

2021

Taiwan Steel Union

Sustainability  
Report

TSU ▶

A glass globe is the central focus, resting on a bed of green grass. The globe's surface is highly reflective, mirroring the surrounding green foliage and leaves. The background is a soft, out-of-focus green, creating a natural and serene atmosphere. The globe is positioned in the lower half of the frame, with a diagonal white line cutting across the image from the top left to the bottom right.

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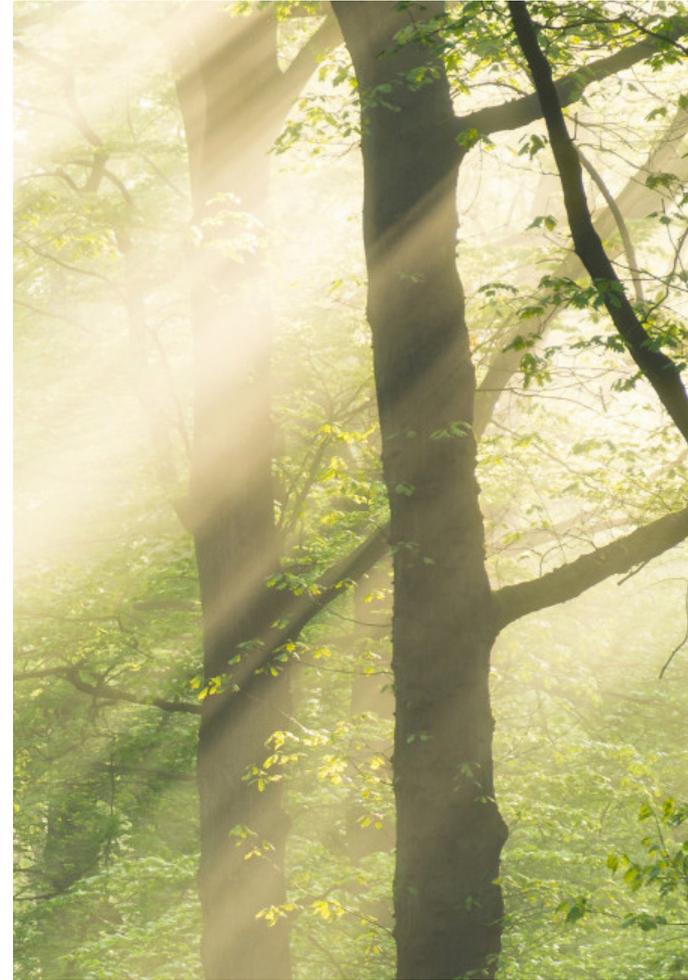
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# About the Sustainability Report



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## To All Readers

This report is prepared according to the core option of Global Reporting Initiative (GRI). The additional guidelines and standards this report adheres to are the United Nations' Sustainable Development Goals (SDGs), Task Force on Climate-Related Financial Disclosures (TCFD), report preparation standards of the Sustainability Accounting Standards Board (SASB) and ISO 26000 Social Responsibility. To ensure the disclosure of reliable information, this report has passed the BSI Taiwan assurance and the AA1000 Assurance Standard (AA1000AS v3) Type 1 with a Moderate level of assurance.

## Enhancing the sustainability performance and transparent disclosure of the industry's circular economy

To fulfill corporate social responsibility and meet the society's expectation, Taiwan Steel Union Co., Ltd. ("Taiwan Steel Union") enters on the enhancement of the industry's circular economy and sustainability performance in this report. The report is structured with a focus on stakeholder engagements and identification and concern of issues of materiality, in order to disclose sustainability performance in relation to Taiwan Steel Union.

## Scope of Reporting

The reporting period covers from January 1, 2021 to December 31, 2021. Corporate sustainability management and performance of Taiwan Steel Union and its subsidiary Taiwan Steel Resource is the primary scope of information in this report. Financial data is based on audited and published financial statements. Some statistics are from annual reports and public information on government websites and relevant sites. The presentation is made with a generally used language and descriptions of values. Any exception will be specified throughout the report. This is the fourth issue of this report. The report is issued once a year. The prior issue was in June 2021. The next issue is scheduled for June 2023.

## Report responsible unit and contact method

Responsible unit: Taiwan Steel Union Sustainability Development Committee  
Please contact us for any opinion or feedback.  
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## Report Guide

To facilitate rapid and accurate reading, this report provides the following:

- ✓ Links on Table of Contents and Index for each chapter
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# Message from Management



Despite the challenges and uncertainty in 2021, the performance of Environment, Society and Governance (ESG) of Taiwan Steel Union continues to improve progressively, thereby establishing stable foundation for future sustainable development.

## Publicly Recognized ESG performance

In 2021, Taiwan Steel Union received the honor of TCSA corporate Sustainability Award -Golden Award for Report, and also received the Circular Economy Leadership Award for third consecutively year, as well as the Sustainability Comprehensive Performance Excellence Award. In addition, for the contribution in circular economy, Taiwan Steel Union also received the highest honor of Two-Star Class of Resource Recycling Outstanding Enterprise selected by the Environmental Protection Administration in 2021, demonstrating the public recognition on the sustainability performance and award of Taiwan Steel Union in terms of its role and position in circular economy.

Taiwan Steel Union continues to promote ESG management system and performance, and continues to maintain the 8th term of corporate governance evaluation score at 21%-35%, demonstrating its active operation in ESG performance and its commitment.

## Resource sustainability product and service carbon footprint and carbon label accreditation

In 2021, Taiwan Steel Union obtained ISO 14067: 2018 electric furnace steel making EAFD and contaminated soil treatment service (heat treatment) carbon footprint" and "carbon label" dual certifications. In 2021, Taiwan Steel Union's crude zinc oxide products also obtained "ISO 14067: 2018 product carbon footprint" accreditation. The two certificates represent honors received by first class domestic business operator in circular economy.

## Promotion of Zero Emission

The 2030 sustainable development goal drive us to move forward, and in the next decade, Taiwan Steel Union will progressively promote the reduction of the greenhouse gas emission by half while maintaining 100% of waste resource circular and reuse. In addition, we will also design the most sustainable alternative raw materials and fuel solutions. The main greenhouse gas emission source of Taiwan Steel Union is the use of the raw material of coke. In 2021, we have improved the coke use efficiency and further included the solid recovered fuel (SRF) as the alternative fuel for coke, thereby effectively reducing the use of coke, and further reducing the greenhouse gas emission intensity of waste treatment per ton to 0.545 (ton CO<sub>2</sub>e/waste), achieving the lowest emission and best performance over the past years. Furthermore, the greenhouse gas emission of Scope 1 and Scope 2 in 2021 has indicated an absolute reduction of 18,000 tons CO<sub>2</sub>e in comparison to 2020, with an annual reduction ratio reaching 18%, demonstrating the Union's outstanding performance in emission reduction. Our goal is to achieve the reduction of greenhouse gas emission by half in 2030, and achieve the goal of zero emission in 2050, in order to comply with the international carbon reduction trend and domestic policy goals.

