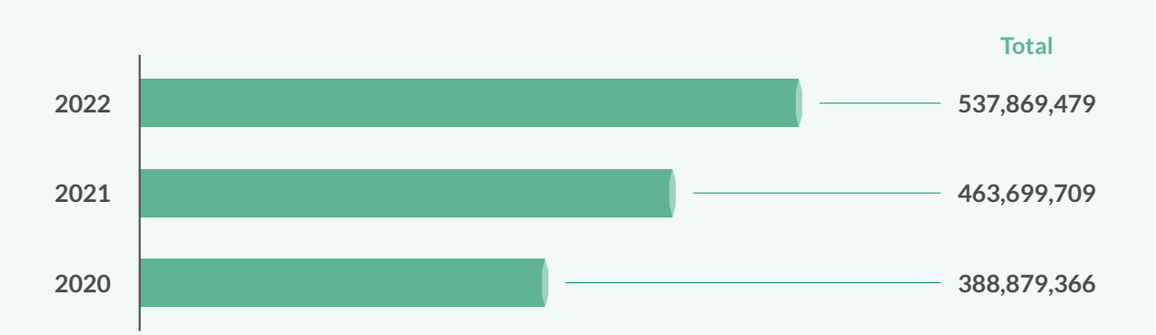
Cash Gift for Special Occasions
- Cash gift for wedding
- Cash gift for childbirth

Consolation Money
- Consolation money for injury or illness

Sports and Leisure
- Sports equipment
- Sports clothing

Employee Benefits Expenses

(Unit: NTD)



Note:

1. This table does not include the two trading-based subsidiaries Polybus and TSRC (Lux.).
2. Benefits include insurance, holiday bonuses, meal and transportation allowances, pension, housing allowances, sickness and injury allowances, and other employee benefits.
3. The exchange rate is the cumulative average exchange rate of the company as of the end of 2022.
   CNY:TWD = 1:4.42310 VND:TWD = 1:0.00127 USD:TWD = 1:29.78410

Lunch/Dinner Gathering

Year-end Dinner

Corporate Travel

Retirement Plan

TSRC provides employees with insurance and pension in accordance with relevant laws and regulations. In accordance with the provisions specified in the Labor Standards Act, the Labor Pension Act and its Enforcement Rules, and the Pension Fund Accounting Guidelines, the Company allocates pension every month to staffs' accounts set in the Taiwan Bank and the account set in the Labor Insurance Bureau. The Labor Pension Reserve Supervisory Board holds regular meetings to review the pension fund status to protect employees' retirement benefits. For subsidiaries in China, per relevant provisions of China's Social Security Act, both the Company and employees put a certain percentage to retirement insurance, medical insurance, work injury insurance, unemployment insurance, maternity insurance, and the housing fund. When retiring, the employee shall receive the pension from the National Labor and Social Security Departments in accordance with the laws and regulations. The subsidiary in the USA provides insurance in accordance with the local Social Security Act and 401(k) Retirement Savings Plan. For subsidiaries in The Vietnam, Singapore, and European countries also follow local laws and regulations to ensure the welfare of employees.

4.2.3 Occupational Health and Safety

Safety Core Values and Policies

To increase the awareness and attention to workplace health and safety at all levels, TSRC has promoted the TSRC Safety Culture and TSRC HSE Core Value since April 2021. It consists of five core elements: people-centric, zero incidents, commitment, discipline, and compliance. We further formulated the TSRC safety and health policies and convert into the safety culture: we pursue zero accidents and zero injuries with a people centric approach through technology, safety and health culture, responsibility, and communication.

Safety Core Values

People Centric	People we work with will be valued, respected, listened to, while creating a friendly workplace.
Zero incidents	Commit to achieve and sustain zero incidents through continuous improvement.
Commitment	Determined to operate without compromising the health, safety, and environment.
Discipline	Be self-disciplined, build safe habits, and a safety-first mindset to demonstrate HSE practices.
Compliance	Full compliance with laws, company policies, and standards are minimum requirements.

Safety and Health Policy Principles

People Centric	Allow employees and representatives are able to participate, and continue to care for and protect employees.
Technology	Develop management strategies and production technology with the consideration of the employees' health and safety.
Safety & Health Culture	Continue to improve safety management and establish excellent safety culture through setting goals and encouraging all employees to participate in organizational safety activities.
Responsibility	It is not only the Corporate Social Responsibility but also everyone's responsibility to comply with the applicable safety and health regulations and other requirements to prevent occupational accidents, injuries, and disease.
Communication	Communicate with all employees about the need for occupational safety and health measures through education training and safety and health meetings.

Occupational Safety and Health Management

TSRC has established an occupational safety and health management system at all factories and is continuously improving according to the Plan, Do, Check, and Act (P-D-C-A). The Kaohsiung and Gangshan factories in Taiwan and four subsidiaries in China have obtained ISO45001 certification. All factories regularly conduct internal audits to review the management system on an annual basis. For factories have implemented the ISO 45001 system regularly conduct external auditing to ensure the effective management system. For the number and percentage of employees covered by internal and external audits at each subsidiary, please refer to the Appendix.

In accordance with Taiwan's Occupational Safety and Health Management Act, TSRC's global corporate headquarters has set up the Occupational Safety and Health Division as the dedicated occupational safety and health management unit, which is responsible for implementing the safety culture, conducting compliance audits every three years for all the Group's factories (whether or not ISO45001 is implemented), developing promoting activities (such as Safety Culture Initiatives), and supporting employees and contractor to embed the culture in daily operations. TSRC establishes a unified HSE management mechanism with standardized definition and a platform for event reporting, investigation, and correction to prevent recurrence, to achieve the goal of "Disaster-free and harm-free".

The Kaohsiung Factory and Gangshan Factory in Taiwan sets up an Occupational Safety and Health Management Unit and an Occupational Safety and Health Committee at the level of the Occupational Safety and Health Division in accordance with Taiwan's Occupational Safety and Health Management Regulations, with TSRC employees dedicated to the management of related operations. The Safety and Environmental Departments of Shen Hua Chemical, Nantong Industries and TSRC-UBE is managed by TSRC employees in the Safety and Environmental Protection Divisions. TSRC Specialty Materials LLC in the U.S. has a Health, Safety and Environment (HSE) unit, where TSRC employees are responsible for managing the matters. The head of the Production Department of TSRC (Vietnam) is responsible for occupational safety and health operations. The U.S. and Vietnam subsidiaries are planning to implement the ISO 45001 management system so that occupational safety and health management can be effectively managed in accordance with local occupational safety and health regulations.

In accordance with the provisions of the ISO45001 management system and local laws and regulations, the Taiwan and China plants have established comprehensive occupational safety and health hazard identification and risk assessment procedures. The assessment results are managed in a hierarchical manner using matrix, and priority is given to improving high-risk operations. Management plans are formulated for unacceptable risks and reviewed at management meetings to achieve continuous improvement through the PDCA cycle.

TSRC Workers Covered by an Occupational Health and Safety Management System

			Number of employees	Coverage Percentage against all Employees
2019	Number of employees covered by the internal auditors	TSRC employees	1,285	95%
		Other workers	220	25%
	Number of employees covered by the external auditors	TSRC employees	1,320	94%
		Other workers	90	15%
2020	Number of employees covered by the internal auditors	TSRC employees	1,281	93%
		Other workers	235	25%
	Number of employees covered by the external auditors	TSRC employees	1,328	96%
		Other workers	92	16%
2021	Number of employees covered by the internal auditors	TSRC employees	1,297	96%
		Other workers	225	31%
	Number of employees covered by the external auditors	TSRC employees	1,330	96%
		Other workers	125	20%
2022	Number of employees covered by the internal auditors	TSRC employees	1,299	80%
		Other workers	320	77%
	Number of employees covered by the external auditors	TSRC employees	1,259	77%
		Other workers	177	43%

Note:

1. This table includes only the number of employees and other workers at the sites within the reporting boundary that are audited internally and verified externally in accordance with ISO 45001. TSRC (Vietnam) Co., Ltd. and TSRC Specialty Materials LLC, which are not ISO45001 certified subsidiaries, and Polybus and TSRC (Lux.), which are two trading-based subsidiaries, and the global corporate headquarters, which are mainly office operations, are not applicable to the OSH management system audits. The five sites are not included.
2. The data for 2019-2021 has been restated due to the adjustment of definition.

In 2022, TSRC officially launched its HSE incident reporting and database system, which allows for more efficient data collection, analysis, and review. This system contributes to effective reporting and investigation of incidents, as well as the identification of prevalent incident types and trends to formulate corresponding strategies. In 2022, TSRC established the Global HSE Annual Award. Sites which have excellent HSE performance are recognized and rewarded. The peer competition improves the HSE culture and implementing outcomes.

With the people-centric approach, TSRC not only focuses on employee safety but also values operational safety for contractors. Therefore, TSRC has established the "Contractor Management Procedures" to regulate contractors' qualification inspection, training, hazard notification, construction safety precautions, penalties, and assessments for contractors. The engineering contractors must apply for a construction permit before starting work, and a toolbox meeting is held with the functional unit and contractors to ensure that all contractors understand the steps, hazards, and control measures. The engineering contracting unit conducts on-site inspections to ensure that contractors comply with occupational safety and health regulations and safety precautions. TSRC also attaches great importance to the occupational safety of suppliers. Through the TSRC Supplier Code of Conduct, TSRC requires suppliers to implement safe operating procedures and provide employees with appropriate personal protective equipment, and requires suppliers to identify, evaluate, and control the effects of exposure to chemical, biological, and physical factors on employees through the hierarchical management control. TSRC conducts regular supplier evaluations and audits to ensure that suppliers comply with relevant regulations.

TSRC has Responsible Care Committee, which is established for the safety and health of all employees and contractors, and is the highest management committee for TSRC's environmental, safety, and health. The Responsible Care Committee is composed of the Product Specification and Distribution Safety Sub-committee, Process Safety and Energy-saving Management Sub-committee, Regulation and Contractor Safety Management Sub-committee, and Emergency Response Sub-committee. It is responsible for the management and review of the ISO45001 Occupational Safety and Health Management System. The Responsible Care Committee convenes quarterly meetings and is chaired by the vice president of the Production Operations Division. The Committee members include labor representatives, who participate in discussions on the planning and implementation of occupational safety and health policies. Duties of the committee include:

- Implement and integrate the Company's environmental protection, safety and health policies, and carry out measures for safety, health, and environmental protection.
- Incorporate and meet the six management requirements[Note] of Taiwan Responsible Care Association (TRCA).
- Implement the core values of our people-centric safety culture and aim to be the benchmarking.
- Track and reduce chronic health risks of employees.

Note: The six management standards are process safety, contractor safety, emergency response, waste management and reduction, product management, and distribution management.

Employee Participation and Communication

TSRC Global HSE has established the "Environmental, Health and Safety Incident Reporting and Investigation Procedure" to regulate the process of incident reporting and investigation. Each production site develops its own procedures based on this manual to ensure that all incidents are reported, investigated, and properly recorded. In addition to incidents, all TSRC factories encourage employees to proactively report near miss incidents, unsafe acts (UA), and unsafe conditions (UC).

Occupational hazards and dangerous conditions are addressed through incident reporting, and employees will not be penalized for reporting. The Global HSE Department also established four life-saving provisions, including for hot work, confined space, electrical lockout/tagout (LOTO). Employees who violate these provisions will be punished as a warning to other employees to protect their safety at work. In addition to incident reporting, there is also a mechanism for voluntary safety inspections or hazard investigations, and all employees can report potential risks and hazards through on-site inspections. TSRC empowers all employees to stop work and evacuate to a safe place immediately without endangering other workers when they discover an imminent danger while performing their duties. Employees are encouraged to report to their supervisor right away. TSRC also has a grievance mailbox, where employees can seek assistance through the mechanism when facing potential impacts or damage to their occupational safety rights.

The Occupational Safety and Health Committees at the TSRC Kaohsiung Factory and Gangshan Factory include labor representatives who account for more than one-third of the committee members. The committee meets quarterly, chaired by the factory manager or the highest-level manager of the factory, to monitor and communicate occupational safety and health-related information with employees. Shen Hua Chemical, Nantong Industries, and TSRC-UBE hold weekly safety and operation meetings, monthly and quarterly environmental, health and safety management review meetings, chaired by the company's president, with one of the participating management staff being a union chairperson. In all meetings, if employees have different opinions on safety and health matters and the grievance mechanism, they can make suggestions during the meeting, and the meeting chair will make a decision. Employees are not punished for their statements made during the meeting.

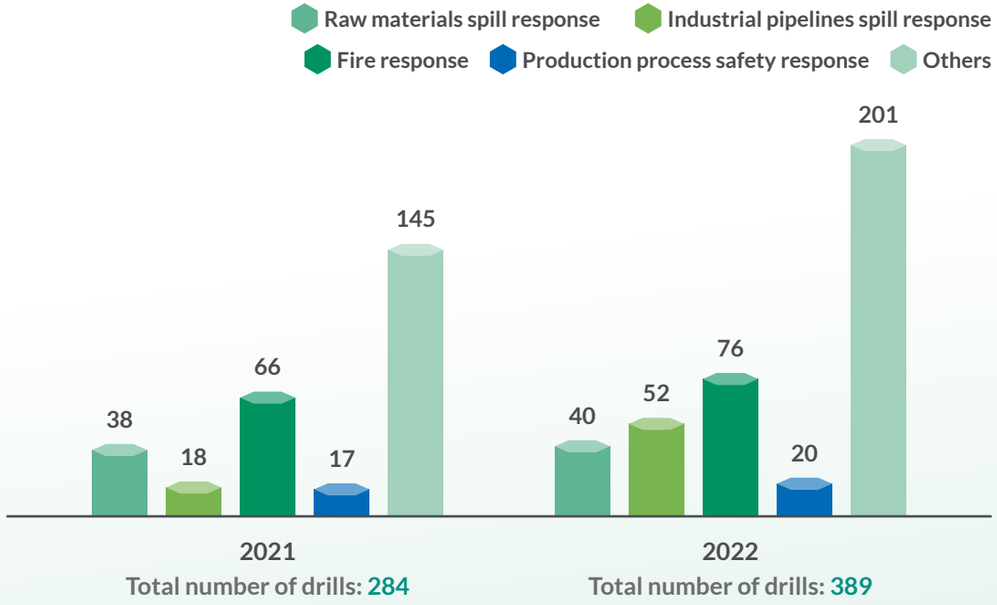
Emergency Response Drills

TSRC sets emergency response procedures for raw material leaks, industrial pipeline leaks, fire accidents, and process safety incidents that may result from operating activities. It has also specified the rights and obligations of employees and contractors in terms of safety standards, education and training, health guidance, first aid and rescue, and incident reporting in the relevant regulations. TSRC conducts annual drills and labor safety education and training.

Emergency Response Implementation Process

1. Plan and new employee training
2. Simulations
3. On-site rehearsal
4. Formal drill
5. Grade and review

Number of Emergency Response Drills



On-site Formal Drill

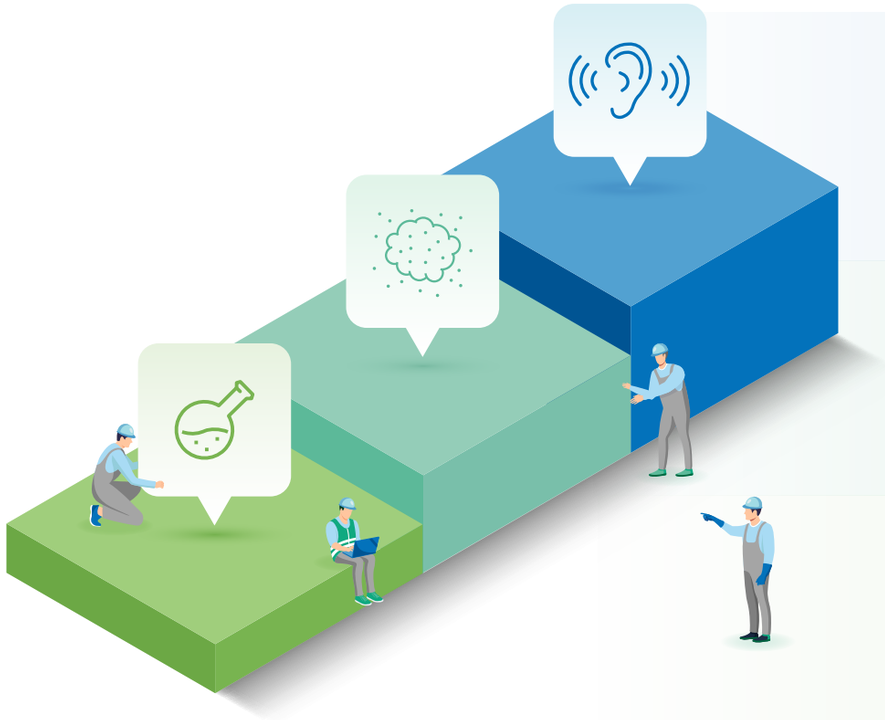
Occupational Injury Prevention and Improvement

TSRC follows the ISO45001 management system and schedules annual health examinations for employees facing potential long-term health risks. TSRC adopts early warning system to identify occupational hazard factors and carry out preparations to reduce hazards through better management, process changes, methods improvement, work hours adjustment, separation, and personal protection measures.

All statistical data of occupational injuries and diseases of TSRC employees are reported through the TSRC Incident Notification System. For detailed data, please refer to the Appendix.

TSRC particularly manages five occupational hazard factors: noise, carbon disulfide, benzene, dust, and butadiene. Employees that expose to the five factors are classified into four levels and periodically examined by a doctor to determine if they have any abnormal health conditions. As all sites have noise as an occupational hazard factor, TSRC requires employees to properly use PPE to effectively manage the impact of noise on the health. TSRC does not use chemicals such as hepatotoxins, nephrotoxins, neurotoxins, and sensitizers. TSRC focuses on the potential hazards to employees from corrosive substances and suspected carcinogens. The Company conducts monitoring twice a year to identify actual risks, improve the working environment, and change employees' behavior to reduce exposure to chemicals. In addition, through annual special health examinations, TSRC regularly assesses the potential hazards to employees; with monthly visits from physicians dedicated to work-related illness and long-term health check, the impact and potential for disease are well monitored.

