

2023 ESG Performance

TSRC 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.

1. The Performance of Governance in 2023





[Patent Results]

A total of 4 patents in 2023 were granted by a single country, and the TSRC developers has received patent rewards. In 2023, TSRC was granted 20 patents. As of the end of 2023, TSRC has applied for a total of 543 patents worldwide and 449 patents have been granted.



[Local Procurement Ratio of the TSRC Group]

In 2023, the green procurement of TSRC Corporation amounted to NT\$130,199,685. The Group's domestic local procurement accounted for approximately 78.4% of the total procurement in 2023



Note: "Local procurement" in this table refers to procurement in the country of the business location.



2. The Performance of Environment in 2023

	Target	🛨 2023 Achievements		2023	2025	2030
CO ₂ Towards Carbon	Reduce total carbon emissions (Scope 1+2; Base year: 2021)	Total emissions decreased by 8.3% , compared to the base year	0	Total carbon emissions reduction by 5%	Total carbon emissions reduction by 10%	Total carbon emissions reduction by 22.5%
Neutrality Operation	Increase the use of renewable energy	Renewable energy accounted for 6.1% of total electricity consumption	0	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
	Increase wastewater recycling	Wastewater recycling accounted for 25% of total wastewater volume	0	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
Water Resource Optimization	Increase reclaimed water utilization	Reclaimed water accounted for 22% of total water consumption	Ø	Increase reclaimed water utilization to 15% of total water consumption	Increase reclaimed water utilization to 34% of total water consumption	Increase reclaimed water utilization to 40% of total water consumption
	Develop eco-friendly products	Developed a new generation of synthetic rubber for green tires/footwear materials, and reduce environmental carbon emissions about 200,000 mt based on sales volume	S	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)
		Conducted feasibility analysis of green foam products and develop more applications	0	Develop eco-friendly foarning product	Develop eco-friendly foaming products with recyclability	Develop eco-friendly foaming products that use renewable materials and more recyclability
CO ₂		Developed Special styrene block copolymer (SBC) for medical, shoe materials and plastic modification. Products have successfully entered the market for sale	0	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)
Lower Products' Carbon Footprint	Product process optimization	Optimized the manufacturing process of TPE products and reduced the use of vapor, achieving carbon emissions reduction by 3,185 mt in 2023, compared to the previous year	0	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}	Signed MOU with 2 suppliers of renewable raw material	Ø	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 ^{Nute2}	Sustainable products accounted for 3.4% of total sales Kaohsiung Factory has obtained ISCC Plus certificate The Group has completed the carbon footprint verification (ISO14067) for 19 main products	0	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

[GHG Emissions]

In 2023, TSRC's total Scope 1 and 2 (regional) GHG emissions were 514,168.48 metric tons of carbon dioxide equivalent, a decrease of 8.3% from the 2021 baseline. TSRC did not use any carbon offset measures in 2023. The main reduction is due to the reduction of the power coefficient of non-renewable energy sources purchased in Scope 2 and the reduction of purchased steam by recovering steam from the plants' waste gas. Kaohsiung Factory, Shen Hua Chemical and Nantong Industries achieved the most significant results. In 2023, TSRC's Scope 1+2 carbon emission intensity per unit product decreased slightly to 0.97 (metric tons of carbon dioxide equivalent per metric ton of product) compared to the base year of 2021.





[Energy Management]

TSRC Group's total energy consumption in 2023 was 5,042,279.98 gigajoules (GJ), a decrease of 1.93% compared to 2022. In 2023, TSRC's purchased steam decreased by 5.99% compared to 2022, purchased non-renewable electricity decreased by 6.86% compared to 2022, and the use of renewable energy increased, resulting in an energy intensity per metric ton of 9.50 GJ per metric ton of product, a decrease of 0.21% compared to the previous year.