Taiwan Steel Union follows the framework advocated by the Task Force on Climate-Related Financial Disclosures (TCFD) in the construction of climate change management and relevant information disclosure, and has established a comprehensive risk assessment management system along with compliance with the SASB Sustainability Accounting Standards Board - Indicators for the Metals and Mining Industry, for linking to the sustainability report.

## ESG Committee

Taiwan Steel Union has established "Sustainable Development Committee" under the Board of Directors, to serve as the highest level of ESG decision-making center, and to systematically establish the Union's long-term ESG strategy and direction. The independent director, Tien-Chin Chang, acts the chairperson of the committee and collaborates with senior managers of the Union to integrate the United Nations (UN) sustainable development goals with the core advantages of the Union, and the focus includes six main aspects of Corporate Governance, Green Manufacturing Process, Circular Economy, Value Chain Management, Happy Workplace and Social Inclusion.

# Message from Management

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## Social Value Creation

Taiwan Steel Union has continuously in the removal and treatment of 962 tons of illegal EAFD disposal accumulated at the high bank of Dadu River Changhua County for 30 years without compensation. In 2021, the Union has completed the removal and reuse of such dust for a total of 26,260 tons in 2021, for the return of a clean ecology to our environment.

The Company is committed to the provision of local community care. In 2021, during the pandemic outbreak period, Taiwan Steel Union made donation and contributed its effort to the local government for relevant epidemic control measures and aids. In addition, the Union also assisted the construction of the public parking lot of Keliao Community Daitien Temple, in order to overcome the problem of chaotic local parking and traffic related issues in the neighborhood. Furthermore, as drowning accidents continued to occur at the coastal area in recent years, Taiwan Steel Union also donated water scooters to the Shingang Volunteer Firemen Squad in order to contribute effort in the protection of the safety of local residents and visitors of Shingang Village. In addition, Taiwan Steel Union is also active in public welfare and continues to care local residents and to assist neighborhood communities to organize various types of activities. For instance, the Union provides

donation in the student buses for neighborhood communities, sponsors sports events of the basketball team of Shingang Junior High School, organizes Double Ninth Festival and Lantern Festival, participates in the adoption of street lamps of Xianxi Township, and the adoption and maintenance of the windbreak forest of the industrial part, etc. annually. In 2021, the total social expense was NT\$28,790 thousand, accounted for 5.1% of the net income after tax. The ratio of the investment amount in social aspect over the net income after tax continues to increase, demonstrating Taiwan Steel Union's continuous effort in the return of society and commitment in fulfillment of corporate social responsibility.

Taiwan Steel Union transports all the hazardous waste and has in place a thorough transportation management system, covering vehicle management, personnel training and relevant laws and regulations. In addition to complete compliance with applicable laws and regulations on collection and transportation, there has been no death, injury or major traffic accident over the 117.07 million ton-kilometers, equivalent to driving around the island for 130,000 times, transported during the past nearly four years. We have attained the United Nations' sustainability development goal ahead of schedule.

## Happy Workplace

Taiwan Steel Union has established a comprehensive system in human resource management, talent attraction and retention. A systematic charter is in place for employees' remuneration. In case of profits for the year, no less 1% is allocated as employees' remuneration, in order to retain high-caliber talents. In 2021, both the total employee salary and welfare amount and welfare per capita increased by 13% from last year. In addition, to implement legal compliance and to strength employee care, Taiwan Steel Union established the entrance protection system during the second half of 2021, in order to assist the labor health protection of health management, occupational disease prevention and promotion of health. Furthermore, we are also committed to the establishment of a safe working environment and creation of a happy workplace. Accordingly, zero major occupational accident occurred throughout the whole year of 2021.



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## Environmental highlight

## Social Aspect Highlights

## Economic Aspect Highlights

- ✓ In 2021, Taiwan Steel Union obtained ISO 14067:2018 **electric furnace steel making EAFD and contaminated soil treatment service (heat treatment) carbon footprint** and "carbon label" **dual certifications**.
  - ✓ In 2021, Taiwan Steel Union obtained ISO 14067:2018 **crude zinc oxide carbon footprint** certification.
  - ✓ In 2021, Taiwan Steel Union received the honor of TCSA Corporate **Sustainability Award-Golden Award for Report**.
  - ✓ **Received the honor of Circular Economy Leadership Award** for the third consecutive year, and received the honor of **Sustainability Comprehensive Performance Excellence Award (highest honor)** for the first time.
  - ✓ In 2021, received the **Two-Star Class Circular Economy Outstanding Enterprise Award** (highest honor) presented by the Environmental Protection Administration.
  - ✓ Taiwan Steel Union establishes "**Sustainable Development Committee**" under the Board of Directors to serve as the highest level of ESG decision-making center and to systematically establish the long-term ESG strategy and direction of the Union.
  - ✓ Taiwan Steel Union plans to reduce the greenhouse gas emission **by half** in 2030, and **achieves the goal of zero emission** in 2050.
  - ✓ In 2021, the greenhouse gas emission absolute reduction reached **33%**, demonstrating an outstanding performance from the base year of 2012.
  - ✓ Improved the coke use efficiency and included solid recovered fuel as an alternative fuel for coke, thereby effectively reducing the use of coke, and the emission intensity of waste treatment per ton was reduced to **0.545**, the best performance over the past years.
  - ✓ In 2021, the water recovery rate reached **43%**, a role model in water saving, and reaching the highest recovery rate over the past years.
  - ✓ In 2021, the waste reuse rate reached **100%**.
  - ✓ Implemented complete and real-time environmental monitoring, transparent information disclosure. Whole-year inspection complied with laws and regulations and environmental evaluation commitment.
  - ✓ For 2018~2021, the total transportation distance reached **117.07** million ton-kilometers, equivalent to driving around the island 130,000 times, with the number of injuries and death of **0**, and there was no major occupational accident throughout the whole year of 2021.
  - ✓ In 2021, the crude zinc oxide product carbon footprint emission reduction was **47,196** tons CO<sub>2</sub>e.
- 
- ✓ The 8th corporate governance evaluation score maintained at **21%-35%**, demonstrating active operation in ESG performance.
  - ✓ Assisted the construction of public parking lot of Keliao Daitien Temple, in order to overcome the problem of the problem of chaotic local parking and traffic related issues in the neighborhood.
  - ✓ Implemented entrance protection system during the second half of 2021, in order to promote labor health protection.
  - ✓ Worked with the subsidiary, Taiwan Steel Resource, to clean up the EAFD and slag illegally dumped on high bank of the Dadu River on a pro bono basis.
  - ✓ In 2021, sponsored NT\$**500,000** to assist local government in epidemic control measures and aids, donated water scooters to Shingang Volunteer Firemen Squad, sponsored student buses for neighborhood communities and sports events of basketball team of Shingang Junior High School.
  - ✓ In 2021, organized Double Nine Festival and Lantern Festival activities, participated in the adoption of street lamps of Xianxi Township, adoption and maintenance of windbreak forest of the industrial park and adoption of windbreak forest of local industrial park.
  - ✓ In 2021, there were a total of **127** suppliers and contractors, and the Class A evaluation ratio reached **100%**.
  - ✓ In 2021, the total social expense was NT\$**28,790** thousand, accounted for **5.1%** of the net income after tax.
- 
- ✓ Implemented TCFD and complied with SASB standards, in order to establish climate strategy and risk financial information.
  - ✓ Deployment of climate change and water risk management policy and a comprehensive risk and opportunity management mechanism
  - ✓ Dividend payout ratio of **79%**.
  - ✓ Remuneration Committee and Audit Committee members comprised of **100%** independent directors
  - ✓ **100%** of slag reuse to achieve the most optimal circular economy model.