TSRC Occupational Hazard Factors



Noise

- TSRC Corporation (Gangshan Factory and Kaohsiung Factory)
- Shen Hua Chemical
- Nantong Industries
- TSRC-UBE
- Shanghai Industries
- TSRC (Vietnam) Company Limited
- TSRC Specialty Materials LLC

Dust

- TSRC Corporation (Gangshan Factory and Kaohsiung Factory)
- Nantong Industries
- Shanghai Industries
- TSRC (Vietnam) Company Limited
- TSRC Specialty Materials LLC

Chemicals

- TSRC Corporation (Gangshan Factory and Kaohsiung Factory)
- Shen Hua Chemical
- Nantong Industries
- TSRC-UBE
- TSRC Specialty Materials LLC

Note: Only factories and subsidiaries with manufacturing activities within the reporting boundary are included. No occupational hazard factors apply to the two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations.

TSRC establishes the "Environmental, Health and Safety Incident Reporting and Investigation Procedure" as a guideline for occupational incidents investigation. The preliminary investigation should be completed within two calendar days after the incident, including preservation of the site, inspection of the site and equipment, interviews with witnesses and employees involved in the incident, review of necessary certificates and training, and SOP/WI review, in order to obtain the information needed for a detailed incident investigation. The detailed investigation should be completed within 7 working days after the incident, including identifying the root cause and corrective and preventive action (CAPA), and the root cause investigation (RCI) should be completed within 18 working days.

TSRC adopts the Total Recordable Injury Rate (TRIR) as a management indicator to monitor operational safety. In 2022, a total of six work-related injuries occurred among TSRC employees, including burns, fractures, fissure fractures, and tendon injuries. There were also five work-related injury cases among workers who were not directly recruited by TSRC, including fractures, lacerations, bruises, and finger cuts. The TRIR for all TSRC employees was 0.35, and the TRIR for employees and other workers was 0.47. One of the work-related injuries of other workers met the definition of a severe occupational injury, which was caused by insufficient risk assessment in lifting operations, resulting in the dropping of the lifted object and crushing accident. Corrective and preventive measures were formulated based on the aforementioned incident investigation process, which included reviewing lifting plans before the lifting operation. For statistical data about the work-related injuries and illness, please refer to the Appendix.

TSRC has dedicated medical professionals at each factory, including one registered professional nurse in Kaohsiung Factory, Nantong Industries, and TSRC-UBE, and one dedicated physician staying at Shen Hua Chemical. These medical professionals provide support on improving and caring for the health of employees and workers, reducing occupational accidents.

TSRC On-site Medical Professionals Handled and Cared for Injured Employees

Health Promotion

TSRC cares about the health and well-being of our employees. With the support from on-site nurses and doctors, TSRC organizes health lectures and related educational training for health promotion. Activities include health examinations, sports activities, occupational medicine specialists are invited to provide on-site services.

Despite that the COVID-19 pandemic in 2022 was alleviated compared to the previous year, TSRC continues to provide pandemic prevention measures at sites. Nantong Industries, for instance, set up its own testing point in the factory to reduce the risk of cross-infection when employees undergo nucleic acid testing.

2022 TSRC Health Lectures and Related Health Education Activities

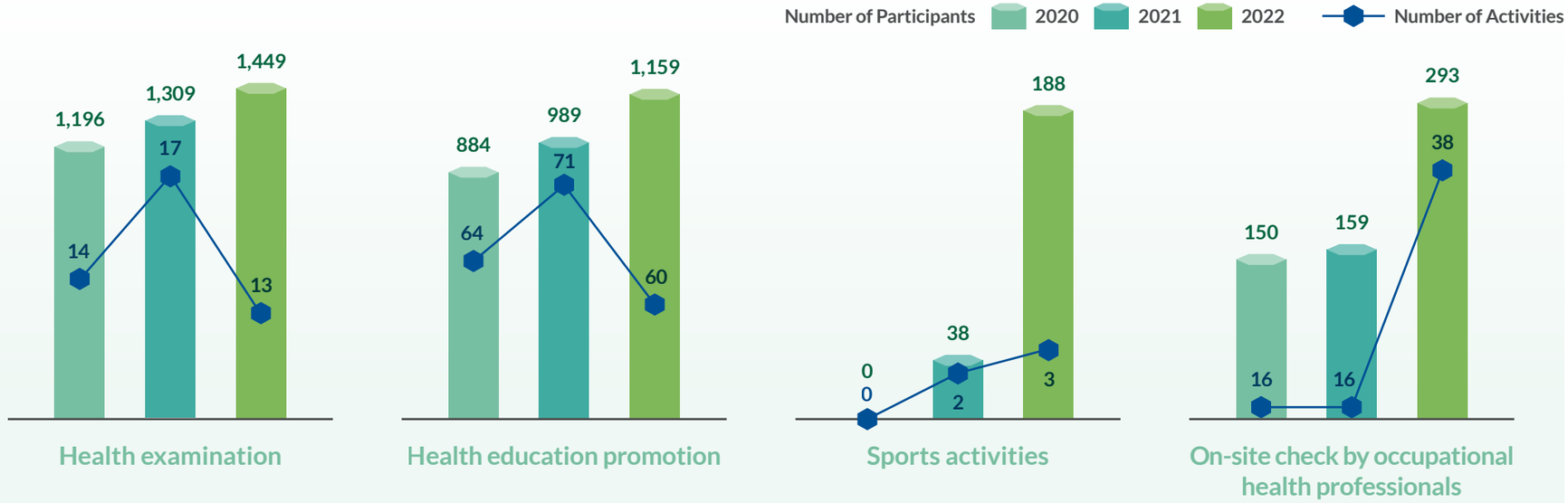

Unspoken Secrets - Women's Urological Health


Ease the Stress - Aromatherapy Stress Relief Course

The Age of Long COVID! With Nutrition and Immunity to Protect Your Body

Happiness Lies in the Attitude - Stress Relief in the Workplace

2020-2022 Employee Health Promotion Activities



4.2.4 Human Rights and Labor-Management Communication

Human Rights Protection

TSRC upholds the rights and interests of our employees and develops TSRC's "Employee Rights Protection Policy." with reference to the international human rights conventions and standards such as the United Nations' Universal Declaration of Human Rights, the Global Compact, and the International Labor Office Tripartite Declaration of Principles. We prohibit any behavior that violates and abuses human rights. We forbid any form of discrimination, forced labor, and child labor. We practice this policy in our internal operations management and extend it to employees, customers, and suppliers to ensure that all people receive fair and dignified treatment and to provide a safe, and healthy working environment for their work safety and physical and mental health.

The Human Resources and Management Department is responsible for implementing and executing human rights policies, identifying risks related to employee rights, and formulating corresponding management measures. We regularly assess the effectiveness of the measures and adjust them based on the assessment results. The CEO is responsible for supervising management and reviews disclosures of human rights-related information annually to ensure the well-being of the employees is not compromised. In 2022, the CEO and the ELT reported ESG-related issues to the Board of Directors, which also included human rights management status. TSRC regularly conducts human rights education for employees and receives employees' suggestions through the grievance mechanism.

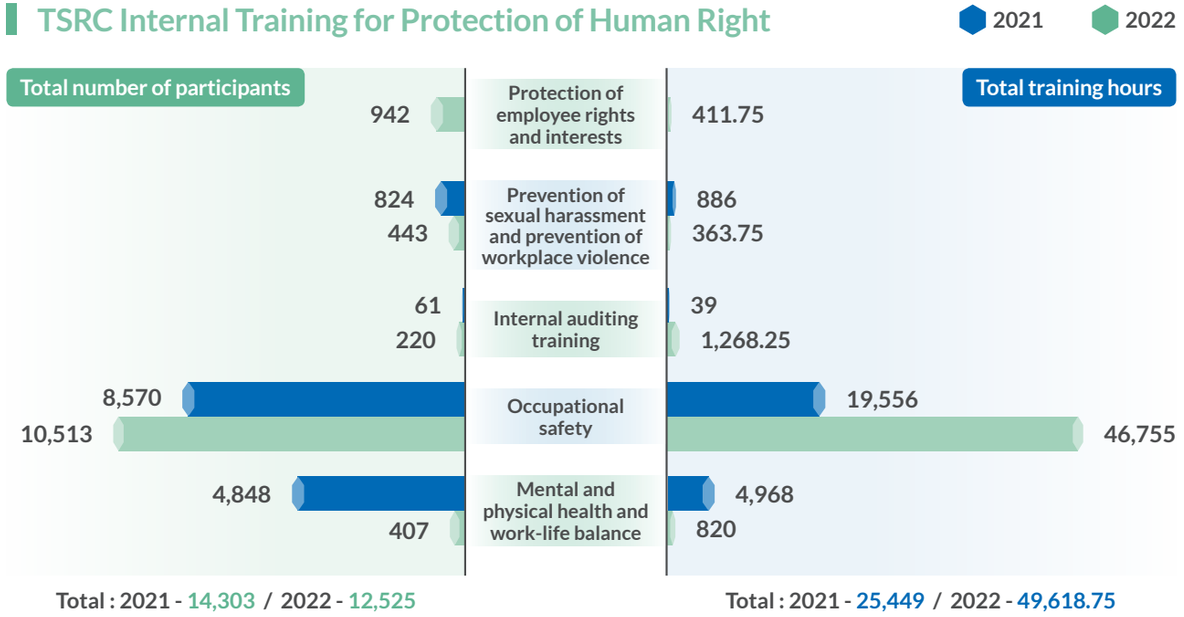
Regarding human rights issues on suppliers, the Legal Affairs Department and Supply Chain Department jointly formulated the "TSRC Supplier Code of Conduct" based on international human rights norms, which stipulates the human rights standards that suppliers must comply with. The Supply Chain Department is responsible for implementing the Code, including reviewing the status of suppliers and monitoring their setting of the grievance mechanism. For information about sustainable supplier management, please refer to 2.3.2 Supplier Management. Regarding the human rights of TSRC's customers, the Synthetic Rubber and Advanced Materials Business Units communicate directly with customers to understand their concerns. We also use sustainability questionnaires to understand customers' viewpoints on TSRC human rights issues. The customer questionnaires are applied to communicate with customers about TSRC's policies, risk assessments, grievance mechanisms, and related management measures regarding human protection.

Human Rights Concerns and Practices in 2022

Topics	Mitigation Measures	Remedial Measures	Grievance Mechanism	Mechanism for Seeking Advice or Raising Concerns
Providing a safe and healthy work environment	• Comply with ISO 14001 (Environmental Management System) and ISO 45001 (Occupational Health and Safety Management System) to ensure a safe working environment. • Establish a dedicated occupational safety and health unit and committee, hire professional doctors and nurses, and regularly conduct education and training to take necessary preventive measures to prevent occupational accidents and reduce the risk factors in the working environment. • Establish safety and health work rules	• Immediately position the employee away from the original assignment • Provide adequate medical assistance • Provide leave and salary compensation in accordance with the law • Conduct investigation through the Occupational Safety and Health Committee, and find out the details of the accidents or abnormal situations with the support from doctors and external specialist.	• Submit a complaint directly to the supervisor. • Report to the factory's professional nurses • Internal grievance mailbox • Whistleblower mailbox	• Seek medical advice and physical and mental health assessment from the on-site nurse. • Employees in Taiwan can use the Life Coach hotline to seek external professional counseling to safeguard employees' physical and mental health.
Prevention of harassment and providing grievance appeal mechanisms and channels	• Develop the "Sexual Harassment Prevention Measures, Grievance Appeal and Punishment Regulations," and take appropriate preventive, corrective, disciplinary, and handling measures.	• If the situation is true, disciplinary actions will be taken against the sexual harassment offender, and the harassed person may need to adjust their duties or work area and maintain their physical and mental health as appropriate.	• When an employee is harassed, they can submit a "Employee Complaint Letter" or submit their grievance to the company's sexual harassment hotline or whistleblower mailbox on the company website. For verbal complainants, a record must be kept ensuring sufficient information for investigation. • After receiving a complaint, the Human Resource Department will report to the CEO and form a "Sexual Harassment Complaint Handling Committee" to carry out an investigation.	
Eliminating employment and recruitment discrimination	• Develop the "Employee Appointment and Change Management Measures" to establish a systematic and institutionalized recruiting mechanism to avoid differential treatment or discrimination.	• If discrimination occurs during recruitment, the company will take disciplinary actions against the relevant personnel in accordance with internal punishment. The Human Resource Department will then restart the recruitment process.	• Internal grievance mailbox • Whistleblower mailbox on the company website	
Prohibiting child labor	• Follow the government labor laws and regulations, regarding the minimum age for employment, and ensure no employing child labor. • The "Employee Appointment and Change Management Measures" clearly stipulates that individuals under the age of 16 are prohibited from employment.	• If child labor is found, we will review the employment process again and impose disciplinary actions in accordance with internal regulations.	• Whistleblower mailbox on the company website	

Topics	Mitigation Measures	Remedial Measures	Grievance Mechanism / Mechanism for Seeking Advice or Raising Concerns
No forced labor	• Establish the "Employee Appointment and Change Management Measures" and the "Employee Attendance, Leave, and Overtime Management Regulations," which specify individual labor responsibilities based on job duties and specify that employees can resign at any time according to their own wishes. • TSRC's regulations on employees' normal and extended working hours, leave, special leave, and other types of leave all comply with legal regulations. TSRC does not force or coerce any employee who is unwilling to perform labor services. • TSRC's regulations for employee attendance, leave, and overtime management do not force employees to work overtime or engage in compulsory labor.	• Employees who work overtime are entitled to overtime pay or compensatory leave.	• Whistleblower mailbox on the company website
Assistance in maintaining employee mental and physical health and work-life balance	• There are nurses or doctors on-site at the factories to provide medical consultation to employees. • Establish the "Employee Attendance, Leave, and Overtime Management Regulations." • Regularly provide employees with health checkups, and lectures, and organize a wide range of activities such as family leisure trips to relieve stress.	• If employees need long-term leave due to health reasons, they can apply for leave without pay according to the established procedures.	• Seek medical advice and physical and mental health assessment from the on-site nurse. • Employees in Taiwan can use the Life Coach hotline to seek external professional counseling to safeguard employees' physical and mental health.
Employees' freedom of association	• Labor/management meetings are held regularly. TSRC engages in discussions with employees through official meetings, including communication about freedom of speech and collective bargaining. • TSRC has labor union organizations, and we respect employees' choice to join the union or other types of employee organizations.	• If there are differences of opinion between labor and the management, the management will review the issue and arrange appropriate staff to communicate again to reduce conflicts and any misunderstandings, aiming to achieve mutual agreement.	• Whistleblower mailbox on the company website
Maternity protection	• Establish a maternal health protection plan. TSRC provides a friendly environment for expectant mothers, including exclusive parking spaces and childcare bags. • Each year, the on-site nurse conducts the "Maternal Health Protection Implementation Record" as the performance evaluation, and reports to the Occupational Safety and Health Committee. Suggestions will be included in the next year's plan and regular tracked the implementation progress.	• If the assignment is harmful to expectant mothers, the employee will be shifted from the original work environment.	• Consultation can be sought from the on-site nurse or doctor.

TSRC Internal Training for Protection of Human Right



Total : 2021 - 14,303 / 2022 - 12,525

Total : 2021 - 25,449 / 2022 - 49,618.75

TSRC's Human Rights Protection Training

Labor and Employer Communication

Some TSRC factories have a labor union and regularly hold labor/management meetings. Labor rights and interests are communicated and coordinated through formal meetings. In the meetings, specific topics are discussed to reach a consensus. The coverage rate of collective bargaining agreements is 100% for TSRC's subsidiaries in China, 100% for TSRC Corporation in Taiwan, and 80% for TSRC Vietnam. For employees who are not required to sign an agreement, TSRC has an employee work manual that details the working conditions and regulations. If an employee needs to file a complaint, he or she can do so through reporting to line manager, the Human Resource Department, and the employee grievance mechanism. For the percentage of employees covered by collective bargaining agreements in each subsidiary, please refer to the Appendix.

TSRC's Labor Union Provided Training Courses

Employee Engagement

TSRC attaches great importance to employee opinions and conducts an engagement survey at least every three years to systematically understand employees' thoughts through questionnaires and use the results as an important reference for optimizing management and measures. In 2022, TSRC collaborated with an external consulting company to conduct a global employee engagement survey with the "Gallup Employee Engagement Survey Approach". The survey covered TSRC's Taiwan and overseas subsidiaries, with 1,392 people participating in the survey and an 88% participation rate. The survey results showed the agreement and recognition rate of 74%, which is a 7% increase compared to the previous survey conducted in 2019. Among them, under the theme of "motivating employees and leadership performance," the overall recognition rate increased by 15%; and under the theme of "team optimization," the recognition rate increased by 9% thanks to managers' increased care about to employees' opinions and views, which makes the team more cohesive. Based on the survey results, TSRC will evaluate and propose improvement plans in 2023 to continue strengthening employee engagement.

4.3 Enhance Social Engagement

4.3.1 Vision and Management Approach

TSRC supports the society and provides needed resource to create mutual prosperity. Ensuring industrial safety and environmental protection to prevent any harm on the local community is TSRC's top priority. TSRC maintains close communication with the community and actively responds to the community's needs to maintain the co-prosperity and co-create value. In addition, TSRC devoted efforts to promote chemistry education. We facilitate industry-academia cooperation and talent cultivation and support the "Chemistry on The Go" activity to exert a positive influence on society.

4.3.2 Impact on the Society

TSRC attaches importance to the risks and opportunities brought by operations to local communities. TSRC collaborates with other companies in the industrial park through the Industrial Park Manufacturers Association and Service Center to jointly understand the potential impacts and opportunities brought to the daily life of community residents. We carry out in-depth interviews every year with village chiefs in order to understand important issues that communities are concerned about. The main issues of concern to community residents in 2022 in terms of environment, society/people, and governance are "climate strategy and greenhouse gases," "community relations", and "legal compliance" respectively. For more information about TSRC's low-carbon transition and compliance actions, please refer to 3.1 Towards Carbon Neutrality and 2.1.7 Legal Compliance. With regard to community relations, TSRC aims to support development and prosperity in the community. Through charity activities and volunteer programs, TSRC takes practical actions to support community development and create mutual value.