[Water Resource Management]

TSRC' s total water usage in 2023 was 5,127.72 thousand cubic meters, a decrease of 7.61% compared to 2022. The water usage per unit product was 9.66 metric tons per metric ton of production, a decrease of 6.04% compared to 2022, and continued to decline for the fourth consecutive year. The improvement in TSRC' s water consumption data in 2023 was mainly due to the optimization of wastewater recycling measures promoted by Nantong Industries and TSRC-UBE to increase the wastewater recycling rate so as to reduce the reliance on fresh water.



Note: Water usage = Tap water withdrawal + Groundwater withdrawal + Purchased steam + Wastewater recycled + Purchased reclaimed water.

[Waste Management]

In 2023, the total weight of TSRC' s general industrial waste (including non-recyclable, reusable, and recyclable) was 3,602.57 metric tons. Although the amount of scrap steel produced by Nantong Industries increased due to the replacement of old equipment, and the amount of waste produced by Shanghai Industries was higher than that of 2022, the total weight only increased by 0.95% compared to 2022. In terms of hazardous industrial waste, the total weight of hazardous industrial waste (including non-recyclable and recyclable) in 2023 was 2,802.79 metric tons, an increase of 18.75% Note compared to 2022, which was mainly due to the increase in sludge caused by the dredging of the accident pool and the increase in the dosage of polymerized alumina chloride (PAC) in the air flotation tank of Nantong Industries. Shanghai Industries and TSRC (Vietnam) Co., Ltd.' s hand an increase in the weight of hazardous waste due to increased production.





[Environmental Investment & Capex]

In 2023, TSRC spent NT\$239,102,616 on environment-related projects such as energy-saving and carbon reduction, air pollution prevention, waste management, and water resources management, representing an increase of 71.39% from 2022. The largest increase (533%) was for water resource management projects, followed by waste reduction related expenditures (161%).

TSRC' s environmental performance in environmental management is as follows:

- Energy Conservation and Carbon Reduction :
 - 1. Optimizing Process Operations: Adjusted the operation of the raw material storage cooling system to reduce unnecessary energy consumption, and optimized the manufacturing process to improve energy efficiency, total electricity savings of 243,000 kWh (875 GJ), steam savings of 5,738 metric tons (17,020 GJ), and annual emissions reduction of 1,987 metric tons of CO₂ equivalent.
 - Optimizing Utility Systems: For old equipment and lighting systems, TSRC replaced old equipment with new energy-saving equipment. Total electricity savings of 361,936 kWh (1,303 GJ) and annual emissions reduction of 350 metric tons of CO₂ equivalent.
 - 3. Investing in High-Efficiency Equipment: TSRC bought the new thermal oxidizer (TO) with heat recovery and replaced dry-bed coolers. Total electricity savings of 36,406 kWh (131 GJ), total natural gas savings of 176,737 M³, steam consumption reduced by 6 metric tons (18 GJ), and annual emission reduction of 308 metric tons of CO₂ equivalent.
 - 4. Using Renewable Energy: subsidiary Nantong Industries signed a contract with power suppliers to purchase green power and green power certificates, and started using 10 million kWh of renewable energy and purchasing 6 million kWh of green power certificates in 2023. TSRC completed the installation of solar power generation facilities at its Kaohsiung Dashe



Factory site at the end of 2023 and began to generate electricity, and achieved the target of 6.1% of total electricity consumption in 2023.

• Air Pollution Prevention:

TSRC will strengthen the management of volatile organic compounds (VOCs) by equipment upgrade, purchase of new equipment, process improvement and regular inspection to reduce VOCs emissions. The VOCs emissions in 2023 decreased by 7% compared to 2022.

• Waste Management:

- 1. Waste Reduction at Source: By optimizing the process control, 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. A total of 53.517 tons waste rubber and 3.5 tons waste activated carbon were reduced in 2023
- 2. Waste Recycling (Off Site): TSRC actively cooperates with waste disposal companies to convert the waste into resources. A total of A total of 53.517 tons waste rubber and 12 tons waste oil were recycled in 2023.