# Taiwan Steel Union's CSR Policy

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**Taiwan Steel Union's vision:** to become the role model company in the circular economy of Taiwan  
**Core value:** contribution to the sustainability of blue skies, green lands, lush mountains and clean waters



Sustainability development strategy and principle:



**Economic  
Realization of a  
circular economy**



**Environmental  
Development  
of a sustainable  
environment**



**Social  
Protection of  
social interest**

## Implementation Guidelines



### Economic

Completion of core competences in the circular economy, optimization of products and treat services, development of Taiwan Steel Union as a 100% circular economy company, creation of the best economic performance for shareholders and investors, and enhancement of sustainability performance for stakeholders



### Environmental

Development of environmental sustainability management, 100% compliance with laws and regulations, drive for environmental-friendly and green manufacturing process and operating ecosystem efficiency, collaboration with suppliers and contractors in the creation of environmental sustainability performance, cooperation with stakeholders to respond to climate change challenges



### Social

Maintenance of a happy workplace and protection of occupational safety and health for Taiwan Steel Union and its suppliers, human resources management to attract and retain talent, human right policy establishment and push, concern of disadvantaged groups in the community, care for social interest and creation of social benefits

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SDGs	SDGs Goals	Taiwan Steel Union's Sustainability Goals for 2030	Taiwan Steel Union's Contributions in 2021	The Report
	13.2 Inclusion of climate change measures into national/corporate policy, strategy and plan	TCFD introduction and implementation	Continuous implementation of climate change risk identification	2.4 Climate change strategy and implementation
	3.6 Halving of the number of injuries and deaths due to traffic accidents around the world	<b>Zero</b> injury or death due to transportation safety	Taiwan Steel Union has completed a total of <b>117.07</b> million ton-kilometers via vehicle transportation over the past nearly four years and reported <b>zero</b> injury or death due to traffic accidents.	4.1 Transportation safety laws and regulations
	12.5 Prevention, reduction, recycle and reuse to significantly reduce waste generations	100% of reuse rate of hazardous industrial waste Renewable energy construction completion and in-service operation	<ul style="list-style-type: none"> <li>✓ Obtaining of Resource sustainability product carbon footprint and carbon label.</li> <li>✓ Completion of EAFD and slag accumulated at high bank of Dadu River without compensation.</li> <li>✓ Slag circular economy project</li> <li>✓ Inclusion of waste incineration dust reuse to replace lime/slaked lime reaching more than <b>30%</b>.</li> <li>✓ Addition of solid recovered fuel (SRF) Reuse for auxiliary fuel and replacement of a portion of crude coke reaching more than <b>20%</b>.</li> </ul>	Chapter 3 Circular Economy
	7.a. Enhancement of energy infrastructure and investment in clean energy technology	Annual improvement of energy efficiency by <b>1%</b> , and maximum of <b>10%</b>	Expected plan for deployment of a solar generation system occupying <b>7,686</b> square meters	5.3 Operational ecosystem efficiency
	6.4 Significant improvement of water consumption efficiency for different industries, to ensure the sustainability of fresh water supply and recycling.	Water recycle and reuse rate of <b>45%</b> Water consumption per unit (ton/ton waste treated) of <b>0.38</b>	<ul style="list-style-type: none"> <li>✓ Water recycle and reuse rate of <b>43%</b></li> <li>✓ Water consumption per unit of <b>0.389</b></li> </ul>	5.4 Water risk management
	8.8 Protection of labor interest, promotion of workplace safety	No major occupational disasters throughout the year	No major occupational disaster in 2021	6.4 Occupational safety and health
	4.7 Assurance that all students acquire necessary knowledge and skills to contribute to sustainability	Implementation of the circular economy and environmental education	In 2021, a total of <b>83</b> visitors came to our facilities for actual experience in circular economy.	7.3 Circular economy education



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# Short, Mid and Long Term ESG Targets

Main Topics	Key Performance Indicators	2021 Actual performance	2022 Short-term target	2025 Mid-term target	2030 Long-term target
Climate strategy	Implementation of TCFD and SASB	Completion of climate change risk identification and indicator implementation	Implementation in accordance with TCFD SASB continuous disclosure		
Materials	100% recycle and reuse	Completion of the slag circular project	100% materials circular recycled		
Energy	Deployment of renewable energy	Plan for deployment of a solar generation system occupying 7,686 square meters	<ul style="list-style-type: none"> <li>✔ In 2022, the outsourcing of the contract for 7,686 square meters of the system will be completed, and the installation and integration with the internal network will be completed by the end of 2022 for use.</li> <li>✔ In 2022, ISO 50001 will be implemented, and the smart energy management monitoring system construction will be completed before 2024.</li> </ul>		
Water and effluents	Water recycle and reuse rate (%)	43%	43%	44%	45%
	Water consumption per unit (ton/ton waste treated)	0.389	0.38	0.38	0.38
GHG emissions	National emissions target in phases (base year 2012)	Reduction by 33%	Reduction by 34%	Reduction by 35%	Reduction by 50%
	Scope 1 emission intensity (ton/ton waste treated)	0.481	0.56	0.56	0.53
	Scope 2 emission intensity (ton/ton waste treated)	0.064	0.064	0.064	0.062
	Annual electricity saving rate for 2015 to 2024	1%	1%	1%	--