TSRC Participated in Activities Organized by the Industrial Park Manufacturers Association

TSRC Had Interviews with the Da-She District Office

2022 TSRC Charity Activities

Category	Item	Involvement	Number of Beneficiaries or Participants
Cash	Meal sponsorship and emergency relief for Dashe, Guanyin, and Jiacheng elementary schools, neighboring the Kaohsiung Factory	NT$440,000	200 people (over 900 cumulative beneficiaries)
	Purchase of meal boxes from the Children Are Us Foundation	NT$60,000	400 people
	Purchase of Mid-Autumn Festival mooncake gift boxes from the Sheltered Workshop Chinese and Western Bakery	NT$487,900	697 boxes purchased
	Participated in the "Love in the World - Sending Warmth in Winter" activity of Dawu District Office.	NT$75,000	250 households
	Supported Kaohsiung farmers to "produce locally and sell locally".	NT$1,082,536	Purchased 823 packages of mushrooms from Xinshe, 552 bottles of tea seed oil from Meishan, and 333 bottles of soy sauce from Xiluo.
	Established the "TSRC Nantong Charity Foundation" with Nantong Development Zone Charity Foundation.	RMB 150,000	–
Charity Events	Supported harvesting activities for organic small contract-farming farmer	–	500 TSRC employees participated as volunteers
	Supported neighborhood activity organized by the Industrial Park Manufacturers Association	17 events	Over 200 participants in total
	Launched the blood donation in Ren Da Industrial Park	–	70 TSRC employees participated
Supplies	Donated multifunctional neck pillows made of TSRC's applied materials to Cardinal Tien Hospital in New Taipei City and House of the Little Angels in Kaohsiung City	594 pillows	–
	Donated masks to Shanghai Yongfeng Street Urban Industrial Park Management Committee (masks)	3,000 masks	–

Life with Organic Food

Harvesting Volunteers for Small Contract-farming Farmers

- TSRC's Kaohsiung Factory is in Dashe District. Except for areas designated as an industrial zone, agriculture is the main economic activity. TSRC actively works with the community by supporting farmers to "produce locally and sell locally" and small contract-farming farmers.
- TSRC implements the environmental volunteer project "More care, More organic food" to assist small farmers with the harvesting of contracted turnips, beans, bananas, etc.
- TSRC supports local small farmers with tangible action to promote the consumption of local ingredients, reduce carbon emissions from transportation, and be friendly to the Earth. Around 500 TSRC employees and their families participated in 2022 activities.

Angel of Health Care

Supplies donated to Cardinal Tien Hospital in New Taipei City and House of the Little Angels in Kaohsiung City

- TSRC appreciates healthcare workers and their long working hours, especially during the pandemic.
- To provide healthcare workers and patients' families with proper resting facilities, TSRC donated multi-functional neck pillows made of TSRC's applied materials.

Passionate People

Blood Donations in Ren Da Industrial Park

- TSRC participated in a blood donation event with the Ren Da Industrial Park Labor Safety and Health Promotion Association and the Ren Da Industrial Park Regional Joint Prevention Organization.
- TSRC promoted the health benefits of blood donation to encourage employees to participate in the activity. Small gifts were provided after the event.

Love is Everywhere

Meal sponsorship and emergency relief for three elementary schools in Kaohsiung

- TSRC cherishes every child, and helps support underprivileged children in communities through meal sponsor. Starting in 2012, TSRC allocates NT$440,000 every year to sponsor the lunch for underprivileged students in three elementary schools (Dashe Elementary School, Guanyin Elementary School, and Jiacheng Elementary School) nearby the Kaohsiung Factory.
- As young students are the future hope of Taiwan, TSRC visits the three elementary schools each year to understand the situation of the students.

4.3.3 Industry-Academic Collaboration

Chemistry and chemical engineering are the foundation of industry. TSRC is committed to supporting the chemistry education and promotion of chemical professions. This will also help TSRC recruit outstanding talent from local communities and further facilitate the prosperity of communities, creating a win-win situation for enterprises, schools, and local communities.

Science Education

TSRC earmarked budget of NT$400,000 every year since 2012 to sponsor the "Chemistry on The Go" activity hosted by Tamkang University. It utilizes a retrofitted 3.5-ton truck to create a mobile chemistry venue, touring around schools to promote chemistry education. The "Chemistry on The Go" activity designs several scientific experiments to help students understand the intriguing chemical reactions. The lecturers also explain the diverse applications of rubber products in daily life, helping students understand why TSRC's rubber products are important and better understand TSRC's business strategies. TSRC employees engage in in-depth exchanges with students through volunteer services, which bring out their passion for chemistry and create greater momentum for innovation and research and development.

TSRC sponsored supplies to support more than 10 events of the "Chemistry on The Go" in Kaohsiung. TSRC also specifically supports schools nearby the factory with employees served as volunteering lecturers. As of 2022, TSRC participated in 21 events of "Chemistry on The Go" activity over the past decade with more than 170 volunteers providing nearly a thousand hours of services, and the events attracted nearly a thousand students. In 2022, two high schools, Yuanfu Junior High School and Dashe Junior High School in Kaohsiung, participated the "Chemistry on The Go" activity and engaged with TSRC volunteering lecturers. TSRC reached out to about 110 students and more than 150 students in three consecutive years.

TSRC works on industry-academia collaboration programs and develops specialty courses on the petrochemical industry in Renwu High School in Kaohsiung. The course covers GHG emission reduction in factories, air pollution reduction, soil and groundwater pollution remediation, and on-site visits. TSRC offers on-site practical courses and facilitates students to receive lectures in colleges. TSRC provides 30 scholarship slots for well-performed students. Students who participate in the course and decide to pursue higher-level education will also be offered priority if they have an interest in joining TSRC when they graduate. Students who do not pursue higher-level education will have the opportunity to be recommended to TSRC's partner for employment.

TSRC Staffs Participated in the "Chemistry on The Go" Activity as Volunteers

TSRC Collaborated with Renwu High School on Petrochemical Industry Courses

Industry-Academic Collaboration

TSRC carriers out industry-academia internship programs, providing outstanding students from universities with an opportunity of internship (including summer internship) Through the internship, students learn and integrate theories with practices and TSRC gains innovative ideas and motivation from outstanding talent. In 2022, three summer interns joined TSRC's two-month summer internship program. TSRC also signed a letter of intent about internship plan with the Department of Shipping and Transportation Management of the National Kaohsiung University of Science and Technology to provide one internship slot.

In 2022, TSRC expanded the scope of industry-academia collaboration with a project to "on-the-job training for outstanding employees at TSRC". In 2022, TSRC signed a collaboration plan with Longhua University of Science and Technology for an on-the-job chemical engineering program. TSRC recommended three outstanding employees to complete their master's degrees in chemical engineering. In-depth exchanges and seminars with university professors connect the academia and practice. In 2022, TSRC also conducted product development collaboration and exchange activities with National Cheng Kung University, with a total of 16 participants.

In the future, TSRC will participate in more scientific or chemistry-related exchange activities at universities and colleges and invite young chemical talent to visit the factory. We hope to attract more outstanding students and talent to join the chemical industry and contributions to the sustainable chemical industry.

Appendix

Participation of Industry Associations and Non-Profit Organizations

Name of the Public Association	Mode of Operation	Roles Involved	Benefits of Participation
Petrochemical Industry Association of Taiwan	• Hold a membership meeting once a year. • Publish a petrochemical industry magazine on a monthly basis and a petrochemical industry yearbook on an annual basis.	Directors	• Gather information related to the development of the entire petrochemical industry. • Maintain good relationships with other companies in the petrochemical industry to address common issues.
Taiwan Rubber & Elastomer Industries Association	• Hold a general assembly of members every year. • Provide information on rubber technology.	Directors	• Maintain and develop good relationships with downstream manufacturers. • Gather information related to rubber processing technology.
Dashe Petrochemical Industrial Park Manufacturers Association	• Hold regular meetings to discuss and address common issues among companies within the industrial park, including fostering good neighborly relations.	Directors	• Participate in the operation of the association to safeguard the company's various rights and interests within the industrial park, gather information from other companies, and address common issues.
The Institute of Internal Auditors, R.O.C.	• Organize seminars, workshops, discussions, and observations related to theoretical and practical research on internal auditing and promote auditing education.	Members	• Introduce the latest internal auditing theories and practices, enhance auditing capabilities, and exchange internal auditing techniques with peers in the industry.
Petrochemical Industry Human Resource Association	• Regularly host events for exchanging messages and coordinating communication on personnel-related policies.	Members	• Stay informed of the status of the industry and maintain close connections with peers in the same field.
Industrial Safety and Health Association (ISHA) of the R.O.C	• Hold an annual general assembly of members to review the association's operation.	Members	• Gather relevant information on industrial safety and health to facilitate connections for industrial safety inspections.
Ren Da Industrial Park Occupational Safety and Health Promotion Association	• The management center holds regular meetings.	Members	• Exchange safety and health information between factories, provide support for safety equipment, and discuss and provide recommendations for safety and health issues.
Taiwan Responsible Care Association (TRCA)	• Regularly hold general assemblies of members to reflect member opinions to government agencies and organize relevant training courses.	Directors	• Recognize the responsibility of the petrochemical industry to Taiwanese society and continuously improve environmental, health, and safety performance.
The International Institute of Synthetic Rubber Producer (IISRP)	• Hold an annual conference.	Directors	• Gather relevant information on synthetic rubber worldwide to cultivate an international perspective.
Chinese National Association of Industry and Commerce (CNAIC)	• Provide members with relevant information and promote international economic and trade cooperation. • Organize industry, economic, trade, investment, and technology seminars and visits.	Members	• Understand the status of the industry's development and promote connections among peers in the same field.

Name of the Public Association	Mode of Operation	Roles Involved	Benefits of Participation
The Education Safety and Health Association of Taiwan	• Hold regular meetings once a year.	Members	• Understanding prevention, investigation, research, and promotion of safety, health, environmental protection, and disaster-related issues.
Association of Bio-Based Material Industry	• Hold regular gatherings, with each committee taking turns to host. • Provide members with an industry information newsletter in electronic format.	Members	• Explore the development trends of biotechnology and promote industry technology exchange, facilitate industry cooperation, large-scale cooperative projects, and seek external support.
Taiwan Chemical Industry Association	• Hold an annual industry forum and send representatives to attend.	Members	• The gateway for international exchange in the chemical industry, actively connecting with the international community, and driving innovation and transformation in the domestic chemical industry.
Kaohsiung City Kangshan Benjhou Industrial Park Association	• Hold regular meetings to discuss and address common issues among companies within the industrial park.	Members	• Participate in the operation of the association to safeguard the company's various rights and interests within the industrial park, gather information from other companies, and address common issues.
China Rubber Industry Association	• Hold an industry production technology exchange meeting once a year. • Organize special seminars and conferences periodically.	Members	• Communicate industry information and the latest developments in technology, production, safety, and environmental protection. Promote the healthy and sustainable development of the industry.
Nantong Standardizing Association	• Hold an annual conference once a year. • Organize occasional discussion meetings.	Members	• Keep abreast of international standardization trends, effectively guide the evaluation of quality indicators, and improve product quality development.
Production Safety Management Network, Nantong Economic and Technology Development Area	• Hold a quarterly meeting for the directors and their units.	Directors	• Fully leverage the role in enterprise safety production management, continuously improve the ability of self-control, mutual control, and joint control of safety production in the region, and effectively prevent accidents from occurring.
Kaohsiung Chamber of Industry	• Hold an annual general meeting of members in accordance with Industrial Group Act.	Members	• Understand the status of the industry's development and maintain close connections with peers in the same field.
Chinese Society for Quality	• Establish various working committees. • Publish a monthly magazine. • Hold an annual conference every year.	Members	• Collect information on quality management techniques and training. • Attend seminars related to quality management. • Introduce appropriate quality management techniques to improve the quality management level of the company.

Comparison of the Material Topics Changes for Different Years

Category	2021		2022		Explanations of the Difference
	ESG Issues	Material Topic	ESG Issues	Material Topic	
Governance	Innovation management	✓	Sustainable innovation	✗	• The materiality is below the threshold.
	Business strategies and performance	✓	Business strategies and performance	✓	No Difference
	Corporate governance	✓	Governance, integrity, and business ethics	✗	• The materiality is below the threshold. • Corporate governance, integrity, and business ethics are covered in the general disclosure. Although they are not considered as significant topics, relevant information is disclosed regularly in the company's annual report, website, and sustainability report as it receives stakeholders' concerns.
	Compliance	✓	Compliance	✓	No Difference
	Material event risk management	✓	Risk management	✓	No Difference
	Customer relations	✗	Customer relations	✗	No Difference
	Sustainable supply chain management	✗	Sustainable supply chain management	✗	No Difference
Environment	Climate strategy and GHG emissions	✓	Climate strategy and GHG emissions	✓	No Difference
	Energy management	✗	Energy management	✓	• The materiality is below the threshold. • It is a common concern of the chemical industry DJSI and SASB.
	Product accountability and circular economy	✗	Product accountability	✗	No Difference[Note]
			Circular economy	✗	

Note: Product accountability and circular economy are common concerns of the chemical industry DJSI and SASB. Although they are not considered as significant topics, relevant information is still disclosed according to the GRI Topic Standards.

Category	2021		2022		Explanations of the Difference
	ESG Issues	Material Topic	ESG Issues	Material Topic	
Environment	Water resources management	✓	Water resources management	✓	No Difference
	Waste and hazardous substance management	✓	Waste and hazardous substance management	✓	No Difference
	Ecological impact of operations	✗	Ecological impact of operations	✗	No Difference
Society/ People	Talent appointment and development	✗	Employee welfare and sense of belonging	✗	No Difference
			Diversity, equality, and inclusion (DE&I)	✗	No Difference
			Talent attraction and retention	✗	No Difference
	Employee care and labor protection	✗	Occupational health and safety	✓	• The materiality is below the threshold. • It is a common concern of the chemical industry DJSI and SASB, and a top priority issue for stakeholders.
			Employment and human rights	✗	No Difference
	Communication with Communities	✗	Communication with local Communities	✗	No Difference

Climate-related Risks and Countermeasures

Type	Category	Risk	Impact on TSRC	Period of impact on TSRC[Note]	Risk level	Countermeasures and strategies
Transition risks	Policies and legal	Increased pricing of GHG emission	TSRC will pay carbon fees, carbon tax, and carbon tariffs for its products, and will also pay fees if GHG emissions exceed the quota due to climate-related policies and regulations of other countries (such as carbon tax/tariffs, carbon trading system, and carbon price/fees). The policy may become stricter and carbon fees and taxes will gradually increase.	Short	High	• Improve energy efficiency in utility and process systems • Accelerate the reduction of product carbon footprint • Adopt low-carbon/renewable energy • Explore renewable raw materials • Continue to develop low-carbon solutions • Raise employees' awareness of GHG emission reduction
Transition risks	Policies and legal	Increased mandates on and regulation of sustainability	The international trend of net zero emissions drives more sustainability requirements and regulations be introduced and also results in customers' requirements on sustainable products. This has caused TSRC to accelerate its climate actions, including increasing the use of renewable energy, reducing the carbon footprint of products, improving environmental safety and management, and enhancing information transparency about green chemistry.	Short	High	• Improve energy efficiency in utility and process systems • Accelerate the reduction of product carbon footprint • Adopt low-carbon/renewable energy • Explore renewable raw materials • Promote wastewater recycling and reuse • Waste reduction measuresImplement resource reduction, recycling and reuse measures
Transition risks	Market	Change in customer behavior	Customers shift to low-carbon raw materials and products with low environmental impact in response to the global trend of net zero emissions. Customers may require TSRC to provide products/services with more transparent information of products about the impact on the environment.	Medium	Medium	• Optimize transport routes • Use low-carbon logistics • Develop products/services with low carbon emissions and environmental impact • Provide customers with customized services • Promote business model transformation and develop multi value solution products
Transition risks	Market	Increased cost of raw materials	In response to the IPCC report, the world will gradually transition to low carbon economy by 2050. It is expected to entirely phase out fossil fuels by 2100. In the long-term, TSRC's value chain will significantly face increasing raw materials costs.	Short	Medium	• Require suppliers to take actions on climate adaptation energy transition, and develop a supply chain with climate resilience • Explore renewable raw materials

Note: Period of impact on TSRC: Short-term (within 3 years), medium-term (3-5 years), long-term (more than 5 years)

Type	Category	Risk	Impact on TSRC	Period of impact on TSRC[Note]	Risk level	Countermeasures and strategies
Transition risks	Technology	Costs to transition of lower emissions technologies	In response to the global trend of sustainable development, TSRC is undergoing a low carbon transition. The cost of low carbon technologies, the maturity of technologies, and the scale of commercialization of technologies all have effect on TSRC's transition plan and relevant investment.	Short	High	• Jointly develop high performance equipment, technologies and products with partners • Actively search for talent with low-carbon know-hows, and provide training for employees • Assess low carbon investments to invest resources within an acceptable scope of risk • Develop low-carbon technology and engage with talent through industry-academia collaboration
Transition risks	Reputation	Stigmatization of sector	The society will continue to watch climate change and relevant issues. Stakeholders in favor of prefer companies with low carbon emissions and have a positive impact on human and the environment. The petrochemical industry has the stigma of having high carbon emissions and high pollution.	Medium	Medium	• Strengthen response and prevention measures against climate change • Appropriately disclose company information • Accelerate low carbon transition and GHG emission management • Improve communication with stakeholders
Transition risks	Reputation	Shifts in consumer preferences	Extreme weather events affect the stability of supply chains, resulting in customers may switch to local suppliers. Customers prefer low carbon materials and sustainable products. TSRC needs to understand customers' needs and enhance the competitiveness of related products.	Medium	Low	• Implement climate risk assessment and continue to improve the prevention measures and response mechanisms at all sites • Strengthen communication with customers and understand their needs • Monitor market supply and demand, and dynamically adjust the optimal shipment mode
Physical risk	Acute	Increased severity of extreme weather events –Hurricane / Typhoons	The increased frequency and severity of typhoons have the following impact: • Typhoons may destroy power systems and cause power outage in certain regions, resulting in business or service suspension • Typhoons cause supply chain disruption • Typhoons trigger the increase in insurance premiums for assets in "high risk" regions will increase operating costs	Medium	Low	• Reinforce contingency measures and flood prevention and drainage equipmentcontinue to improve the prevention measures and response mechanisms at all sites • Establish a manpower allocation mechanism • Enhance the localization of suppliers
Physical risk	Acute	Increased severity of extreme weather events –Hurricane / Typhoons	In response to the IPCC report, the world will gradually transition to low carbon economy by 2050. It is expected to entirely phase out fossil fuels by 2100. In the long-term, TSRC's value chain will significantly face increasing raw materials costs.	Medium	Medium	• Reinforce contingency measures and flood prevention and drainage equipment • Establish a manpower allocation mechanism • Enhance the localization of suppliers