• Water Resource Management:

TSRC has strengthened water recycling measures and increased the circulation of water resources in factories in recent years. In 2023, the overall wastewater recycling rate was 25%, and the reclaimed water usage rate of 22%.

Unit: NT\$	2021	2022	2023	
Energy conservation and GHG reduction	61,124,785	65,585,801	82,634,999	
Reduction of air pollution	38,273,072	57,672,813	87,427,700	
Waste reduction	3,315,279	9,096,124	23,762,820	
Enhancement of water management	4,722,282	7,154,179	45,277,097	
Total	107,435,418	139,508,917	239,102,616	

7 TSRC Group Capital Expenditures on Environment-related Projects



3 The Performance of Society in 2023

	Target	★ 2023 Achievements		2023	2025	2030
	Enhance organizational ESG development and employee competency	The number of cultivated employees in 2023 for program reached 35% and it accounted for 47% of targeted employees cumulatively	0	30% of employees (cumulative) undergone multiple competency training	60% of employees (cumulative) undergone multiple competency training	80% of employees (cumulative) undergone multiple competency training
∱ .₩		Completed ESG fundamental training program for global employees	0	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
Strengthen Organization's Sustainability Capability	Sustainable cooperative program with business partners or outside institutions	Participated in the 2023 Chemistry Annual Conference and conducted exchange activities with college students Participated in international rubber exhibitions and exchange activities Set up factory visits for students participating in the petrochemical special course, which was a collaboration between TSRC and local high schools • 1,059 participants cumulatively	0	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
	Enhance global workplace safety in the global operating environment	The Total Recordable Incident Rate (TRIR) was 0.34	0	TRIR ≦ 0.36	TRIR < 0.3	TRIR < 0.3 and achieve one or more years of zero recordable injuries
Improve Health, Safety & Wellbeing of Employees	Strengthen employee engagement	The employee engagement survey is conducted every three years. 2023 use 2022's result, and the approval rate at 74% The employee Net Promoter Score in 2023 increased by 5.6 points, compared to 2022	0	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	Organized physical and mental health activities or lectures, with a total of 2,606 cumulative participants since 2022	0	 > 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
M	Support environmental protection and social care programs	874 people participated in beach cleaning, social welfare activities, social care, or environmental protection activities	0	> 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
Enhance Social Engagement	Promote science education programs	Organized scientific activities, with a total of 578 participants	0	> 150 participants (cumulative) for science education activities	> 300 participants (cumulative) for science education activities	> 1,000 participants (cumulative) for science education activities

[Employee Training Hours]

In 2023, the industry in which TSRC operates faced significant economic challenges. In response to the rapid changes in the market and the environment, TSRC actively invested in employee education and training resources, and the total hours of employee training increased by 2.92% compared to last year.





[Employee Total Recordable Incident Rate]

TSRC adopts the Total Recordable Injury Rate (TRIR) as a management indicator to monitor global operational safety. In 2023, six occupational injuries occurred among TSRC employees, including slip and fall fracture, coil folder laceration and fracture, finger splints, and slight burns on skin in contact with chemicals. The TRIR of all TSRC employees was 0.34, which had been decreasing for three consecutive years and reached the management target for 2023. (≤ 0.36).



[Employee Remuneration]

Employee compensation and benefits of the TSRC Group reached NT\$2,412,279,000 in 2023, up 2.5% compared to 2022. Average compensation and benefits expenses significantly increased to NT\$1,460,217, slightly higher than 2022. TSRC continues to provide competitive compensation and benefits associated with the annual earning to attract and retain outstanding talent for innovation.

Year	Number of employees	Number of non-managerial staff	Average salary of non- managerial staff	Median salary of non- managerial staff	Salary and benefits expenses	Average salary and benefits expenses				
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				
2023	1,652	1,618	1,060,014	789,924	2,412,279,000	1,460,217				

Salary and Benefits (Unit: NT\$)