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## Short, Mid and Long Term ESG Targets



Main Topics	Key Performance Indicators	2021 Actual performance	2022 Short-term target	2025 Mid-term target	2030 Long-term target
Waste	Reuse rate of hazardous industrial waste	100%		100%	
	Reuse rate of general industrial waste	99.99%		99.98%	
Environmental laws and regulations	100% compliance with laws and regulations	100% compliance with laws and regulations		100% compliance with laws and regulations	
Transportation safety and regulations	Zero injury or death due to transportation safety	0 injury or death		0 injury or death	
Occupational Health and Safety	Zero occupational hazards throughout the year	0 occupational hazards		0 major occupational hazards	
Training and education	Training and education curricula	Achievement rate 95.7%		Annual achievement rate >90%	
Employment	Departure rate	6%		Maintain below 10%	
Labor/Management Relations	Minimum notice periods regarding operational changes	According to laws and regulations		According to laws and regulations	
Company's code of conduct	Sustainability behavior guidelines coverage ratio 100%	100%		100%	
Economic performance	Dividend payout ratio	79%		Above 70%	
Circular Economy	Treatment of EAFD in Xinfeng Township and removal of illegal disposal of EAFD and slag at Dadu River on a pro bono basis	Total: 962 tons (treatment completed)		--	
	Taiwan Steel Union's slag use rate	100% (116,393 tons)		100% reused	
	Recycling of waste containing zinc (tons)	All air pollution related matters comply with the environmental evaluation commitment and regulatory requirements, and are disclosed in a transparent manner.	5,000	10,000	20,000
	Recycling of alternative auxiliary materials and resources waste (tons)		8,000	15,000	30,000
	Recycling of alternative fuels and resources waste/products (tons)		2,000	5,000	9,000

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# Chapter 1

Management of material sustainability topics is a continued cycle of improvements. This is achieved in four steps: identification of sustainability topics; stakeholder identification, assessment and engagements, sustainability impact assessment of concerned topics; main topics confirmation and disclosure management. Topics and disclosures are reviewed each year.

## Sustainability Management



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## 1.1 Identification of sustainability topics



A search of sustainability related topics domestic and abroad by including United Nations' Sustainable Development Goals (SDGs), Dow Jones Sustainability Indices (DJSI), ISO 26000 Guidance on Social Responsibility, Global Reporting Initiative (GRI) Standards, Sustainability Accounting Standards Committee (SASB) Industry Disclosure Standards, GRI industry sustainability topics, stakeholder communication and feedback, issues and laws stipulated by financial regulators, ESG awards in Taiwan and overseas



After the in-depth review of the sustainability issues domestic and overseas, the Sustainable Development Committee confirmed 30 ESG and sustainability issues that may be relevant to Taiwan Steel Union in economic, social, environmental and special topics.



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## 1.2 Stakeholder assessments and engagements

### Stakeholder identification and assessment

According to the five dimensions scoped by the AA 1000 Stakeholder Engagement Standard 2015, Sustainable Development Committee identified, discussed and assessed stakeholders, to confirm the importance of stakeholders based on dependency, responsibility, tension, influence and diverse perspectives. 11 groups of stakeholders have been identified, including employees, shareholders and customers.



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## Sustainability impact assessments and questionnaire surveys

According to the five-part materiality test prescribed in Account Ability Redefining Materiality The Sustainable Development Committee conducted a sustainability impact analysis on a total of 30 relevant topics. A questionnaire was designed for the survey. 113 effective questionnaires were recovered. Stakeholder weights were factored in to calculate the actions and attentions from stakeholders.

**Feedback from stakeholders** Most of the feedback from stakeholders were positive as summarized in the following:

  
**Customers**  
Expand market planning, manpower allocation, business philosophy and direction.

  
**Government agencies**  
To implement circular economy and to fulfill corporate social responsibility, it is recommended that washed fly ash reuse institution can be established in the eco-friendly technology park in Taoyuan City.

  
**Employees**  
Work collaboration, communication and coordination among units can be further improved, in order to continuously implement circular economy and environmental regulations and laws.

- ✓ It is recommended that your company can enhance the promotion to the general public, in order to explain the background and purpose of the Union establishment, and most importantly, its key role in the circular economy.
- ✓ Actively develop business and expand profit, increase visibility of the Union, and return profit to shareholders.
- ✓ Excel for perfection, continuous contribution of efforts, and pursuit of excellence.

  
**Investors Shareholders**

  
**Contractors**  
Taiwan Steel Union's emphasis and implementation on environmental protection issues have been recognized, and such issues are considered for the same priority as the production performance and environmental safety availability. Sustainable operation requires the support of stable environmental safety, and business operators in all industries are encouraged to value environmental safety issues significantly and jointly! Screen and select contractors qualifying the ISO 9001 furnace construction engineering certification in order to provide comprehensive and professional services to customers. Sound system, excellent employee welfare.

  
**Suppliers**  
Under the condition where labor shortage occurs in the greater environment, technical talent skill and experience inheritance is preferred to be arranged in priority.

Taiwan Steel Union active implements circular economy and resource sustainable use in the Taiwan electric arc furnace industry. To cope with the carbon reduction issue associated with the global climate change, the Union implements rigorous product quality control while focusing on the development of low-carbon manufacturing processes and products. Recommendation: Low-carbon product development is planned, in order to seize the new business opportunities related to the zero emission industry. With regard to the circular economy, Taiwan Steel Union's subsidiary Taiwan Steel Resource Co., Ltd. is able to bear most of the responsibilities. Accordingly, it is necessary to value and support the development of such subsidiary. Taiwan Steel Union has played an important role in the circular economy. In view of the goal of zero carbon emission in 2050, the Union aims to focus the research and development investment on such goal.

  
**Academia**

  
**Media**  
Media contact is expected to be improved in order to enhance the corporate marketing.

Your company is expected to actively face the climate change issue and to achieve diverse development and reuse in greater scale.