Note: Period of impact on TSRC: Short-term (within 3 years), medium-term (3-5 years), long-term (more than 5 years)

Type	Category	Risk	Impact on TSRC	Period of impact on TSRC[Note]	Risk level	Countermeasures and strategies
Transition risks	Policies and legal	Increased pricing of GHG emission	TSRC will pay carbon fees, carbon tax, and carbon tariffs for its products, and will also pay fees if GHG emissions exceed the quota due to climate-related policies and regulations of other countries (such as carbon tax/tariffs, carbon trading system, and carbon price/fees). The policy may become stricter and carbon fees and taxes will gradually increase.	Short	High	• Improve energy efficiency in utility and process systems • Accelerate the reduction of product carbon footprint • Adopt low-carbon/renewable energy • Explore renewable raw materials • Continue to develop low-carbon solutions • Raise employees' awareness of GHG emission reduction
Transition risks	Policies and legal	Increased mandates on and regulation of sustainability	The international trend of net zero emissions drives more sustainability requirements and regulations be introduced and also results in customers' requirements on sustainable products. This has caused TSRC to accelerate its climate actions, including increasing the use of renewable energy, reducing the carbon footprint of products, improving environmental safety and management, and enhancing information transparency about green chemistry.	Short	High	• Improve energy efficiency in utility and process systems • Accelerate the reduction of product carbon footprint • Adopt low-carbon/renewable energy • Explore renewable raw materials • Promote wastewater recycling and reuse • Waste reduction measuresImplement resource reduction, recycling and reuse measures
Transition risks	Market	Change in customer behavior	Customers shift to low-carbon raw materials and products with low environmental impact in response to the global trend of net zero emissions. Customers may require TSRC to provide products/services with more transparent information of products about the impact on the environment.	Medium	Medium	• Optimize transport routes • Use low-carbon logistics • Develop products/services with low carbon emissions and environmental impact • Provide customers with customized services • Promote business model transformation and develop multi value solution products
Transition risks	Market	Increased cost of raw materials	In response to the IPCC report, the world will gradually transition to low carbon economy by 2050. It is expected to entirely phase out fossil fuels by 2100. In the long-term, TSRC's value chain will significantly face increasing raw materials costs.	Short	Medium	• Require suppliers to take actions on climate adaptation energy transition, and develop a supply chain with climate resilience • Explore renewable raw materials

Note: Period of impact on TSRC: Short-term (within 3 years), medium-term (3-5 years), long-term (more than 5 years)

Climate-related Opportunities and Response Actions

Type	Opportunity	Impact on TSRC	Period of impact on TSRC[Note]
Products and Services	Develop products and services with low carbon emissions and environmental impact, in order to improve profitability	Evaluate the development of low carbon markets and market demand of each country, provide low carbon solutions to help customers produce low carbon products, and continue to maintain the TSRC's competitiveness by meeting customers' needs	Short
Products and Services	Develop climate adaptation products	As extreme weather events continue to occur, TSRC provides customers with products to respond to extreme weather events	Medium
Resource Efficiency	Use of more efficient production and distribution processes	• Work with value chain partners and adopt highly efficient transportation processes to increase resource efficiency and lower operating costs • Adopt highly efficient processes to reduce resource use and lower operating costs	Short
Market	Increased access to new financing form stakeholders	High ratings from international rating agencies govern to TSRC's ESG performance will help TSRC attract capital	Medium
Market	Improvement on positive reputation	In-depth connection with SDGs and gaining a good business reputation through solid implementation and measures will have a positive impact on TSRC	Medium

Note: Period of impact on TSRC: Short-term (within 3 years), medium-term (3-5 years), long-term (more than 5 years)

Sustainability Data

Operating Performance

2022 Revenues and Expenses

(Unit: NT$)		2022
Direct economic value generated	Revenues	33,841,197
Economic value distributed	Operating costs	28,327,924
	Employee wages and benefits	2,354,249
	Payments to providers of capital	146,868
	Payments to providers of capital (cash dividends)	2,228,062
	Payments to government (fine)	1,270
	Payments to government (income tax)	643,172
	Community investments	2,809
Economic value retained = direct economic value generated - economic value distributed		**136,843**

Compliance and Regulations

2021-2022 Fines for Violations of Regulations

(Unit: NT$)	Fines for instances of non-compliance with laws and regulations on governance / economics aspects	Fines for instances of non-compliance with laws and regulations on environment	Fines for instances of non-compliance with laws and regulations on social / people aspects (occupational safety and health included)
2021	0	780,000	60,000
2022	0	1,070,000	200,000

Greenhouse Gas and Energy Management

2020-2022 GHG Emissions and Emission Intensity (by Subsidiaries)

(Unit: metric tons of CO_2e)		TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	TSRC (Lux.)	TSRC group
2020	Scope 1	89,910	4,785	52,000	68,874	27	0	16,935	N/A	N/A	232,531
	Scope 2	63,548	106,322	91,224	22,354	2,329	0	40,988	N/A	N/A	326,765
	Scope 1+2	153,458	111,107	143,224	91,228	2,356	0	57,923	N/A	N/A	559,296
	Production volume	173,773	170,426	55,560	63,036	12,214	0	46,521	N/A	N/A	521,529
	GHG emissions intensity (metric tons of CO_2e per unit produced)	0.88	0.65	2.58	1.45	0.19	0.00	1.25	N/A	N/A	1.07
2021 (Base year)	Scope 1	90,211	5,070	9,075	3,213	31	7	21,969	0	0	129,576
	Scope 2	70,806	101,335	153,827	80,508	1,752	1,821	21,039	2	21	431,109
	Scope 1+2	161,017	106,405	162,902	83,721	1,783	1,828	43,008	2	21	560,685
	Production volume	194,194	170,988	73,815	65,285	9,934	0	47,921	0	0	562,138
	GHG emissions intensity (metric tons of CO_2e per unit produced)	0.83	0.62	2.21	1.28	0.18	0.00	0.90	0.00	0.00	1.00

Note: TSRC Corporation including the Global Business Headquarters, Kaohsiung Factory, and Gangshan Factory.

(Continued.)

2020-2022 GHG Emissions and Emission Intensity (by Subsidiaries)

(Unit: metric tons of CO_2e)		TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	TSRC (Lux.)	TSRC group
2022	Scope 1	95,715	6,403	7,482	3,532	26	6	25,283	0	0	138,447
	Scope 2	54,716	96,102	149,597	84,736	1,135	936	20,871	2	86	408,181
	Scope 1+2	150,431	102,505	157,079	88,268	1,161	941	46,154	2	86	546,627
	Production volume	178,484	170,522	72,822	67,217	5,494	577	44,910	0	0	540,026
	GHG emissions intensity (metric tons of CO_2e per unit produced)	0.84	0.60	2.16	1.31	0.21	1.63	1.03	0.00	0.00	1.01

Note:

1. This table covers seven greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. The GWP value is from the IPCC AR5.
2. The greenhouse gas emissions data for 2019-2020 covers TSRC's Global Business Headquarter, Kaohsiung Factory, Gangshan Factory, Shen Hua Chemical, Nantong Industries, TSRC-UBE, Shanghai Industries, TSRC (Vietnam) Company Limited, and TSRC Specialty Materials LLC. It does not include two trade subsidiaries, Polybus and TSRC (Lux.). The operational control approach is adopted. Only the data of Kaohsiung Factory and Gangshan Factory were verified by a third party.
3. The 2021 data was restated after the third-party verification. The reporting boundary of 2021 covers all factories and subsidiaries identical to the reporting scope of this report. The operational control approach is adopted in accordance with ISO14064:2018. The data is rounded to the nearest whole number.
4. The 2022 data covers all factories and subsidiaries identical to the reporting boundary of this report. The operational control approach is adopted in accordance with ISO14064:2018. The data has been internally verified and the external third-party verification is expected to be completed by October 2023. The data is rounded to the nearest whole number. The emission factors are from:
   - 【Taiwan】 the global business headquarter, Kaohsiung Factory and Gangshan Factor: Use emission factors published by Taiwan Environmental Protection Agency (version 6.0.4).
   - 【China】 Shen Hua Chemical, Nantong Industries, TSRC-UBE, and Shanghai Industries: Use China's provincial electricity emission factors, the United Nations Intergovernmental Panel on Climate Change (IPCC) assessment reports, and the Shanghai Bureau of Ecology and Environment [2022] No. 34 The notice of Shanghai Ecological Environment Bureau on the adjustment of emission factor values related to the city's greenhouse gas emission accounting guidelines.
   - 【Vietnam】 TSRC (Vietnam) Company Limited: Use the electricity emission factors published by Vietnam Ministry of Industry and Trade and Vietnam Ministry of Natural Resources and Environment and the IPCC assessment reports.
   - 【U.S.A】 TSRC Specialty Materials LLC: Use US Environmental Protection Agency database and the IPCC assessment reports.
5. TSRC Corporation including the Global Business Headquarters, Kaohsiung Factory, and Gangshan Factory.

2020-2022 TSRC Purchased Energy (by Subsidiaries)

Purchased Energy			TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	TSRC (Lux.)	TSRC group
2020	Amount of electricity purchased from external sources (kWh)		105,790	53,467	49,993	21,868	4,576	0	20,163	N/A	N/A	255,857
	The steam purchased from external sources (metric ton)		49,068	192,784	176,435	22,935	0	0	179,368	N/A	N/A	620,590
	The energy consumption of external purchases (mega joule, MJ)	electricity	380,844,000	192,481,200	179,974,800	78,724,800	16,473,600	72,586,800	N/A	N/A	N/A	921,085,200
		steam	110,893,680	435,691,840	398,743,213	51,832,987	0	405,371,680	N/A	N/A	N/A	1,402,533,400
		electricity & steam	491,737,680	628,173,040	578,718,013	130,557,787	16,473,600	477,958,480	N/A	N/A	N/A	2,323,618,600
	Production volume (metric tons)		173,773	170,426	55,560	63,036	12,214	0	46,521	N/A	N/A	N/A
	Indirect energy intensity per unit of product (MJ/metric tons)		2,830	3,686	10,416	2,071	1,349	0	10,274	N/A	N/A	4,455
2021	Amount of electricity purchased from external sources (kWh)		108,106	54,051	60,513	21,338	4,170	2,290	20,413	N/A	N/A	270,881
	The steam purchased from external sources (metric ton)		59,025	192,407	392,510	230,190	0	0	139,154	N/A	N/A	1,013,286
	The energy consumption of external purchases (mega joule, MJ)	electricity	389,181,600	194,583,600	217,846,800	76,816,800	15,012,000	73,486,800	N/A	N/A	N/A	975,172,600
		steam	133,396,500	434,839,436	887,072,600	520,229,400	0	314,487,791	N/A	N/A	N/A	2,290,025,727
		electricity & steam	522,578,100	629,423,036	1,104,919,400	597,046,200	15,012,000	387,974,591	N/A	N/A	N/A	3,265,197,327
	Production volume (metric tons)		194,194	170,988	73,815	65,285	9,934	0	47,921	N/A	N/A	562,138
	Indirect energy intensity per unit of product (MJ/metric tons)		2,691	3,681	14,969	9,145	1,511	0	8,096	N/A	N/A	5,809
2022	Amount of electricity purchased from external sources (kWh)		92,803	53,899	65,727	21,165	2,703	1,164	20,850	4	1,264	259,578
	The steam purchased from external sources (metric ton)		27,933	177,090	320,918	215,399	0	0	138	N/A	N/A	741,537
	The energy consumption of external purchases (mega joule, MJ)	electricity	334,091,432	194,037,563	236,616,063	76,194,707	9,729,763	4,189,582	75,059,812	13,633	4,549,680	934,482,236
		steam	63,263,360	400,222,406	951,927,013	638,928,651	0	0	312,182	N/A	N/A	2,054,653,612
		electricity & steam	397,354,792	594,259,969	1,188,543,076	715,123,358	9,729,763	4,189,582	75,371,994	13,633	4,549,680	2,989,135,848
	Production volume (metric tons)		178,484	170,522	72,822	67,217	5,484	577	45,910	0	0	540,026
	Indirect energy intensity per unit of product (MJ/metric tons)		2,226	3,485	16,321	10,639	1,771	7,261	1,678	N/A	N/A	5,535

Note:

1. This table uses the following units of measurement conversion:
   - 1W=1 (J/S) , 1000 kWh = 1000 kW * 3600S/H = 3,600,000k Joule = 3600million joules
   - The amount of heat required to vaporize one ton of water is = 2260000 J/kg (The heat of vaporization of water) × 1000 kg=2,260,000,000 J= 2,260 million joules
2. TSRC Corporation including the Global Business Headquarters, Kaohsiung Factory, and Gangshan Factory.

2020-2022 TSRC Energy Consumption

(Unit: GJ)		2020	2021	2022
Direct energy consumption (non-renewable energy)	Bituminous coal	1,179,652.25	0.00	0.00
	Fuel oil	22,762.09	0.00	0.00
	Plant diesel	14,775.47	5,283.02	12,138.36
	Natural gas	1,621,896.17	1,822,886.21	1,763,823.66
	Liquefied petroleum gas (LPG)	4,161.60	1,824.44	212.00
	Gasoline	1,070.08	1,415.94	1,241.03
	Recycled butadiene	53,400.51	59,917.15	66,979.31
	Subtotal	2,897,718.17	1,891,326.76	1,844,394.37
Indirect energy consumption	Purchased electricity (non-renewable energy)	921,085.20	975,172.68	934,482.24
	Purchased electricity (Renewable energy)	0.00	0.00	0.00
	Purchased steam	1,402,533.40	2,290,025.73	2,054,653.61
	Subtotal	2,323,618.60	3,265,198.41	2,989,135.85
Total energy consumption		5,221,336.77	5,156,525.17	4,833,530.22
Self-generated electricity		0.00	22,952.62	60,071.87
Percentage of electricity used from the power grid (%)		100.00%	97.70%	93.96%
Percentage of renewable energy (%)		0.00%	0.00%	0.00%
Percentage of electricity from the grid out of total energy consumption (%)		17.64%	18.91%	19.33%

Note:

1. The 2020-2021 data covers the Global Business Headquarters within the reporting boundary, two factories (Kaohsiung and Gangshan), and 6 subsidiaries that engage in manufacturing activities. It excludes 2 holding companies, Polybus and TSRC (Lux.), which mainly engage in trading activities.
2. The 2022 data covers the Global Business Headquarters within the reporting boundary, two factories (Kaohsiung and Gangshan), 6 subsidiaries that engage in manufacturing activities, and 2 holding companies, Polybus and TSRC (Lux.).
3. The purchased electricity of TSRC (Lux.) for the period of May to December 2022 is not available yet. Therefore, the data is estimated based on the monthly average electricity consumption of the years 2020-2021.
4. The energy conversion factors are based on the "GHG Emission Inventory Guideline (non-official translation)" published by the Environmental Protection Administration of Taiwan. The data is calculated based on the Lower Heating Values (LHV) of the fuels. The results are rounded to the second decimal place using rounding rules.
5. The total energy consumption of the organization = the internal energy consumption = the direct energy consumption (non-renewable energy) + the energy consumed from purchased electricity and steam.
6. Percentage of electricity used from the power grid (%) = (Purchased electricity (Non-renewable energy) + Purchased electricity (Renewable energy))/ (Purchased electricity (Non-renewable energy) + Purchased electricity (Renewable energy) + Self-generated electricity) .
7. Percentage of renewable energy (%) = Purchased electricity (Renewable energy) / Total energy consumption.
8. Percentage of electricity from the power grid of total energy consumption (%)= Purchased electricity (Non-renewable energy) /Total energy consumption.
9. The conversion factors of energy are based on the "Greenhouse Gas Emission Coefficient Management Table 6.0.4" published by the Environmental Protection Administration of Taiwan. The heat value of recovered butadiene is calculated based on the calorific value of petroleum, which is 7800 kcal/L. For steam, except for Shenhua Chemical and Nantong Industries, a standard conversion factor of 2.26 GJ for the heat required to vaporize one ton of water at one atmosphere pressure is used. Shen Hua Chemical and Nantong Industries use a conversion factor provided by their supplier, which is 2.96626 GJ for one ton of water.
10. Starting from 2021, all manufacturing factories of TSRC no longer use bituminous coal and fuel oil as energy sources.

Waste Management

2021-2022 Hazardous Waste Recycling and Treatment Weight and Percentage (by Subsidiaries)

(Unit: Metric tons)		TSRC		Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	TSRC Group
		Kaohsiung Factory	Gangshan Factory							
2021	Total weight of hazardous industrial waste	75.23		392.06	335.57	348.50	48.80	0.50	672.39	1,873.05
	Treated by recycling	0.00		0.00	7.91	3.81	0.00	0.00	365.08	376.8
	Percentage of hazardous industrial waste treated by recycling	0%		0%	2%	1%	0%	0%	54.30%	20.12%
2022	Total weight of hazardous industrial waste	136.46	0.00	472.27	475.27	287.08	23.00	1.32	749.23	2,144.63
	Treated by recycling	0.00	0.00	69.36	23.55	6.5	22.93	0.00	566.26	688.60
	Percentage of hazardous industrial waste treated by recycling	0.00%	0.00%	14.69%	4.96%	2.26%	99.7%	0.00%	75.58%	32.11%

Note:

1. This table only includes factories and subsidiaries with manufacturing activities within the reporting boundary. The two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations, generate only general domestic waste.
2. The data is from waste transfer records, which is rounded to the second decimal place. TSRC Specialty Materials LLC does not have transfer records, thus the data was estimated according to production volumes. The 2021 data of TSRC Specialty Materials LLC has been restated as the transfer records was obtained, and the 2022 data will be restated in the next report.
3. Hazardous industrial waste includes waste oil, waste liquid, organic waste sludge, sludge, waste chemicals, containers containing hazardous substances, etc., which are identified according to the regulations announced by the competent authorities:
   - 【Taiwan】 Kaohsiung Factory and Gangshan Factory: According to the definition of "Hazardous Industrial waste Recognition Standard" published by Taiwan Environmental Protection Agency.
   - 【China】 Shen Hua Chemical, Nantong Industries, TSRC-UBE, and Shanghai Industries: According to the definition of the hazardous waste list published by the government of China.
   - 【Vietnam】 TSRC (Vietnam) Company Limited: 08/2022/NĐ-CP, 02/2022/TT-BTNMT
   - 【USA】 TSRC Specialty Materials LLC: 40 CFR (Code of Federal Regulations) parts 260 through 273. Louisiana Administrative Code, Title 33, Part V.