  
**Industry**

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Types/implications	Concerned issues	Response status	Communication frequency and platforms	Response chapter
 <p><b>Employees</b></p> <p>Taiwan Steel Union's most important asset and cornerstone for sustainability</p>	<p>Employment Occupational Health and Safety Labor/Management Relations Training and education Talent attraction and retention</p>	<ul style="list-style-type: none"> <li>✓ Charters and systems in place for employees</li> <li>✓ Continue to maintain ISO 45001, and provide employee health examination and consultation at free of charge.</li> <li>✓ Employer-employee meetings once every three months or on an ad-hoc basis, with representatives from the employer and the employees to negotiate labor relations</li> <li>✓ Implement tests for all internal trainings to ensure that personnel understand the content of the training.</li> <li>✓ Share the Union's production performance and year-end profit status with employees.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Annual interviews with supervisors</li> <li>✓ Employer-employee meeting once every three months or as required</li> <li>✓ Employees' Welfare Committee meetings from time to time</li> <li>✓ Annual and ad-hoc employee training plans</li> <li>✓ Set up irregular employee mailbox</li> <li>✓ Weekly managers' meetings</li> </ul>	<p>6. Happy Workplace p.78~95</p>
 <p><b>Investors Shareholders</b></p> <p>Supporters of Taiwan Steel Union's sustainability</p>	<p>Economic performance Company's code of conduct Materials Corporate governance Circular Economy</p>	<ul style="list-style-type: none"> <li>✓ Disclosure of the Union's financial performance via Stock Exchange and annual reports, to provide examination of operations and analysis of data.</li> <li>✓ Formulation of "Code of Conduct", "Principles of Ethical Business" and "Standards of Employees' Behaviors", to our colleagues to follow</li> <li>✓ Annual assessment of delivery reliability and quality of suppliers.</li> <li>✓ Formulation of comprehensive regulations in corporate governance and disclosure of relevant management guidelines in Stock Exchange and the official website</li> <li>✓ Promote recycling of waste to increase the Union's profit.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Annual shareholders' meetings</li> <li>✓ Analyst days each year</li> <li>✓ Company website</li> <li>✓ Quarterly financial reports</li> <li>✓ Spokesperson and Deputy Spokesperson, as required</li> <li>✓ Inquiries from shareholders via phone calls or emails, as required</li> </ul>	<p>2.1 Corporate governance overview p.28~32</p> <p>3.1 Circular economy drivers p.44~45</p>

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 <b>Customers</b> Taiwan Steel Union's most important source of economic performance	Waste Company's code of conduct Economic performance Environmental laws and regulations Transportation safety and regulations	<ul style="list-style-type: none"> <li>✓ All waste disposal contractors are qualified operators.</li> <li>✓ Formulation of "Code of Conduct", "Principles of Ethical Business" and "Standards of Employees' Behaviors", to our colleagues to follow</li> <li>✓ Disclosure of the Union's financial performance via Stock Exchange and annual reports, to provide examination of operations and analysis of data.</li> <li>✓ Cooperation with competent authorities in onsite inspections or improvement of audited deficiencies</li> <li>✓ Signing of transportation contracts. Adherence to the Regulations Governing Contractors' Environmental Safety and Health Management</li> <li>✓ Training and acquisition of qualifications by collection drivers regarding road transportation of hazardous items</li> <li>✓ Formation of emergency plans in-vehicle during transportation</li> </ul>	<ul style="list-style-type: none"> <li>✓ Annual surveys on customers' satisfaction</li> <li>✓ Customer visits from time to time</li> <li>✓ Telephone calls from time to time</li> <li>✓ Emails from time to time</li> </ul>	4.3 Customer relation management p.60~61



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 <p><b>Suppliers</b></p> <p>Taiwan Steel Union's key partners in the pursuit of corporate sustainability via cooperation and collaboration</p>	<p>Company's code of conduct</p> <p>Procurement practices and supply chain management</p> <p>Labor/Management Relations</p> <p>Circular Economy</p> <p>Occupational Health and Safety</p>	<ul style="list-style-type: none"> <li>✓ Formulation of "Code of Conduct", "Principles of Ethical Business" and "Standards of Employees' Behaviors", to our colleagues to follow</li> <li>✓ Regular supply assessments and tiered management based on assessment results</li> <li>✓ Employer-employee meetings once every three months or on an ad-hoc basis, with representatives from the employer and the employees to negotiate labor relations</li> <li>✓ Obtain environmental assessment approval, reuse approval, air and water waste operation approval, etc. according to the laws.</li> <li>✓ Implement internal ISO 45001 system maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Ad-hoc communication</li> <li>✓ Non-periodic contracts</li> </ul>	<p>4.2 Supply chain management p.57~59</p> <p>6.4 Occupational safety and health p.86~94</p>
 <p><b>Contractors</b></p> <p>Assist partners in the assurance of smooth operation and product quality of the steel making process.</p>	<p>Waste</p> <p>Occupational Health and Safety</p> <p>Environmental laws and regulations</p> <p>Supplier environmental assessment</p> <p>Transportation safety and regulations</p>	<ul style="list-style-type: none"> <li>✓ Deployment of wastewater recycling systems to improve the utilization of wastewater</li> <li>✓ Before annual maintenance, all the contractors should be called in for training and education, in order to prevent occupational disasters.</li> <li>✓ Adherence to environmental assessment and commitment with quarterly disclosure of monitoring data via the Union's official website</li> <li>✓ Training and acquisition of qualifications by collection drivers regarding road transportation of hazardous items</li> <li>✓ Formation of emergency plans in-vehicle during transportation</li> </ul>	<ul style="list-style-type: none"> <li>✓ Regular training education and communication with drivers</li> <li>✓ Non-periodic contracts</li> </ul>	<p>4.2 Supply chain management p.57~59</p>

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 Government agencies  According to government laws and regulations	Succession Energy Environmental laws and regulations Waste Company's code of conduct	<ul style="list-style-type: none"> <li>✓ Enhancement of personnel development and implementation of the succession plan</li> <li>✓ Ongoing evaluation of investments in green energy equipment, to contribute to environmental sustainability. Acquisition according to laws the approval in environmental assessments, general recycle permits, reuse inspection &amp; registration permits, waste cleaning plans, permits for deployment and operation of solid waste and pollutants equipment and water facilities permits</li> <li>✓ Assessment on laws and regulations once every three months according to ISO 14001 environmental management system</li> <li>✓ Cooperation with competent authorities in onsite inspections or improvement of audited deficiencies Deployment of wastewater recycling systems to improve the utilization of wastewater</li> <li>✓ Formulation of "Code of Conduct", "Principles of Ethical Business" and "Standards of Employees' Behaviors", to our colleagues to follow</li> </ul>	<ul style="list-style-type: none"> <li>✓ Quarterly review of laws and regulations by visiting the regulatory inquiry systems on the websites of government agencies</li> <li>✓ Monthly reporting to Environmental Protection Administration about waste; management information system</li> <li>✓ Real-time participation in the interactive sections and consultation letterbox on government agencies' websites</li> <li>✓ Participation in public hearings, seminars and workshops regarding policies and regulations from time to time</li> <li>✓ Official documents, meetings, telephones, faxes, emails, e-newsletters and public information from time to time</li> <li>✓ Informal visits and face-to-face communication from time to time</li> <li>✓ Environmental protection audits and labor inspections from time to time</li> </ul>	1.2 Stakeholder assessments and engagements p.14~22

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Types/implications	Concerned issues	Response status	Communication frequency and platforms	Response chapter
 <p>Local communities</p> <p>Outreach to communities and neighborhoods as part of corporate social responsibility</p>	<p>Occupational Health and Safety</p> <p>Local communities and impacts</p> <p>Indirect economic impacts</p> <p>Talent attraction and retention</p> <p>Training and education</p>	<ul style="list-style-type: none"> <li>✓ Implement local community employee health care.</li> <li>✓ Irregularly participate in neighborhood resident activities, and assist the organization of local community activities.</li> <li>✓ Improve manufacturing process, and increase other difficult-to-treat and high-unit-price wastes.</li> <li>✓ Implement non-discrimination policy, provide fair opportunities, and publicly announce personnel promotion, reward and disciplinary decisions.</li> <li>✓ For courses necessary for job, training is provided at free of charge, and tests are administered for internal trainings, in order to ensure that personnel understand the training content.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Establishment of good communication channels with local residents from time to time</li> <li>✓ Assistance to local community events from time to time</li> <li>✓ Assistance to local disadvantaged groups from time to time</li> <li>✓ Quarterly disclosure of the Union's air and water emissions</li> <li>✓ Employment of local residents from time to time</li> </ul>	<p>7.2 Community concerns p.99~101</p>
 <p>Trade unions and associations</p> <p>Staying informed of the regulations and knowledge on the circular economy industry</p>	<p>Circular Economy</p> <p>Environmental laws and regulations</p> <p>Waste</p> <p>Climate strategy</p> <p>Environmental policy and management system</p>	<ul style="list-style-type: none"> <li>✓ Recycle of difficult-to-treat waste to boost the Union's profits</li> <li>✓ Participation in public hearings, seminars and workshops from time to time</li> <li>✓ Cooperation with competent authorities in onsite inspections or improvement of audited deficiencies</li> <li>✓ Strategic formulation, identification, assessment and implementation of action plans in response to climate change</li> <li>✓ ISO 14001 deployment and certification</li> <li>✓ Establish Sustainable Development Committee and enhance sustainability governance and energy saving and carbon reduction.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Official documents as required</li> <li>✓ Participation in seminars organized by trade associations from time to time</li> <li>✓ Regular meetings with directors and supervisors</li> </ul>	<p>1.2 Stakeholder assessments and engagements p.14~22</p>

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Types/ implications	Concerned issues	Response status	Communication frequency and platforms	Response chapter
 <p><b>Academia</b></p> <p>Sharing of technologies and literature on circular and reuse</p>	<p>Environmental laws and regulations Circular Economy Employment Emissions Materials</p>	<ul style="list-style-type: none"> <li>✓ Adherence to environmental assessment and commitment with quarterly disclosure of monitoring data via the Union's official website</li> <li>✓ Acquisition according to laws the approval in environmental assessments, general recycle permits, reuse inspection &amp; registration permits, waste cleaning plans, permits for deployment and operation of solid waste and pollutants equipment and water facilities permits</li> <li>✓ Implement employee related charters and systems.</li> <li>✓ Adherence to environmental assessment and commitment with quarterly disclosure of monitoring data via the Union's official website Annual assessment of delivery reliability and quality of suppliers.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Participation of academic seminars from time to time</li> <li>✓ Industry-academia cooperation</li> </ul>	7.3 Circular economy education p.102
 <p><b>Media</b></p> <p>Taiwan Steel Union's important partner in communicating and engagement with stakeholders</p>	<p>Economic performance Materials Climate strategy Energy Emissions</p>	<ul style="list-style-type: none"> <li>✓ Disclosure of the Union's financial performance via Stock Exchange and annual reports, to provide examination of operations and analysis of data.</li> <li>✓ Annual assessment of delivery reliability and quality of suppliers.</li> <li>✓ Strategic formulation, identification, assessment and implementation of action plans in response to climate change</li> <li>✓ Ongoing evaluation of investments in green energy equipment, to contribute to environmental sustainability</li> <li>✓ Public announce the Union's air and water related emission quarterly and implement environmental commitment with quarterly disclosure of monitoring data via the Union's official website</li> <li>✓ Establish Sustainable Development Committee and enhance sustainability governance and energy saving and carbon reduction.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Spokesperson and Deputy Spokesperson, as required</li> <li>✓ Press releases as required</li> <li>✓ Company website</li> <li>✓ The company's official emails</li> </ul>	2. Sustainability Corporate Governance p.26~41

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Types/implications	Concerned issues	Response status	Communication frequency and platforms	Response chapter
 Industry (Including slag)  Partnerships in shared engineering, technology and laws and regulations for the industry	Materials Employment Risk and opportunity management Economic performance Energy	<ul style="list-style-type: none"> <li>✓ Annual suppliers' delivery stability and quality assessment, and continuous maintenance of ISO 9001.</li> <li>✓ All personnel are irregular contract employees, and employee related charters and regulations are established.</li> <li>✓ Formulation of risk management regulations, annual assessments of risks and opportunities and periodical reporting of assessment results to the Board of Directors</li> <li>✓ Recycle of difficult-to-treat waste to boost the Union's profits</li> <li>✓ Continue to assess the investment of green energy equipment in order to contribute effort in sustainable environment, and to reduce the production of CO<sub>2</sub> emission.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Environmental protection works Specialized Construction Enterprises Association</li> <li>✓ Ad-hoc meetings</li> <li>✓ Participation in public hearings, seminars and workshops regarding policies and regulations from time to time</li> <li>✓ Official documents, meetings, telephones, faxes, emails, e-newsletters and public information from time to time</li> <li>✓ Informal visits and face-to-face communication from time to time</li> <li>✓ Environmental protection audits and labor inspections from time to time</li> <li>✓ Slag reuse contracts signed annually; onsite visits once every six months</li> </ul>	3. Circular Economy p.42~53