Water Resource Management

2022 Water Withdrawal, Discharge, and Consumption (by Water-stressed Areas)

In provincial and county-level	Regions with high water stress		Regions with moderate to high water stress	Regions with low to moderate water stress							Others	TSRC Group
	TSRC		TSRC (LUX)	TSRC	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	
(Unit: thousand cubic meters = thousand tons)	Kaohsiung Factory	Gangshan Factory		Global Business Head-quarters								
Fresh water withdrawal	1,555.72	3.36	0.04	2.24	1,020.06	431.82	306.26	10.46	7.59	523.13	0.03	3,860.71
Consumption of purchased steam	27.99	0.00	0.00	0.00	177.96	294.59	241.73	0.00	0.00	138.16	0.00	880.43
Wastewater recycled	487.22	0.00	0.00	0.00	91.98	100.76	129.28	0.00	0.00	0.00	0.00	809.24
Water usage = Fresh water withdrawal + Consumption of purchased steam + Wastewater recycled	2,070.93	3.36	0.04	2.24	1,290.00	827.17	677.27	10.46	7.59	661.29	0.03	5,550.38
Water discharge	931.73	2.33	0.04	2.24	836.28	421.14	242.98	10.46	4.64	559.79	0.03	3,011.66
Water consumption = Water usage – Water Discharge	1,139.20	1.03	0.00	0.00	453.72	406.03	434.29	0.00	2.95	101.50	0.00	2,538.72

Note:

1. All water withdrawal is freshwater supplied by the local water company (≤ 1,000 mg/L TDS).
2. Regarding water resource risk:
   - The water resource risk assessment results in this table are from the World Resource Institute (WRI) Aqueduct county-level data. Based on county- and city-level, the water resource risks at Shen Hua Chemical and TSRC-UBE and Nantong Industries (Jiangsu Province, China), the TSRC Specialty Materials LLC (Louisiana State, the United States) and the TSRC (Vietnam) Company Limited (Pingyang Province in Vietnam) is low to medium risk (10-20%). The holding subsidiary, TSRC (Lux.), located in Luxemburg, mainly engaged in trading, has a moderate to high water resource risk (20-40 %). However, no relevant data could be obtained for Polybus and factories in Taiwan.
   - Regardless of dry or abundant season, TSRC's Kaohsiung Factory and Gangshan Factory are at high-risk for drought in the past and the future (2015-2039), according to the report published by the National Science and Technology Center for Disaster Reduction.
   - The purchased steam is also used as one of the sources of process water after the purpose of heat exchange. The evaporation of purchased steam is not considered.
3. The data in this table is rounded to two decimal places.
4. In 2022, the total water withdrawal in areas with high water stress risk (according to local analysis) accounted for 40.38% of the Group's total water withdrawal. The water consumption in areas with high water stress risk for water resources accounted for 44.91% of the Group's total water consumption.

Air Pollution Prevention and Management

2020-2022 Emissions of Air Pollutants in（by Subsidiaries）

(Unit: Metric tons)		TSRC		Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	TSRC Group
		Kaohsiung Factory	Gangshan Factory							
2020	Nitrogen Oxides (NOx)		6.22	0.94	45.58	70.00	0.00	N/A	11.63	134.00
	Sulfur Oxides (SOx)		3.41	0.00	5.60	8.00	0.00	N/A	0.87	18.00
	Volatile Organic Compounds (VOCs)		140.51	0.71	5.77	2.47	0.00	N/A	12.64	162.10
2021	Nitrogen Oxides (NOx)		5.02	0.00	0.00	0.00	0.00	0.00	10.64	15.66
	Sulfur Oxides (SOx)		0.1344	0.00	0.00	0.00	0.00	0.00	0.73	0.86
	Volatile Organic Compounds (VOCs)		169.77	3.25	2.41	2.46	0.00	0.00	14.23	192.12
2022	Nitrogen Oxides (NOx)	3.17	0.00	0.48	0.00	0.00	0.00	0.00	9.68	15.66
	nitrogen oxides excluding N_2O (NOx)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Sulfur Oxides (SOx)	0.18	0.00	1.06	0.00	0.00	0.00	0.00	0.68	0.86
	Volatile Organic Compounds (VOCs)	149.67	4.42	2.97	4.12	1.78	0.00	0.26	13.22	192.12
	Hazardous Air Pollutants (HAPs)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note:

1. This chart only includes manufacturing sites and subsidiaries with manufacturing activities within the reporting boundary. Two holding subsidiaries, Polybus and TSRC (Lux.), which mainly engage in trading activities, and the Global Business Headquarters which mainly handles office affairs, are therefore excluded from the table as they have no manufacturing activities.
2. Data of TSRC Kaohsiung Factory, Gangshan Factory, Corporation, Shen Hua Chemical, Nantong Industrial, and TSRC-UBE is from continuous measurement. Data of TSRC (Vietnam) Company Limited and TSRC Specialty Materials LLC is based on the US EPA standard. The data in this table is rounded to two decimal places.
3. TSRC conducted CEMS monitoring for air pollution detection in compliance with regulations, but did not conduct testing for individual species. Nitrogen oxides (NOx) could not be measured separately from N2O. As there were no regulatory requirements for testing hazardous air pollutants (HAPs), there is no data available for these pollutants.

Employees

Number of TSRC Employees in 2022 (by Subsidiaries, Gender, Region, and Type of Employee Contract)

Region		Taiwan	Mainland China				Vietnam	USA		Singapore	Europe	TSRC Group
(Unit: ppl)		TSRC	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	TSRC (USA)	Polybus	TSRC Lux	
Full-time Employees	Male	551	271	288	94	55	12	63	1	2	9	1,345
	Female	115	39	34	23	21	18	25	0	0	7	282
	Total (by subsidiaries)	666	310	322	117	76	30	88	1	2	16	1,627
	Total (by regions)	666	825				30	89		2	16	1,628

Note:

1. The term "full-time employees" referred to in this table are "permanent employees" who have signed an open-ended contract. TSRC does not have temporary employees, employees without guaranteed hours and part-time employees.
2. The number of employees in this table is calculated as number of people employed on 31 December 2022.
3. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC' s other report.

Number of Non-employee Workers in 2022（by Subsidiaries, Gender, and Regions）

Region		Taiwan	Mainland China				Vietnam	USA	Singapore	Europe	TSRC Group
(Unit: ppl)		TSRC	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC (USA)	Polybus	TSRC Lux	
Non-employees	Male	115	61	92	28	11	7	58	0	0	372
	Female	10	9	4	6	3	4	6	0	0	42
	Total (by subsidiaries)	125	70	96	34	14	11	64	0	0	414

Note:

1. The number of employees in this table is calculated as number of people employed on 31 December 2022.
2. The non-employee workers of TSRC include dispatch workers, security guards, temporary workers, laborers, cleaners, interns, and others.

TSRC New Recruits in 2022 (by Subsidiaries, Age, and Gender)

Region		Taiwan		Mainland China								Vietnam		USA				Singapore		Europe		TSRC Group
(Unit: ppl)		TSRC		Shen Hua Chemical		Nantong Industries		TSRC-UBE		Shanghai Industries		TSRC (Vietnam) Company Limited		TSRC Specialty Materials LLC		TSRC (USA)		Polybus		TSRC Lux		
		Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	
Gender	Male	35	77.78%	47	95.92%	43	95.56%	13	92.86%	2	50.00%	6	75.00%	4	57.14%	0	0.00%	0	0.00%	0	0.00%	150
	Female	10	22.22%	2	4.08%	2	4.44%	1	7.14%	2	50.00%	2	25.00%	3	42.86%	0	0.00%	0	0.00%	1	100.00%	23
Age	Age of 30 and younger	4	8.89%	31	63.27%	24	53.33%	4	28.57%	1	25.00%	4	50.00%	2	28.57%	0	0.00%	0	0.00%	0	0.00%	70
	Age between 30-50	39	86.67%	18	36.73%	21	46.67%	10	71.43%	3	75.00%	3	37.50%	2	28.57%	0	0.00%	0	0.00%	1	100.00%	97
	Age of 50 and older	2	4.44%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	12.50%	3	42.86%	0	0.00%	0	0.00%	0	0.00%	6
Total number of new employees		45	100.00%	49	100.00%	45	100.00%	14	100.00%	4	100.00%	8	100.00%	7	100.00%	0	0.00%	0	0.00%	1	100.00%	173
Total number of full-time employees		666		310		322		117		76		30		88		1		2		16		1,628[Note2]
(by subsidiaries) New Hire Ratio =Total number of new employees / Total number of full-time employees		6.76%		15.81%		13.98%		11.97%		5.26%		26.67%		7.95%		0.00%		0.00%		6.25%		10.63%

Note:

1. The new hire ratio in this table is calculated based on the number of people employed on 31 December 2022. The data in this table is rounded to two decimal places.
2. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report.

Departing Employees in 2022 (by Subsidiaries, Age, and Gender)

Region		Taiwan		Mainland China								Vietnam		USA				Singapore		Europe		TSRC Group
(Unit: ppl)		TSRC		Shen Hua Chemical		Nantong Industries		TSRC-UBE		Shanghai Industries		TSRC (Vietnam) Company Limited		TSRC Specialty Materials LLC		TSRC (USA)		Polybus		TSRC Lux		
		Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	
Gender	Male	45	84.91%	28	96.55%	32	100.00%	9	100.00%	4	100.00%	4	57.14%	8	72.73%	0	0.00%	0	0.00%	0	0.00%	130
	Female	8	15.09%	1	3.45%	0	0.00%	0	0.00%	0	0.00%	3	42.86%	3	27.27%	0	0.00%	0	0.00%	1	100.00%	16
Age	Age of 30 and younger	3	5.66%	19	65.52%	17	53.13%	4	44.44%	3	75.00%	3	42.86%	2	18.18%	0	0.00%	0	0.00%	0	0%	51
	Age between 30-50	37	69.81%	8	27.59%	15	46.88%	5	55.56%	0	0.00%	4	57.14%	5	45.45%	0	0.00%	0	0.00%	1	100.00%	75
	Age of 50 and older	13	24.53%	2	6.90%	0	0.00%	0	0.00%	1	25.00%	0	0.00%	4	36.36%	0	0.00%	0	0.00%	0	0.00%	20
Total number of new employees		53	100.00%	29	100.00%	32	100.00%	9	100.00%	4	100.00%	7	100.00%	11	100.00%	0	0.00%	0	0.00%	1	100.00%	146
Total number of full-time employees		666		310		322		117		76		30		88		1		2		16		1,628[Note3]
Turnover rate = Total employee resigned from the subsidiary / Total number of full-time employees at the subsidiary		7.96%		9.35%		9.94%		7.69%		5.26%		23.33%		12.5%		0.00%		0.00%		6.25%		8.97%

Note:

1. The turnover rates in this table are calculated based on the number of people employed on 31 December 2022. The data in this table is rounded to two decimal places.
2. Internal transfers within the group are not counted as resignations.
3. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report. In 2022, TSRC (USA) Investment Corporation had no departed staff.

TSRC New Recruits in 2022 (by Region)

Region	Taiwan	Mainland China	Vietnam	USA	Singapore	Europe	TSRC Group in total
Total number of new employees (by region)	45	112	8	7	0	1	173
New Hire Ratio =Total number of new employees / Total number of full-time employees	6.76%	13.58%	26.67%	7.87%	0.00%	6.25%	10.63%
Ratio of new employees in each region to TSRC Group total new employees (%)	26.01%	64.74%	4.62%	4.05%	0.00%	0.58%	100.00%

Note:

1. The new hire ratios in this table are calculated based on the number of people employed on 31 December 2022. The data in this table is rounded to two decimal places.
2. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report. In 2022, TSRC (USA) Investment Corporation had no new hires.

Departed Employees in 2022 (by Region)

Region	Taiwan	Mainland China	Vietnam	USA	Singapore	Europe	TSRC Group in total
Total number of departed employees	53	74	7	11	0	1	146
Turnover Rate = Total employee resigned in each region/ Total number of full-time employees in each region	7.96%	8.97%	23.33%	12.36%	0.00%	6.25%	8.97%
Ratio of resigned employees in each region to TSRC Group total departed employees (%)	36.30%	50.68%	4.79%	7.53%	0.00%	0.68%	100.00%

Note:

1. The turnover rates in this table are calculated based on the number of people employed on 31 December 2022. The data in this table is rounded to two decimal places.
2. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report. In 2022, TSRC (USA) Investment Corporation had no departed staff.

Employees Education and Training

The Averaged Training Hours of TSRC Employees and Resources Invested in 2022 (by Subsidiaries)

	TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	TSRC (USA)	Polybus	TSRC Lux	TSRC Group
Total training hours	39,379	23,385	31,343	14,427	1,945	1,003	4,311	14	15	71	115,893
Total number of full-time employees	666	310	322	117	76	30	88	1	2	16	1,628
Averaged training hours	59.13	75.44	97.34	123.31	25.59	33.43	48.99	14.00	7.50	4.44	71.18
Total amount invested (in thousands of NT$)	5,790	940	823	401	232	42	1,740	0	0	356	10,324

Note:

1. The averaged training hours per employee = Total training hours of all employees/ total number of employees. The data in this table is rounded to two decimal places.
2. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report.

The Averaged Training Hours of TSRC Employees and Resources Invested in 2022 (by Subsidiaries, Gender, and Employee Category)

		TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	TSRC (USA)	Polybus	TSRC Lux	TSRC Group
Rank	Senior Management	1,056	40	76	58	0	2	42	14	0	9	1,297
	Mid/Entry Level	7,740	1,199	1,577	714	307	72	1,278	0	16	38	12,941
	Indirect Employees	11,108	4,046	4,960	1,685	1,135	726	1,240	0	0	24	24,924
	Direct Employees	19,434	18,100	24,705	11,970	485	202	1,752	0	0	0	76,648
Gender	Male	33,043	21,780	29,866	13,555	1,187	353	3,427	14	16	40	103,280
	Female	6,294	1,605	1,452	872	739	649	884	0	0	31	12,526

Note:

1. The calculation of this table includes factories and subsidiaries in the scope of the report and TSRC (USA) Investment Corporation. TSRC (USA) Investment Corporation is a non-operating holding company of TSRC, which is not within the scope of the reporting boundary, is included in the calculation due to the employment of one full-time employee. It is to ensure the number is consistent to TSRC's other report.
2. Senior managers refer to G19 and above managers, mid/entry level managers refer to deputy managers and managers.
3. Direct employee refers to personnel directly responsible for production lines, including operators, technicians, shift leaders, and analysts. Indirect employees are all employees that are not direct employees.

Welfare for Employees

Employee Benefits Expenses (by Subsidiaries)

(Unit: NTD)

Year	TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC
2020	152,477,282	69,183,733	64,912,858	24,629,616	15,762,831	3,947,302	57,965,744
2021	160,161,520	95,792,433	95,783,717	36,287,585	22,992,036	5,129,351	47,553,067
2022	179,880,832	117,431,497	111,366,012	42,904,477	26,643,185	4,791,076	54,852,400

Note:

1. This table does not include the two trading-based subsidiaries Polybus and TSRC (Lux.).
2. Benefits include insurance, holiday bonuses, meal and transportation allowances, pension, housing allowances, sickness and injury allowances, and other employee benefits.
3. The exchange rate is the cumulative average exchange rate of the company as of the end of 2022. CNY:TWD = 1:4.42310 VND:TWD = 1:0.00127 USD:TWD = 1:29.78410
4. TSRC Corporation including the Global Business Headquarters, Kaohsiung Factory, and Gangshan Factory.

Occupational Health and Safety

2020-2022 TSRC Occupational Health and Safety Management System Auditing in Accordance with the ISO 45001 (by Subsidiaries)

			TSRC Corporation		Shen Hua Chemical		Nantong Industries		TSRC-UBE		Shanghai Industries	
			Number of people	As a percentage of all employees based in the site	Number of people	As a percentage of all employees based in the site	Number of people	As a percentage of all employees based in the site	Number of people	As a percentage of all employees based in the site	Number of people	As a percentage of all employees based in the site
2020	Number of people being internally audited	TSRC employee	496	83%	291	100%	309	100%	109	100%	76	100%
		Non-employee	7	1%	70	100%	105	100%	41	100%	12	100%
	Number of people being externally audited	TSRC employee	543	90%	291	100%	309	100%	109	100%	76	100%
		Non-employee	10	2%	70	100%	0	0%	0	0%	12	100%
2021	Number of people being internally audited	TSRC employee	506	91%	299	100%	310	100%	109	100%	73	95%
		Non-employee	5	1%	70	100%	105	100%	41	100%	4	100%
	Number of people being externally audited	TSRC employee	553	91%	299	100%	310	100%	109	100%	59	77%
		Non-employee	10	2%	70	100%	0	0%	41	100%	4	100%
2022	Number of people being internally audited	TSRC employee	490	76%	298	100%	320	100%	117	100%	74	97%
		Non-employee	90	14%	79	100%	105	100%	38	100%	8	100%
	Number of people being externally audited	TSRC employee	450	70%	298	100%	320	100%	117	100%	74	97%
		Non-employee	90	14%	79	100%	0	0%	0	0%	8	100%

Note: This table only includes the number of employees and non-employees working in factories that have undergone internal audits and external verification following ISO45001 within the reporting boundaries. Subsidiaries such as TSRC (Vietnam) Co., Ltd. and TSRC Specialty Materials LLC, as well as two holding subsidiaries Polybus and TSRC (Lux.) that mainly engage in trading business, and the Global Corporate Headquarters that mainly engage in office affairs, do not apply to occupational health and safety management system audits, and are therefore omitted from the table.