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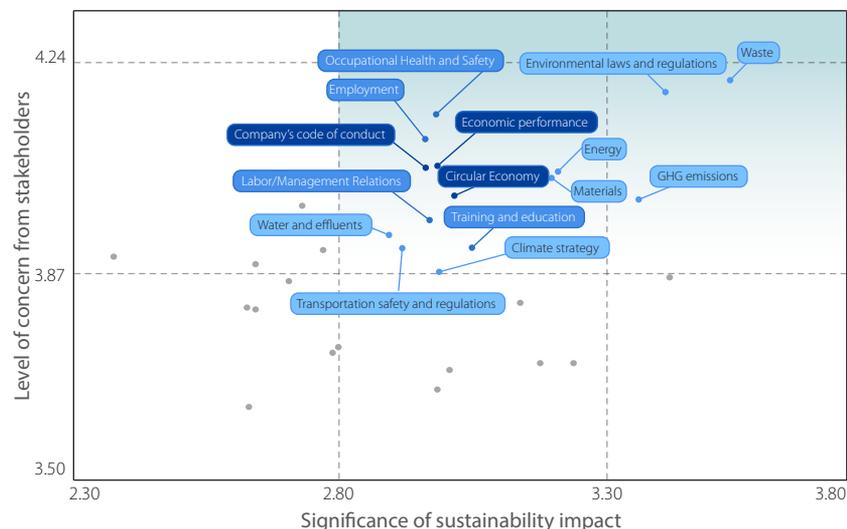
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## 1.3 Management and disclosure of main topics

### Assessment of main topics

Taiwan Steel Union defines main topics according to the level of concern from stakeholders and the impact on individual sustainability topics. Main topics have a score of at least 2.8 in sustainability impact and at least 3.87 for level of concern from stakeholders.

- Environmental main topics
- Social main topics
- Economic main topics**
- Secondary topics



### Confirmation and connection with main topics

Once a main topic is identified for Taiwan Steel Union, the Sustainable Development Committee summarizes the identification workflows and results of main topics for the review and confirmation by the Chairman, to ensure that all topics are covered.

ESG category	Main Topics	Report chapters	Page number
Environmental (E)	Climate strategy	<a href="#">2.4 Climate change strategy and implementation</a>	38
	Materials	<a href="#">5.1 Environmental-friendly green manufacturing process</a>	64
	Energy	<a href="#">5.2 Environmental policy and management system</a>	66
	Water and effluents	<a href="#">5.4 Water risk management</a>	74
	GHG emissions	<a href="#">5.3 Operational ecosystem efficiency</a>	67
	Environmental laws and regulations	<a href="#">5.5 Environmental laws and regulations</a>	77
	Waste	<a href="#">Chapter 3 Circular Economy</a>	42
	Transportation safety and regulations	<a href="#">4.1 Transportation safety laws and regulations</a>	56
Social (S)	Employment	<a href="#">6.1 Human resource management</a>	80
	Labor/Management Relations	<a href="#">6.2 Talent attraction and retention</a>	82
	Occupational Health and Safety	<a href="#">6.4 Occupational safety and health</a>	86
Economic (G)	Training and education	<a href="#">6.3 Training talent</a>	84
	Company's code of conduct	<a href="#">2.1 Corporate governance overview</a>	28
	Economic performance	<a href="#">2.3 Products and economic performance</a>	34
	Circular Economy	<a href="#">Chapter 3 Circular Economy</a>	42

Note: Self-defined main topics include transportation safety and regulations; climate strategy; environmental policy and management system; circular economy; Code of Conduct of the Union; risk and opportunity management.

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## Compliance of main topics

Taiwan Steel Union received no fines for breach of environmental laws and regulations in 2021, and its subsidiary, Taiwan Steel Resource was subject to two incidents only (details in Chapter 5.6 on environmental protection laws and regulations.) All the other main topics complied with laws and regulations.

## Meanings of main topics to Taiwan Steel Union

The identified main topics are the most important sustainability issues to Taiwan Steel Union. Management guidelines are put in place for individual main topics. There are also key performance indicators; mid-term, mid-term and long-term goals; and action plans. Implementation updates are disclosed in a transparent manner.

Main Topics	Significance to Taiwan Steel Union (main reasons)	Impact boundary Note 1	Degrees of impact Note 2
Climate strategy	Taiwan Steel Union emphasizes climate change issues and plans to introduce the TCFD framework, to respond to risks and opportunities associated with climate change.	L4, L3	D1
Materials	Construction of 100% recycle and reuse model for basic materials required for Taiwan Steel Union's operation	L1, L2, L4, L5, L7, L9	D1, D2, D3
Energy	Establish renewable energy equipment to reduce carbon reductions	L4	D1
Water and effluents	Establishment of water risk assessments and key performance indicators and management of water resource Wastewater emissions in compliance with sewage influent standards; enhancement of circular and reuse	L4	D1
GHG emissions	All air pollution emissions comply with the environmental evaluation commitment and regulatory requirements, and are disclosed in a transparent manner.	L4, L8	D1
Environmental laws and regulations	Environmental protection is the topic concerned the most by stakeholders, and Taiwan Steel Union has established 100% legal compliance system complying with relevant environmental protection laws and regulations.	L4	D1
Waste	Establishment of key performance indicators for waste management. 100% recycle and reuse	L4, L8	D1
Transportation safety and regulations	Transportation of waste and products cared most by Taiwan Steel Union. 100% legal compliance and safety	L3, L4	D1
Employment <sup>Note 3</sup>	The Company has established a fair, reasonable and competitive remuneration and promotion systems for human resources management and employees' right protection.	L4	D1
Labor/Management Relations <sup>Note 3</sup>	The Company has established complete employee and retirement benefits, and shares profit of the Union with employees. In addition, the Union has established the policy that when there is any profit in the current year, no less than 1% of such profit is appropriated as the remuneration of employees, in order to retain outstanding talents.	L4	D1
Occupational Health and Safety	Creation of a safe work environment. Targeting at zero occupational disaster throughout the year.	L4	D1
Training and education	Training and development of high-caliber personnel, to become a first-class sustainable company.	L4	D1
Company's code of conduct	A robust code of conduct has been put in place as part of Taiwan Steel Union's corporate governance system and for the benefit of sustainable development.	L4	D1
Economic performance	Taiwan Steel Union's creation of economic benefits and sharing of profits with shareholders and investors	L4	D1
Circular Economy	Most important issue for Taiwan Steel Union's sustainability, for the creation of the circular economy with ESG win-win-wins	L2, L4, L5, L9	D1, D2, D3

Note 1 **Impact Boundary**, L1 Raw materials excavation, L2 Upstream steel mills and contaminated soils, L3 Transportation, L4 Manufacturing (Taiwan Steel Union), L5 Customers, L6 Product utilization, L7 End products, L8 Neighboring community environment, L9 Subsidiaries.