2022 Occupational Injuries and Illness of TSRC Employees (by Subsidiaries)

		TSRC Kaohsiung Factory	TSRC Gangshn Factory	Global Business Headquarter	TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	TSRC Lux	TSRC Group
Total working hours of employees		993,189	175,389	153,005	1,321,583	703,064	734,325	265,123	157,014	63,745	159,586	3,852	28,872	3,437,164
Total recordable incidence rate (TRIR)	Number of recordable occupational injury cases among employees	5	0	0	5	0	1	0	0	0	0	0	0	6
	Number of employees in-volved in the recordable oc-cupational in-jury cases	5	0	0	5	0	1	0	0	0	0	0	0	6
	Total recordable incidence rate (TRIR)	1.01	0.00	0.00	0.76	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.35

Note:

1. Employees are defined as full-time and part-time workers who have signed indefinite-term contracts with TSRC. In 2022, TSRC did not employ temporary workers or workers without guaranteed working hours.
2. The total working hours of TSRC employees are the sum of the working hours of employees at the TSRC Kaohsiung and Gangshan Factory, and the Global Business Headquarters. The Total Recordable Incidence Rate (TRIR) is calculated as the total number of recordable occupational injuries among TSRC Kaohsiung and Gangshan Facotry, and the Global Business Headquarters employees divided by the total working hours and multiplied by 200,000.
3. The Total Recordable Incidence Rate (TRIR) is calculated as "Total number of recordable occupational injuries divided by the total working hours, multiplied by 200,000." The definition of recordable occupational incidence includes death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury or illness diagnosed by a physician or other licensed healthcare professional (even if it does not result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness).
4. In 2022, there were 5 occupational injuries at TSRC Kaohsiung plant, and 1 at Nantong Industry.
5. In 2022, there were no reports of occupational fatalities, severe occupational injuries, occupational illnesses, occupational disease fatalities, or work-related deaths among employees
6. TSRC Corporation including the Global Business Headquarters, Kaohsiung Factory, and Gangshan Factory.

2022 Occupational Injuries and Illness of TSRC Non-employees (by Subsidiaries)

		TSRC Kaohsiung Factory	TSRC Gangshn Factory	Global Business Headquarter	TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	TSRC Lux	TSRC Group
Total working hours of non-employees		443,922	15,486	2,304	461,712	214,055	254,767	96,727	24,096	42,500	103,195	N/A	N/A	1,197,052
Occuptional Injury Rate (Total recordable incidence rate, TRIR)	Number of recordable occupational injury cases among non-employees	3	0	0	3	1	0	0	0	0	1	N/A	N/A	5
	Number of non-employees involved in the recordable occupational injury cases	3	0	0	3	1	0	0	0	0	1	N/A	N/A	5
	Total recordable incidence rate (TRIR)	1.35	0.00	0.00	1.30	0.93	0.00	0.00	0.00	0.00	1.94	N/A	N/A	0.84
Severe Occuptional Injury (excluding fatalities)	Number of severe recordable occupational injury cases among non-employees	0	0	0	0	1	0	0	0	0	0	N/A	N/A	1
	Number of non-employees involved in the severe recordable occupational injury cases	0	0	0	0	1	0	0	0	0	0	N/A	N/A	1
	The severe occuptional injury rate of non-employees	0.00	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	N/A	N/A	0.17

Note:

1. Non-employee workers are defined as those whose job content is monitored by TSRC Group alone or jointly with other organizations, but who are not directly employed by TSRC Group.
2. The total working hours of non-employee workers at TSRC Group is the sum of the working hours at the TSRC Kaohsiung and Gangshan plant, and the Global Business Headquarters. The Total Recordable Incidence Rate (TRIR) is calculated as the total number of recordable occupational injuries among non-employee workers at the TSRC Kaohsiung and Gangshan plant, and the Global Business Headquarters, divided by the total working hours of non-employee workers, multiplied by 200,000.
3. The Total Recordable Incidence Rate (TRIR) is calculated as "Total number of recordable occupational injuries divided by the total working hours, multiplied by 200,000." The definition of recordable occupational incidence includes: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury or illness diagnosed by a physician or other licensed healthcare professional (even if it does not result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness).
4. In 2022, there were 3 recordable occupational injuries among non-employee workers at TSRC Kaohsiung plant, 1 at Shen Hua Chemical, and 1 at TSM. However, Polybus and TSRC (Lux) did not employ any non-employee workers, so the data is marked as N/A.
5. In 2022, there were no reports of occupational fatalities, occupational illnesses, occupational disease fatalities, or work-related deaths among non-employee workers at TSRC Group.
6. TSRC Corporation including the Global Business Headquarters, Kaohsiung Factory, and Gangshan Factory.

Number and Percentage of Employees Covered by the Collective Bargaining Agreement at TSRC Group in 2022 (by Subsidiaries)

(Unit: people, %)	TSRC	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	TSRC Lux
Number of employees covered by the collective bargaining agreement	481	308	322	117	76	24	0	0	0
Percentage of total employees covered by the collective bargaining agreement	100.00%	100.00%	100.00%	100.00%	100.00%	80.00%	0.00%	0.00%	0.00%

Note:

1. The total number of employees in this table refers to full-time and part-time employees with indefinite-term contracts signed with TSRC. TSRC did not employ temporary or non-guaranteed-hour employees in 2022.
2. For employees who are not required to sign a collective agreement, the company has an employee handbook that details work conditions and regulations. If employees need to file a complaint, they can do so through their direct supervisor, the human resources department, or an employee complaint mailbox.

SASB Index

The Scope 1 Emissions Covered under Emission-limiting Regulations in 2022

(Unit: Metric tons CO_2e)	Emissions from locations covered under emission-limiting regulations	Emissions from locations not covered under emission-limiting regulations but subject to voluntary disclosure	Total
	TSRC Kaohsiung Factory, Shen Hua Chemical, Nantong Industries, TSRC-UBE	Global Business Headquarters, Gangshan Factory, Shanghai Industries, TSRC (Vietnam) Company Limited、TSRC Specialty Materials LLC、Polybus、TSRC (Lux.)	
Category 1	113,114	25,332	138,447
As a percentage of TSRC Group's Scope 1 emissions	81.70%	18.30%	100.00%

Note:

1. Locations governed by emission restriction regulations refer to locations that are required by local laws to declare greenhouse gas emissions, including TSRC Kaohsiung Plant, Shen Hua Chemical, Nantong Industry, and TSRC-UBE. Locations not governed by emission restriction regulations refer to locations that do not need to make declarations and are not subject to emission trading or other regulations, including Global Business Headquarters, TSRC Gangshan Plant, Shanghai Industry, TSRC (Vietnam) Company Limited, TSRC Specialty Materials LLC, Polybus, and TSRC (Lux.).
2. The GHG inventory covers seven types of GHGs (CO2, CH4, N2O, HFCs, PFCs, SF6, NF3), and the GWP value is referred to the IPCC AR5 Report.
3. The 2022 data covers all plants and subsidiaries within the scope of this report. The GHG inventory adopts the control approach, and is conducted based on ISO14064:2018. A third party verification is scheduled to complete by October 2023. Data is rounded to the nearest integer.

Revenue from Products with Environmental Contribution in 2020-2022

(Unit: thousands of NT$)

Product type	Product Explanation	2020	2021	2022
New generation synthetic rubber products	• The application of new-generation synthetic rubber to tires can help reduce tire rolling resistance, increase wear resistance, and improve vehicle fuel efficiency. • The application to shoe materials can increase wear resistance and prolongs the lifecycle of shoe materials. All of the above can achieve the purpose of reducing carbon emissions in the environment and extending the lifecycle of products.	6,321	371,710	459,279

The sale of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) substances in 2020-2022

(Unit: thousand NT$, %)

項目	2020	2021	2022
Total sales of all company products	24,024,443	32,533,238	33,841,197
Total sales of products containing GHS Category 1 and Category 2 substances	23,173,891	31,440,852	32,718,567
Total sales of products containing GHS Category 1 and Category 2 substances as a percentage of total sales of all company products (%)	96.46%	96.64%	96.68%
Total sales of products containing GHS Category 1 and Category 2 substances that have been through the Company's hazard evaluation (in thousands of NTD)	23,173,891	31,440,852	32,718,567
Total sales of products containing GHS Category 1 and Category 2 substances that have completed the Company's hazard evaluation as a percentage of total sales of products containing GHS Category 1 and Category 2 substances (%)	100%	100%	100%

Note:

1. In accordance with Article 11 of the Taiwan's Occupational Safety and Health Act, TSRC evaluates the risk level of chemical substance according to the health hazards, distribution and usage status. The risk of chemical substance are classified into 1~4 grades, and corresponding management measures for each grade are implemented.
2. TSRC currently contains the Type 1 chemical butadiene (accounting for 95-100 w/w%).

TSRC Process safety Incidents, Process Safety Total Incident Rate, and Process Safety Incident Severity Rate in 2022

	TSRC Kaohsiung Factory	TSRC Gangshn Factory	Global Business Headquarter	TSRC Corporation	Shen Hua Chemical	Nantong Industries	TSRC-UBE	Shanghai Industries	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	Polybus	TSRC Lux
Process safety incidents count (PSIC)	2	0	0	2	0	0	0	0	0	0	0	0
Process safety total incident rate (PSTIR)	0.42	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Process safety incident severity rate (PSISR)	0.84	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note:

1. The data of TSRC Corporation is the sum of TSRC Kaohsiung Factory, Gangshan Factory, and Global Business Headquarters.
2. The accidents counted in this table are in accordance with the definition of ANSI/American Petroleum Institute (API) RP 754 PSI.
3. The Process Safety Incident Count (PSIC) is defined as the total number of incidents in a year.
4. Process safety incident severity rate (PSTIR) is defined as the cumulative (annual) severity-weighted rate of process safety incidents, and is calculated as the Total Severity Score for all Process Safety Incidents multiplied by 200,000 and divided by the total annual hours worked by employees, contractors, and subcontractors.
5. Process safety incident severity rate (PSISR) is defined as the cumulative (annual) severity-weighted rate of process safety incidents, is calculated as the Total Severity Score for all Process Safety Incidents multiplied by 200,000 and divided by the total annual hours worked by employees, contractors, and subcontractors.
6. TSRC Group did not have any transportation accidents during production in 2022.
   - Transport incident is defined as:
     - a death or injury leading to intensive medical treatment, a stay in hospital of at least one day, or an absence from work of more than three days
     - Incidents involving releases of more than 50 kilograms/liters of hazardous substances or more than 1000 kilograms/litres of non-hazardous substances
     - Transportation accidents resulting in losses exceeding 50,000 Euros (including environmental clean up)
     - Incidents that result in direct intervention by government authorities or emergency services, evacuation of personnel or closure of public transport routes for at least three hours
7. TSRC Corporation including the Global Business Headquarters, Kaohsiung Factory, and Gangshan Factory.

2020-2022 Production Volume (by Subsidiaries)

(Unit: Metric ton)	TSRC		Shen Hua Chemicals	Nantong Industrial	TSRC-UBE	Shanghai Industrial	TSRC (Vietnam) Company Limited	TSRC Specialty Materials LLC	TSRC Group in total
	Kaohsiung Factory	Gangshan Factory							
2020		173,773	170,426	56,560	63,036	12,214	0	46,521	521,529
2021		194,194	170,988	73,815	65,285	9,934	0	47,921	562,138
2022	176,469	2,015	170,522	72,822	67,217	5,494	577	44,910	540,026

Note: This table only includes manufacturing plants and subsidiaries that engage in manufacturing activities within the reporting boundary. The two holding companies, Polybus and TSRC (Lux.), which mainly engage in trading activities, and the Global Business Headquarters, which mainly engage in office activities and do not have any production activities.

GRI Standards Index

General Disclosures

- **Statement of use:** TSRC has reported in accordance with the GRI Standards for the period from 2022/1/1 to 2022/12/31
- **GRI 1 used:** GRI 1: Foundation 2021
- **Applicable GRI Sector Standard(s):** n/a

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403-4	Worker participation, consultation, and communication on occupational health and safety	4.2.3 Occupational Health and Safety	94
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403-6	Promotion of worker health	4.2.3 Occupational Health and Safety	97
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	4.2.3 Occupational Health and Safety	94
403-8	Workers covered by an occupational health and safety management system	4.2.3 Occupational Health and Safety **TSRC Workers Covered by an Occupational Health and Safety Management System**	93
		Appendix **2020-2022 TSRC Occupational Health and Safety Management System Auditing in Accordance with the ISO 45001 (by subsidiaries)**	129
403-9	Work-related injuries	4.2.3 Occupational Health and Safety	97
		Appendix **2022 Occupational Injuries and Illness of TSRC Employees (by subsidiaries)**	130
		Appendix **2022 Occupational Injuries and Illness of TSRC Non-employees（by subsidiaries）**	131
403-10	Work-related ill health	4.2.3 Occupational Health and Safety	96
		Appendix **2022 Occupational Injuries and Illness of TSRC Employees (by subsidiaries)**	130
		Appendix **2022 Occupational Injuries and Illness of TSRC Non-employees（by subsidiaries）**	131

Voluntary Disclosure

Disclosure Title		Chapter	Pages
GRI 401: Employment 2016			
401-1	New employee hires and employee turnover	4.1.2 Talent Structure **Number of New Recruits and the Ratio**	84
		4.1.2 Talent Structure **Number of Departing Employees and Turnover Rate**	84
		Appendix **TSRC New Recruits in 2022 (by Subsidiaries, Age, and Gender)**	124
		Appendix **TSRC New Recruits in 2022 (by Region)**	126
		Appendix **Departing Employees in 2022 (by Subsidiaries, Age, and Gender)**	125
		Appendix **Departing Employees in 2022 (by Subsidiaries, Age, and Gender)**	126
GRI 404: Training and Education 2016			
404-1	Average hours of training per year per employee	Appendix **The Averaged Training Hours of TSRC Employees and Resources Invested in 2022 (by subsidiaries)**	127
404-3	Percentage of employees receiving regular performance and career development reviews	4.1.3 Talent Attraction and Empowerment **Number and Percentage of Employees Receiving Regular Performance and Career Development Reviews (by Category)** **Number and Percentage of Employees Receiving Regular Performance and Career Development Reviews (by Gender)**	88
GRI 405: Diversity and Equal Opportunity 2016			
405-2	Ratio of basic salary and remuneration of women to men	4.2.2 Employee Remuneration and Benefits **Ratio of Basic Salary and Remuneration of Women to Men**	90
GRI 416: Customer Health and Safety 2016			
416-1	Assessment of the health and safety impacts of product and service categories	Appendix **The sale of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) substances in 2020-2022**	133

SASB Index

SASB Code	Accounting Metric	Unite of Measure	Chapter	Pages	Assurance and Verification
Sustainability Disclosure Topics & Accounting Metrics					
RT-CH-110a.1	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Metric tons (t) CO_2-e, %	Appendix **The Scope 1 Emissions Covered under Emission-limiting Regulations in 2022**	132	SGS (AA1000 Type II)
RT-CH-110a.2.	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	N/A	3.1.3 Greenhouse Gas and Energy Management	60	SGS (AA1000 Type II)
RT-CH-120a.1.	Air emissions of the following pollutants: (1) NOX (excluding N_2O), (2) SOX, (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)	Metric tons (t)	3.5.2 Air Pollution Prevention and Management **Air Pollutant Emissions**	79	SGS (AA1000 Type II)
			Appendix **2020-2022 Emissions of Air Pollutants in（by Subsidiaries）**	122	
RT-CH-130a.1	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy	GJ, %	3.1.3 Greenhouse Gas and Energy Management **Energy Consumption**	64	KPMG (ISAE 3000)
			Appendix **2020-2022 TSRC Energy Consumption**	119	SGS (AA1000 Type II)
RT-CH-140a.1.	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Thousand cubic meters (m^3), %	3.4.2 Water Resource Management **Tap Water Withdrawal and Use Volume**	73	KPMG (ISAE 3000)
			Appendix **2022 Water Withdrawal, Discharge, and Consumption (by Water-stressed Areas)**	121	SGS (AA1000 Type II)
RT-CH-140a.2.	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	Number	3.4.2 Water Resource Management	74	SGS (AA1000 Type II)

SASB Code	Accounting Metric	Unite of Measure	Chapter	Pages	Assurance and Verification
RT-CH-140a.3	Description of water management risks and discussion of strategies and practices to mitigate those risks	N/A	3.4. 1 Vision and Management Approach	72	SGS (AA1000 Type II)
			3.4.2 Water Resource Management	72	
			Appendix **Climate-related Risks and TSRC Countermeasures**	113	
RT-CH-150a.1.	Amount of hazardous waste generated, percentage recycled	Metric tons (t), %	3.3.2 Waste Management **Weight and Percentage of Hazardous Waste Recycled and Disposed**	71	KPMG (ISAE 3000) SGS (AA1000 Type II)
			Appendix **2021-2022 Hazardous Waste Recycling and Treatment Weight and Percentage (by Subsidiaries)**	120	
RT-CH-210a.1.	Discussion of engagement processes to manage risks and opportunities associated with community interests	N/A	4.3.2 Impact on the Society	102	SGS (AA1000 Type II)
RT-CH-320a.1.	(1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees	%	Appendix **2022 Occupational Injuries and Illness of TSRC Employees (by subsidiaries)**	130	KPMG (ISAE 3000) SGS (AA1000 Type II)
			Appendix **2022 Occupational Injuries and Illness of TSRC Non-employees（by subsidiaries）**	131	
RT-CH-320a.2.	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	N/A	4.2.3 Occupational Health and Safety	96	SGS (AA1000 Type II)
RT-CH-410a.1.	Revenue from products designed for use-phase resource efficiency	Reporting currency	Appendix **Revenue from Products with Designed for Use-phase Resource Efficiency in 2020-2022**	133	SGS (AA1000 Type II)
RT-CH-410b.1.	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	%	Appendix **The sale of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) substances in 2020-2022**	133	SGS (AA1000 Type II)

SASB Code	Accounting Metric	Unite of Measure	Chapter	Pages	Assurance and Verification
RT-CH-410b.2.	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	N/A	3.2.3 Chemical Substance Management	65-66	SGS (AA1000 Type II)
RT-CH-410c.1.	Percentage of products by revenue that contain genetically modified organisms (GMOs)	%	TSRC did not produce products that contain GMOs	N/A	SGS (AA1000 Type II)
RT-CH-530a.1.	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	N/A	2.1.4 Risk Management	37	SGS (AA1000 Type II)
			3.1.2 Keeping Abreast of Climate Risks and Opportunities	57	
			Appendix **Climate-related Risks and TSRC Countermeasures**	111	
			Appendix **Climate-related Opportunities and TSRC Response Actions**	114	
RT-CH-540a.1.	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)	%	Appendix **TSRC Process safety Incidents Count, Process Safety Total Incident Rate, and Process Safety Incident Severity Rate in 2022**	134	SGS (AA1000 Type II)
RT-CH-540a.2.	Number of transport incidents	Number	Appendix **TSRC Process safety Incidents Count, Process Safety Total Incident Rate, and Process Safety Incident Severity Rate in 2022**	134	SGS (AA1000 Type II)
RT-CH-000.A	Production by reportable segment	metric tons (t)	Appendix **2020-2022 Production Volume (by Subsidiaries)**	134	SGS (AA1000 Type II)

Independent Third Party Assurance and Verification Statement

SGS

ASSURANCE STATEMENT

SGS TAIWAN LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE TSRC CORPORATION's SUSTAINABILITY REPORT FOR 2022

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION
SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by TSRC Corporation (hereinafter referred to as TSRC) to conduct an independent assurance of the Sustainability Report for 2022 (hereinafter referred to as the Report). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the sampled text, and data in accompanying tables, contained in the report presented during verification (2023/04/07~2023/05/08). SGS reserves the right to update the assurance statement from time to time depending on the level of report content discrepancy of the published version from the agreed standards requirements.

INTENDED USERS OF THIS ASSURANCE STATEMENT
This Assurance Statement is provided with the intention of informing all TSRC's Stakeholders.

RESPONSIBILITIES
The information in the Report and its presentation are the responsibility of the directors or governing body (as applicable) and management of TSRC. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the report content within the scope of verification with the intention to inform all TSRC's stakeholders.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE

The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally recognized assurance guidance and standards including the principles of reporting process contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) GRI 1: Foundation 2021 for report quality, GRI 2 General Disclosure 2021 for organisation's reporting practices and other organizational detail, GRI 3 2021 for organisation's process of determining material topics, its list of material topics and how to manages each topic, and the guidance on levels of assurance contained within the AA1000 series of standards and/or ISAE3000.

The assurance of this report has been conducted according to the following Assurance Standards:

Assurance Standard Options	Level of Assurance	
A	SGS ESG & SRA Assurance Protocols (based on GRI Principles and guidance in AA1000)	n/a
B	AA1000ASv3 Type 2 (AA1000AP Evaluation plus evaluation of Specified Performance Information)	Moderate

SCOPE OF ASSURANCE AND REPORTING CRITERIA
The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:

TWLPP5008 Issue 2302

Reporting Criteria Options	
1	GRI Universal Standard (2021) (In Accordance with)
2	AA1000 Accountability Principles (2018)
3	SASB

- evaluation of content veracity of the sustainability performance information based on the materiality determination at a moderate level of scrutiny for TSRC and moderate level of scrutiny for subsidiaries, joint ventures, and applicable aspect boundaries outside of the organization covered by this report;
- AA1000 Assurance Standard v3 Type 2 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2018); and
- evaluation of the report against the requirements of Global Reporting Initiative Universal Standard 2021 (GRI 2, GRI 3, 200, 300 and 400 series) claimed in the GRI content index as material and in accordance with.
- evaluate of the report against the SASB Disclosures and Metrics included in the CHEMICALS Sustainability Accounting Standard (VERSION 2018-10) and conducted alongside an evaluation of accuracy assurance at moderate level of scrutiny.

ASSURANCE METHODOLOGY
The assurance comprised a combination of pre-assurance research, interviews with relevant employees, superintendents, Sustainability committee members and the senior management in Taiwan; documentation and record review and validation with external bodies and/or stakeholders where relevant.

LIMITATIONS AND MITIGATION
Financial data drawn directly from independently audited financial accounts and Task Force on Climate-related Financial Disclosures (TCFD) has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE
The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from TSRC, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 50001, EMS, CFP, WFP, GHG Verification and GHG Validation Lead Auditors and experience on the SRA Assurance service provisions.

VERIFICATION/ ASSURANCE OPINION
On the basis of the methodology described and the verification work performed, we are satisfied that the specified performance information included in the scope of assurance is accurate, reliable, has been fairly stated and has been prepared, in all material respects, in accordance with the reporting criteria.

We believe that the organisation has chosen an appropriate level of assurance for this stage in their reporting.

AA1000 ACCOUNTABILITY PRINCIPLES (2018) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity
TSRC has demonstrated a good commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, communities, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns. For future reporting, TSRC may proactively consider having more direct two-ways involvement of stakeholders during future engagement.

TWLPP5008 Issue 2302

Materiality
TSRC has established effective processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders.
Responsiveness
The report includes coverage given to stakeholder engagement and channels for stakeholder feedback.
Impact
TSRC has demonstrated a process on identify and fairly represented impacts that encompass a range of environmental, social and governance topics from wide range of sources, such as activities, policies, programs, decisions and products and services, as well as any related performance. Measurement and evaluation of its impacts related to material topic were in place at target setting with combination of qualitative and quantitative measurements.

GLOBAL REPORTING INITIATIVE REPORTING STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

The report, TSRC's Sustainability Report of 2022, complies with the Requirements set out in section 3 of GRI 1 and is adequately in accordance with the GRI Universal Standards 2021, where the significant impacts on the economy, environment, and people, including impacts on their human rights are assessed and disclosed following the guidance defined in GRI 3: Material Topic 2021. For future reporting, it is recommended to have more descriptions on historical trend and target setting of material topics. More comprehensive disclosure in general information, such as GRI 2-21, is also encouraged.

SASB CONCLUSIONS, FINDINGS AND RECOMMENDATIONS
TSRC has referenced with SASB's Standard, CHEMICALS, VERSION 2018-10 to disclose information of material topics that are vital for enterprise value creation. The reporting boundaries of the disclosed information correspond to the financial data reported in TSRC's audited consolidated financial statements. TSRC used SASB accounting and activity metrics to assess and manage the topic-related risks and opportunities, where relevant quantitative information was assessed for its accuracy and completeness to support the comparability of the data reported. More details in discussion and analyses of strategy or plan of environmental issues are encouraged in future reporting.

Signed:
For and on behalf of SGS Taiwan Ltd.

AA1000
Licensed Report
000-8/V3-3DN6E

Stephen Pao
Knowledge Deputy General Manager
Taipei, Taiwan
30 May, 2023
WWW.SGS.COM

TWLPP5008 Issue 2302

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Independent Limited Assurance Report

To TSRC Corporation:

We were engaged by TSRC Corporation ("TSRC") to provide limited assurance over the selected information attached as Appendix I ("the Subject Matter Information") on the 2022 Sustainability Report of TSRC ("the Report") for the year ended December 31, 2022.

Reporting Criteria of the Subject Matter Information

TSRC shall prepare the Subject Matter Information and reporting criteria in accordance with the Sustainability Accounting Standards for Chemicals Industry issued by Sustainability Accounting Standards Board ("SASB") as set forth in Appendix I.

Management's Responsibility for the Report

TSRC is responsible for determining its objectives with respect to sustainable development performance and reporting, including the identification of stakeholders and material aspects, and using the reporting criteria to fairly prepare and present the Subject Matter Information. TSRC is also responsible for establishing and maintaining internal controls relevant to the preparation and presentation of the Subject Matter Information that is free from material misstatement, whether due to fraud or error.

Our Responsibilities

We performed our work in accordance with the Standard on Assurance Engagements TWSAE3000 – "Assurance Engagements Other than Audits or Reviews of Historical Financial Information" issued by the Accounting Research and Development Foundation and to issue a limited assurance conclusion on whether the Subject Matter Information is free from material misstatement. Also, we have considered appropriate limited assurance procedures according to the understanding of relevant internal controls in the circumstances, but not for the purposes of expressing a conclusion as to the effectiveness of the internal control over the design or implementation of the Report.

Independence and Standards on Quality Management

We have complied with the independence and other ethical requirements of the Code of Professional Ethics for Certified Public Accountant in the Republic of China, which is founded on the fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behavior. In addition, we applied Standards on Quality Management. Accordingly, we maintained a comprehensive system of quality management, including documented policies and procedures regarding compliance with ethical requirements and professional standards as well as applicable legal and regulatory requirements.

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Summary of Work Performed

As stated in reporting criteria of the Subject Matter Information paragraph, our main work on the selected information included:

- Reading the Report of TSRC;
- Inquiries with responsible management level and non-management level personnel to understand the operational processes and information systems used to collect and process the Subject Matter Information;
- On the basis of the understanding obtained listed above, perform analytical procedures on the Subject Matter Information and if necessary, inspect related documents to gather sufficient and appropriate evidence in a limited assurance engagement.

The work described above based on professional judgment and consideration of the level of assurance and our assessment of the risk of material misstatement of the Subject Matter Information, whether due to fraud or error. We believe that the work performed and evidence we have obtained are sufficient and appropriate to provide a basis of our conclusion. However, the work performed in a limited assurance engagement varies in nature and timing from, and is less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained has a reasonable assurance engagement been performed.

Inherent limitations

The Report for the year ended December 31, 2022 includes the disclosures of non-financial information that involved significant judgments, assumptions and interpretations by the management of TSRC. Therefore, the different stakeholders may have different interpretations of such information.

Conclusion

Based on the work we have performed and the evidence we have obtained, as described above, nothing has come to our attention that causes us to believe that the Subject Matter Information has not been properly prepared, in all material aspects, in accordance with the reporting criteria.

Other Matters

The management of TSRC is responsible for the maintenance of its website where includes the Limited Assurance Report, we shall not be responsible for any further changes on the Subject Matter Information or its applicable reporting criteria, nor be responsible for reconducting any assurance work after the issuance date of the Limited Assurance Report.

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Taipei, Taiwan (Republic of China)
May 31, 2023

Notes to reader

The limited assurance report and the accompanying selected information are the English translation of the Chinese version prepared and used in the Republic of China. If there is any conflict between, or any difference in the interpretation of, the English and Chinese language limited assurance report and the selected information, the Chinese version shall prevail.

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Appendix I: Summary of the Subject Matter Information

No.	Corresponding Section	Page	Subject Matter Information	Reporting Criteria	SASB
1	3.1.3 Greenhouse Gas and Energy Management	60	■ Optimizing Process Operations ➢ TSRC promotes process operation optimization in order to achieve its energy-saving and carbon reduction goals. This is carried out by adjusting process parameters and operation methods to improve efficiency and reduce energy consumption and carbon emissions. ➢ In 2022, TSRC achieved energy savings and steam savings through measures such as optimizing process reaction conditions, increasing waste heat recovery, and adjusting chillers, water pumps, and steam extraction towers. These measures achieved electricity savings of 865,700 kWh (3,117 GJ) and 24,299.2 metric tons (54,916 GJ) of steam, and a reduction of 7,066 metric tons of CO2e emissions (annual). ■ Optimizing Utility Systems ➢ TSRC utilizes a combination of equipment replacement and operation optimization to save electricity for its lighting systems, air conditioning systems, and other utilities. By replacing less efficient equipment with more energy-efficient alternatives and optimizing operating conditions, TSRC is able to reduce its electricity usage and achieve its energy-saving goals. ➢ In 2022, some factories replaced LED lighting and optimizing the cooling water tower operation. The total energy savings was 224,000 kWh (806 GJ), and a reduction of 114 metric tons of CO2e emissions (annual). ■ Investing in High-Efficiency Equipment ➢ TSRC is actively investing in high-energy efficiency process equipment to achieve its energy-saving and carbon reduction goals. By utilizing such equipment, the Company significantly reduces energy consumption and GHG emission intensity, contributing to sustainability. ➢ In 2022, TSRC added new high-efficiency dryers and completed the refining tower for the SEBS AB line, resulting in a total energy saving of 308,000 kWh (1,102 GJ) and steam savings of 5,000 metric tons (11,300 GJ). These efforts led to a yearly reduction of 1,796 metric tons of CO2e emissions(annual), showing the Company's commitment to sustainability and its efforts to reduce carbon footprint.	■ Measures and achievements in optimizing process operations, optimizing utility systems, and investing in high-efficiency equipment by TSRC	SASB Chemicals RT-CH-130a.1 (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy
		63	■ Improved Energy Efficiency ➢ TSRC adopts the PDCA model to regularly analyze the energy use and consumption status of the main production sites and conduct audits on process efficiency and system to ensure the energy efficiency of all TSRC factories. TSRC continues to take measures to improve energy efficiency and reduce energy consumption and to promote low-carbon manufacturing process innovation and equipment replacement in conjunction with carbon reduction goals. The key factories and subsidiaries (including Kaohsiung Factory, Shen Hua Chemical, Nantong Industries, and TSRC-UBE) have annual energy saving targets. The Kaohsiung Factory, Nantong Industries and TSRC UBE are certified with the ISO 50001 Standard. ➢ In 2022, all other factories met the energy efficiency target, except for Shen Hua Chemical. Shen Hua Chemical did not meet the target of electricity consumption per unit of product due to the record high temperature of the year and the frequent on-and-off of environmental improvement equipment (including incinerators and activated	■ Measures in enhancing energy efficiency by TSRC	

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No.	Corresponding Section	Page	Subject Matter Information	Reporting Criteria	SASB
			furnaces), resulting in high electricity consumption. In 2022, factories adjusted the energy portfolio, reduced the use of liquefied petroleum gas and recycled process waste gas as fuel to implement a circular economy.		
	Appendix Greenhouse Gas and Energy Management	119	■ 2022 TSRC Energy Consumption ➢ Unit: GJ ➢ Direct energy consumption (non-renewable energy) - Bituminous coal: 0.00 - Fuel oil: 0.00 - Plant diesel: 12,138.36 - Natural gas: 1,763,823.66 - Liquefied petroleum gas (LPG): 212.00 - Gasoline: 1,241.03 - Recycled butadiene: 66,979.31 - Subtotal: 1,844,394.37 ➢ Indirect energy consumption - Purchased electricity (non-renewable energy): 934,482.24 - Purchased electricity (Renewable energy): 0.00 - Purchased steam: 2,054,653.61 - Subtotal: 2,989,135.85 ➢ Total energy consumption: 4,833,530.22 ➢ Self generated electricity: 60,071.87 ➢ Percentage of electricity used from the power grid (%): 93.96% ➢ Percentage of renewable energy (%): 0.00% ➢ Percentage of electricity from the grid out of total energy consumption (%): 19.33% ➢ Note: - The 2022 data covers the Global Business Headquarters within the reporting boundary, two factories (Kaohsiung and Gangshan), 6 subsidiaries that engage in manufacturing activities, and 2 holding companies, Polybus and TSRC (Lux.). - The purchased electricity of TSRC (Lux.) for the period of May to December 2022 is not available yet. Therefore, the data is estimated based on the monthly average electricity consumption of the years 2020-2021. - The energy conversion factors are based on the "GHG Emission Inventory Guideline (non-official translation)" published by the Environmental Protection Administration of Taiwan. The data is calculated based on the Lower Heating Values (LHV) of the fuels. The results are rounded to the second decimal place using rounding rules. - The total energy consumption of the organization = the internal energy consumption = the direct energy consumption (non-renewable energy) + the energy consumed from purchased electricity and steam. - Percentage of electricity used from the power grid (%) = (Purchased electricity (Non-renewable energy) + Purchased electricity (Renewable energy))/ (Purchased electricity (Non-renewable energy) + Purchased electricity (Renewable energy) + Self-generated electricity). - Percentage of renewable energy (%) = Purchased electricity (Renewable energy) / Total energy consumption. - Percentage of electricity from the power grid of total energy consumption (%) = Purchased electricity (Non-renewable energy) /	■ Details on energy usage by TSRC	

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No.	Corresponding Section	Page	Subject Matter Information	Reporting Criteria	SASB
			Total energy consumption. - The conversion factors of energy are based on the "Greenhouse Gas Emission Coefficient Management Table 6.0.4" published by the Environmental Protection Administration of Taiwan. The heat value of recovered butadiene is calculated based on the calorific value of petroleum, which is 7800 kcal/L. For steam, except for Shen Hua Chemical and Nantong Industries, a standard conversion factor of 2.26 GJ for the heat required to vaporize one ton of water at one atmosphere pressure is used. Shen Hua Chemical and Nantong Industries use a conversion factor provided by their supplier, which is 2.96626 GJ for one ton of water. - Starting from 2021, all manufacturing factories of TSRC no longer use bituminous coal and fuel oil as energy sources.		
2	Appendix Water Resource Management	121	■ 2022 Water Withdrawal, Discharge, and Consumption (by Water-stressed Areas) ➢ Unit: thousand cubic meters = thousand tons ➢ Regions with high water stress - TSRC- Kaohsiung Factory •Fresh water withdrawal: 1,555.72 •Consumption of purchased steam: 27.99 •Wastewater recycled: 487.22 •Water usage = Fresh water withdrawal + Consumption of purchased steam + Wastewater recycled: 2,070.93 •Water discharge: 931.73 •Water consumption = Water usage - Water Discharge: 1,139.20 - TSRC-Gangshan Factory •Fresh water withdrawal: 3.36 •Consumption of purchased steam: 0.00 •Wastewater recycled: 0.00 •Water usage = Fresh water withdrawal = Consumption of purchased steam + Wastewater recycled: 3.36 •Water discharge: 2.33 •Water consumption = Water usage – Water Discharge: 1.03 ➢ Regions with moderate to high water stress - TSRC(LUX) •Fresh water withdrawal: 0.04 •Consumption of purchased steam: 0.00 •Wastewater recycled: 0.00 •Water usage = Fresh water withdrawal + Consumption of purchased steam = Wastewater recycled: 0.04 •Water discharge: 0.04 •Water consumption = Water usage – Water Discharge: 0.00 ➢ Regions with low to moderate water stress - TSRC- Global Business Head- quarters •Fresh water withdrawal: 2.24 •Consumption of purchased steam: 0.00 •Wastewater recycled: 0.00 •Water usage = Fresh water withdrawal + Consumption of purchased steam = Wastewater recycled: 2.24 •Water discharge: 2.24 •Water consumption = Water usage – Water Discharge: 0.00 - Shen Hua Chemical •Fresh water withdrawal: 1,020.06 •Consumption of purchased steam: 177.96	■ Details on water resource management by TSRC	SASB Chemicals RT-CH-140a.1 (1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress

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No.	Corresponding Section	Page	Subject Matter Information	Reporting Criteria	SASB
			•Wastewater recycled: 91.98 •Water usage = Fresh water withdrawal + Consumption of purchased steam + Wastewater recycled: 1,290.00 •Water discharge: 836.28 •Water consumption = Water usage - Water Discharge: 453.72 - Nantong Industries •Fresh water withdrawal: 431.82 •Consumption of purchased steam: 294.59 •Wastewater recycled: 100.76 •Water usage = Fresh water withdrawal + Consumption of purchased steam = Wastewater recycled: 827.17 •Water discharge: 421.14 •Water consumption = Water usage – Water Discharge: 406.03 - TSRC-UBE •Fresh water withdrawal: 306.26 •Consumption of purchased steam: 241.73 •Wastewater recycled: 129.28 •Water usage = Fresh water withdrawal + Consumption of purchased steam = Wastewater recycled: 677.27 •Water discharge: 242.98 •Water consumption = Water usage – Water Discharge: 434.29 - Shanghai Industries •Fresh water withdrawal: 20.46 •Consumption of purchased steam: 0.00 •Wastewater recycled: 0.00 •Water usage = Fresh water withdrawal + Consumption of purchased steam = Wastewater recycled: 10.46 •Water discharge: 10.46 •Water consumption = Water usage – Water Discharge: 0.00 - TSRC (Vietnam) Company Limited •Fresh water withdrawal: 7.59 •Consumption of purchased steam: 0.00 •Wastewater recycled: 0.00 •Water usage = Fresh water withdrawal + Consumption of purchased steam = Wastewater recycled: 7.59 •Water discharge: 4.64 •Water consumption = Water usage – Water Discharge: 2.95 - TSRC Specialty Materials LLC •Fresh water withdrawal: 523.13 •Consumption of purchased steam: 138.16 •Wastewater recycled: 0.00 •Water usage = Fresh water withdrawal + Consumption of purchased steam = Wastewater recycled: 661.29 •Water discharge: 559.79 •Water consumption = Water usage - Water Discharge: 101.50 ➢ Others - Polybus •Fresh water withdrawal: 0.03 •Consumption of purchased steam: 0.00 •Wastewater recycled: 0.00 •Water usage = Fresh water withdrawal = Consumption of purchased steam = Wastewater recycled: 0.03 •Water discharge: 0.03 •Water consumption = Water usage – Water Discharge: 0.00		

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No.	Corresponding Section	Page	Subject Matter Information	Reporting Criteria	SASB
			➢ TSRC Group •Fresh water withdrawal: 3,860.71 •Consumption of purchased steam: 880.43 •Wastewater recycled: 809.24 •Water usage = Fresh water withdrawal + Consumption of purchased steam + Wastewater recycled: 5,550.38 •Water discharge: 3,011.66 •Water consumption = Water usage – Water Discharge: 2,538.72 ➢ Note: - All water withdrawal is freshwater supplied by the local water company (< 1,000 mg/L TDS). - Regarding water resource risk: •The water resource risk assessment results in this table are from the World Resource Institute (WRI) Aqueduct county-level data. Based on county- and city-level, the water resource risks at Shen Hua Chemical and TSRC-UBE and Nantong Industries (Jiangsu Province, China), the TSRC Specialty Materials LLC (Louisiana State, the United States) and the TSRC (Vietnam) Company Limited (Pingyang Province in Vietnam) is low to medium risk (10-20%). The holding subsidiary, TSRC (Lux.), located in Luxemburg, mainly engaged in trading, has a moderate to high water resource risk (20-40 %). However, no relevant data could be obtained for Polybus and factories in Taiwan. •Regardless of dry or abundant season, TSRC's Kaohsiung Factory and Gangshan Factory are at high-risk for drought in the past and the future (2015-2039), according to the report published by the National Science and Technology Center for Disaster Reduction - The purchased steam is also used as one of the sources of process water after the purpose of heat exchange. The evaporation of purchased steam is not considered - The data in this table is rounded to two decimal places. - In 2022, the total water withdrawal in areas with high water stress risk (according to local analysis) accounted for 40.38% of the Group's total water withdrawal. The water consumption in areas with high water stress risk for water resources accounted for 44.91% of the Group's total water consumption.		
3	Apperdix _ Waste Management	120	■ 2022 Hazardous Waste Recycling and Treatment Weight and Percentage ➢ Unit: Metric tons - TSRC- Kaohsiung Factory •Total weight of hazardous industrial waste: 136.46 •Treated by recycling: 0.00 •Percentage of hazardous industrial waste treated by recycling: 0% - TSRC Gangshan Factory •Total weight of hazardous industrial waste: 0.00 •Treated by recycling: 0.00 •Percentage of hazardous industrial waste treated by recycling: 0% - Shen Hua Chemical •Total weight of hazardous industrial waste: 472.27 •Treated by recycling: 69.36 •Percentage of hazardous industrial waste treated by recycling: 14.69%	■ Details on Hazardous Waste transfer records by TSRC	SASB Chemicals RT-CH-150a.1. Amount of hazardous waste generated, percentage recycled

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			- Nantong Industries •Total weight of hazardous industrial waste: 475.27 •Treated by recycling: 23.55 •Percentage of hazardous industrial waste treated by recycling: 4.96% - TSRC-UBE •Total weight of hazardous industrial waste: 287.08 •Treated by recycling: 6.5 •Percentage of hazardous industrial waste treated by recycling: 2.26% - Shanghai Industries •Total weight of hazardous industrial waste: 23.00 •Treated by recycling: 22.93 •Percentage of hazardous industrial waste treated by recycling: 99.7% - TSRC (Vietnam) Company Limited •Total weight of hazardous industrial waste: 1.32 •Treated by recycling: 0.00 •Percentage of hazardous industrial waste treated by recycling: 0% - TSRC Specialty Materials LLC •Total weight of hazardous industrial waste: 749.23 •Treated by recycling: 566.26 •Percentage of hazardous industrial waste treated by recycling: 75.58% - TSRC Group •Total weight of hazardous industrial waste: 2,144.63 •Treated by recycling: 688.60 •Percentage of hazardous industrial waste treated by recycling: 32.11% ➢ Note: - This table only includes factories and subsidiaries with manufacturing activities within the reporting boundary. The two trading-based subsidiaries, Polybus and TSRC (Lux.), and the Global Business Headquarter, which are mainly office operations, generate only general domestic waste. - The data is from waste transfer records, which is rounded to the second decimal place. TSRC Specialty Materials LLC does not have transfer records, thus the data was estimated according to production volumes. The 2021 data of TSRC Specialty Materials LLC has been restated as the transfer records was obtained, and the 2022 data will be restated in the next report. Hazardous industrial waste includes waste oil, waste liquid, organic waste sludge, sludge, waste chemicals, containers containing hazardous substances, etc., which are identified according to the regulations announced by the competent authorities: •【Taiwan】Kaohsiung Factory and Gangshan Factory: According to the definition of "Hazardous Industrial waste Recognition Standard" published by Taiwan Environmental Protection Agency. •【China】Shen Hua Chemical, Nantong Industries, TSRC-UBE, and Shanghai Industries: According to the definition of the hazardous waste list published by the government of China. •【Vietnam】TSRC (Vietnam) Company Limited: 08/2022/NĐ-		

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			CP, 02/2022/TT-BTNMT • 【USA】TSRC Specialty Materials LLC: 40 CFR (Code of Federal Regulations) parts 260 through 273, Louisiana Administrative Code, Title 33, Part V		
4	Appendix_ Occupational Health and Safety	139	■ 2022 Occupational Injuries and Illness of TSRC Employees - TSRC Kaohsiung Factory •Total working hours of employees: 993,189 •Number of recordable occupational injury cases among employees: 5 •Number of employees involved in the recordable occupational injury cases: 5 •Total recordable incidence rate (TRIR): 1.01 - TSRC Gangshan Factory •Total working hours of employees: 175,389 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Global Business Headquarter •Total working hours of employees: 153,005 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Shen Hua Chemical •Total working hours of employees: 703,064 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Nantong Industries •Total working hours of employees: 734,325 •Number of recordable occupational injury cases among employees: 1 •Number of employees involved in the recordable occupational injury cases: 1 •Total recordable incidence rate (TRIR): 0.27 - TSRC-UBE •Total working hours of employees: 265,123 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Shanghai Industries •Total working hours of employees: 157,014 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - TSRC (Vietnam) Company Limited	■ Details on performance of occupational health and safety of TSRC employees	SASB Chemicals RT-CH-320a.1. (1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees

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			•Total working hours of employees: 63,745 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - TSRC Specialty Materials LLC •Total working hours of employees: 159,586 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Polybus •Total working hours of employees: 3,852 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - TSRC Lux •Total working hours of employees: 28,872 •Number of recordable occupational injury cases among employees: 0 •Number of employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - TSRC Group •Total working hours of employees: 3,437,164 •Number of recordable occupational injury cases among employees: 6 •Number of employees involved in the recordable occupational injury cases: 6 •Total recordable incidence rate (TRIR): 0.35 ➢ Note: - Employees are defined as full-time and part-time workers who have signed indefinite-term contracts with TSRC. In 2022, TSRC did not employ temporary workers or workers without guaranteed working hours - The Total Recordable Incidence Rate (TRIR) is calculated as "Total number of recordable occupational injuries divided by the total working hours, multiplied by 200,000." The definition of recordable occupational incidence includes death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury or illness diagnosed by a physician or other licensed healthcare professional (even if it does not result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness). - In 2022, there were 5 occupational injuries at TSRC Kaohsiung plant, and 1 at Nantong Industry - In 2022, there were no reports of occupational fatalities, severe occupational injuries, occupational illnesses, occupational disease fatalities, or work-related deaths among employees		

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		131	■ 2022 Occupational Injuries and Illness of TSRC Non-employees - TSRC- Kaohsiung Factory •Total working hours of non-employees: 443,922 •Number of recordable occupational injury cases among non-employees: 3 •Number of non-employees involved in the recordable occupational injury cases: 3 •Total recordable incidence rate (TRIR): 1.35 - TSRC Gangshan Factory •Total working hours of non-employees: 15,486 •Number of recordable occupational injury cases among non-employees: 0 •Number of non-employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Global Business Headquarter •Total working hours of non-employees: 2,304 •Number of recordable occupational injury cases among non-employees: 0 •Number of non-employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Shen Hua Chemical •Total working hours of non-employees: 214,055 •Number of recordable occupational injury cases among non-employees: 1 •Number of non-employees involved in the recordable occupational injury cases: 1 •Total recordable incidence rate (TRIR): 0.93 - Nantong Industries •Total working hours of non-employees: 254,767 •Number of recordable occupational injury cases among non-employees: 0 •Number of non-employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - TSRC-UBE •Total working hours of non-employees: 96,727 •Number of recordable occupational injury cases among non-employees: 0 •Number of non-employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - Shanghai Industries •Total working hours of non-employees: 24,096 •Number of recordable occupational injury cases among non-employees: 0 •Number of non-employees involved in the recordable occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - TSRC (Vietnam) Company Limited •Total working hours of non-employees: 42,500 •Number of recordable occupational injury cases among non-employees: 0 •Number of non-employees involved in the recordable	■ Details on performance of occupational health and safety of TSRC non-employees	

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No.	Corresponding Section	Page	Subject Matter Information	Reporting Criteria	SASB
			occupational injury cases: 0 •Total recordable incidence rate (TRIR): 0 - TSRC Specialty Materials LLC •Total working hours of non-employees: 103,195 •Number of recordable occupational injury cases among non-employees: 1 •Number of non-employees involved in the recordable occupational injury cases: 1 •Total recordable incidence rate (TRIR): 1.94 - Polybus •Total working hours of non-employees: N/A •Number of recordable occupational injury cases among non-employees: N/A •Number of non-employees involved in the recordable occupational injury cases: N/A •Total recordable incidence rate (TRIR): N/A - TSRC Lux •Total working hours of non-employees: N/A •Number of recordable occupational injury cases among non-employees: N/A •Number of non-employees involved in the recordable occupational injury cases: N/A •Total recordable incidence rate (TRIR): N/A - TSRC Group •Total working hours of non-employees: 1,197,052 •Number of recordable occupational injury cases among non-employees: 5 •Number of non-employees involved in the recordable occupational injury cases: 5 •Total recordable incidence rate (TRIR): 0.84 ➢ Note: - Non-employee workers are defined as those whose job content is monitored by TSRC Group alone or jointly with other organizations, but who are not directly employed by TSRC Group. - The Total Recordable Incidence Rate (TRIR) is calculated as "Total number of recordable occupational injuries divided by the total working hours, multiplied by 200,000." The definition of recordable occupational incidence includes: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury or illness diagnosed by a physician or other licensed healthcare professional (even if it does not result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness). - In 2022, there were 3 recordable occupational injuries among non-employee workers at TSRC Kaohsiung plant, 1 at Shen Hua Chemical, and 1 at TSM. However, Polybus and TSRC (Lux) did not employ any non-employee workers, so the data is marked as N/A. - In 2022, there were no reports of occupational fatalities, occupational illnesses, occupational disease fatalities, or work-related deaths among non-employee workers at TSRC Group.		

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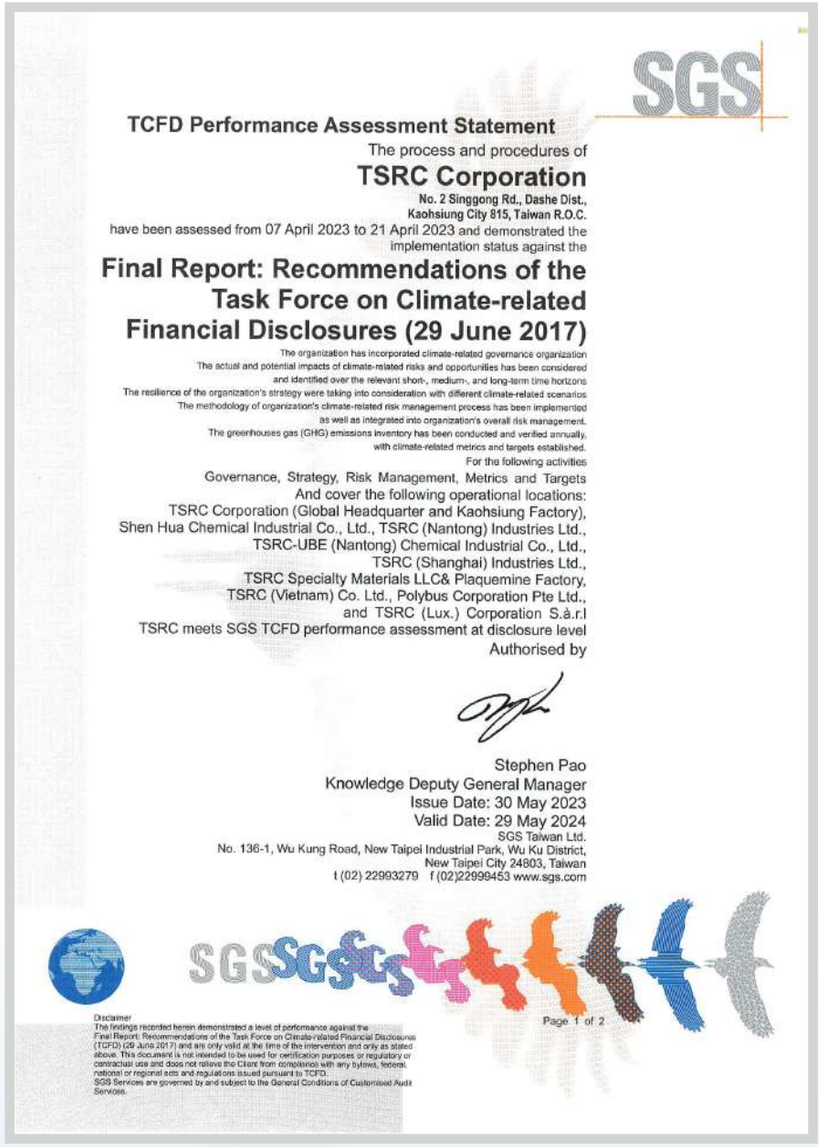

SGS

TCFD Performance Assessment Statement

The process and procedures of

TSRC Corporation

No. 2 Singgong Rd., Dashe Dist., Kaohsiung City 815, Taiwan R.O.C.

have been assessed from 07 April 2023 to 21 April 2023 and demonstrated the implementation status against the

Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures (29 June 2017)

The organization has incorporated climate-related governance organization
The actual and potential impacts of climate-related risks and opportunities has been considered and identified over the relevant short-, medium-, and long-term time horizons
The resilience of the organization's strategy were taking into consideration with different climate-related scenarios
The methodology of organization's climate-related risk management process has been implemented as well as integrated into organization's overall risk management.
The greenhouses gas (GHG) emissions inventory has been conducted and verified annually, with climate-related metrics and targets established.

For the following activities

Governance, Strategy, Risk Management, Metrics and Targets

And cover the following operational locations:

TSRC Corporation (Global Headquarter and Kaohsiung Factory), Shen Hua Chemical Industrial Co., Ltd., TSRC (Nantong) Industries Ltd., TSRC-UBE (Nantong) Chemical Industrial Co., Ltd., TSRC (Shanghai) Industries Ltd., TSRC Specialty Materials LLC& Plaquemine Factory, TSRC (Vietnam) Co. Ltd., Polybus Corporation Pte Ltd., and TSRC (Lux.) Corporation S.à.r.l

TSRC meets SGS TCFD performance assessment at disclosure level

Authorised by

Stephen Pao
Knowledge Deputy General Manager
Issue Date: 30 May 2023
Valid Date: 29 May 2024

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SGS

NATURE AND SCOPE OF THE ASSESSMENT

SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by TSRC Corporation. (hereinafter referred to as TSRC) to conduct an independent performance assessment of the Task Force on Climate-related Financial Disclosures, (hereinafter referred to as TCFD).

The information in the TSRC's TCFD disclosure framework and its presentation are the responsibility of the management of TSRC. SGS has not been involved in the preparation of any of the material included in TSRC's TCFD disclosure framework.

Our responsibility is to express an opinion on the report content within the scope of performance assessment with the intention to inform all TSRC's stakeholders.

The SGS protocols are based upon the Fundamental Principles for Effective Disclosure contained within the TCFD and SGS Management System Manual and Global System procedures.

The performance assessment comprised a combination of pre-assessment research, interviews with relevant employees and superintendents in TSRC's Headquarter; documentation and record review and validation with external bodies and/or stakeholders where relevant.

SCOPE OF PERFORMANCE ASSESSMENT AND DISCLOSURE CRITERIA

The scope of the performance assessment included evaluation of quality, reliability of TCFD disclosure and performance information and evaluation of adherence to the four core elements as well as seven principles for effective disclosures for the information to be disclosed.

PERFORMANCE ASSESSMENT METHODOLOGY

The assurance comprised a combination of pre-assurance research, interviews with relevant employees, documentation and record review and validation with external bodies and/or stakeholders where relevant.

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from TSRC, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assessment team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with SRA, CFP, GHG Verification and GHG Validation Lead Auditors and experience on the TCFD performance assessment service provisions.

ASSESSMENT OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the information demonstrated by TSRC within the TCFD performance assessment evaluated is reasonable, reliable and provides a sufficient and balanced representation of TSRC climate related risks and opportunities management activities and meets SGS TCFD performance assessment at disclosure level.

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TSRC CORPORATION

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