Note 2: **Degrees of Impact**, D1 Directly causing the impact, D2 Contributing to impact, D3 Directly related to the impact via business relations

Note 3: **Newly added issues of materiality**

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- 1.1 Identification of sustainability topics
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- 1.3 Management and disclosure of main topics
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## 1.4 Report management

### Internal and external audit mechanisms for the report

To make the content and quality of this report robust and comprehensive, the report goes through annual internal audits and external verification as part of the audit mechanism and plan.



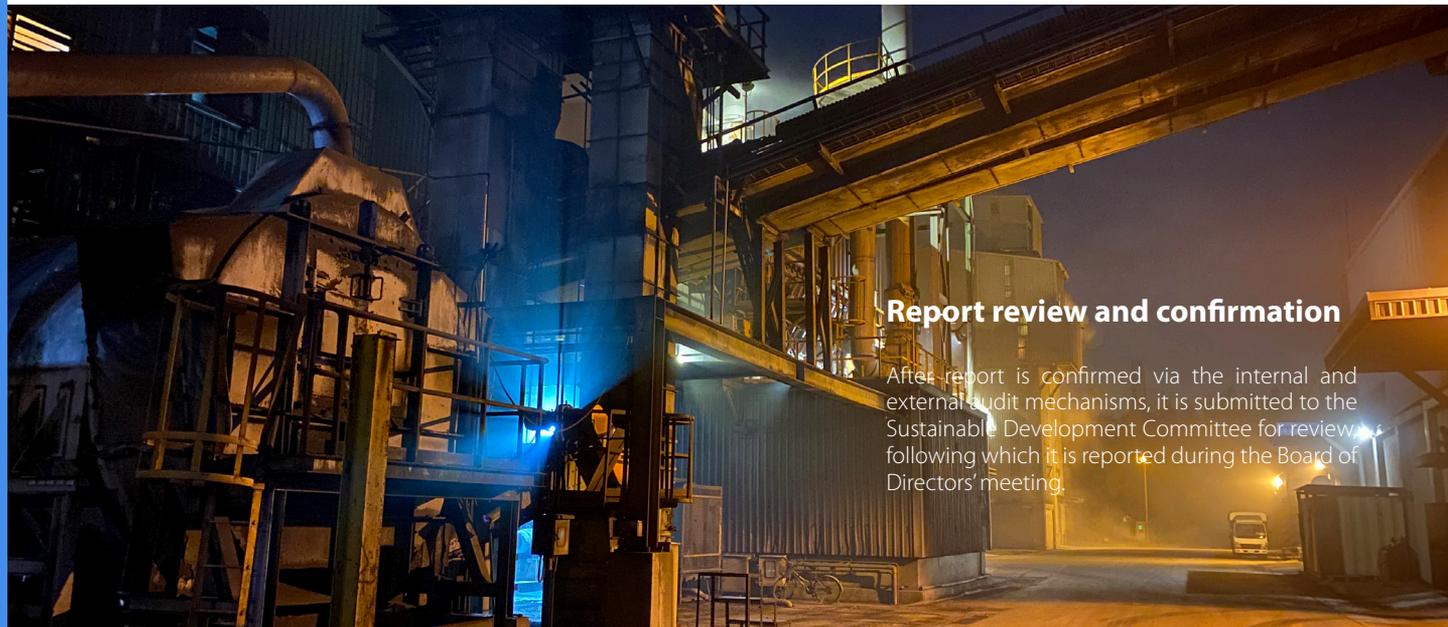
#### Internal audit

Cross audits were performed internally. External experts were hired to enhance the quality by conducting a preliminary assessment based on the TCSA (Taiwan Corporate Sustainability Awards) criteria. The internal audit of the 2021 report has been carried out on April 20, 2022.



#### External verification

To enhance the credibility of the report, BSI Taiwan is commissioned to conduct external verification to ensure that the report meets the AA1000 standard. The external audit on the 2021 report is to be conducted on May 19 and May 30, 2022.



### Report review and confirmation

After report is confirmed via the internal and external audit mechanisms, it is submitted to the Sustainable Development Committee for review, following which it is reported during the Board of Directors' meeting.

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# Chapter 2

Taiwan Steel Union promotes the circular economy, according to the United Nations' Sustainable Development Goals (SDGs), by developing clean and environmental-friendly industrial processes and stable quality, creation of sustainable profits and distribution of earnings to the investing public and shareholders. Taiwan Steel Union is committed to corporate governance and sustainable development.

## Sustainability Corporate Governance

### Management guidelines on sustainability corporate governance

Main topics: Code of Conduct; risk and opportunity management; economic performance (GRI 201)



#### Policy

- Company's Sustainability Code of Conduct
- Maximization of shareholders' equity



#### Target

Annual dividend payout 70% in the absence of major investments



#### Effective assessment of economic performance

Through the annual reporting of sustainability report, the effectiveness and result are tracked and assessed continuously.



#### Management system

- The corporate governance structure consists of the Board of Directors, Audit Committee and Remuneration Committee.
- Establishment of the ISO 9001 quality management system
- Establishment of the ISO 14001 environmental management system
- Establishment of the ISO 45001 occupational safety and health management system

13

ACCIÓN  
POR EL CLIMA



13.2 Inclusion of climate change measures into national/corporate policy, strategy and plan

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### Sustainability company Governance highlights

#### Corporate governance assessment

2021 8th corporate governance assessment score was excellent and maintained at 21%-35%

2021 highest award of Two-Star Class\* Circular Economy Outstanding Enterprise Award presented by the Environmental Protection Administration

#### Received three major awards of TCSAs (Taiwan Corporate Sustainability Awards) in 2021

- ✓ TCSA Golden Award for Report
- ✓ TCSA Circular Economy Leadership Award (three consecutive years)
- ✓ TCSA Sustainability Comprehensive Performance Award - Excellence Award

#### Climate change strategy

- ✓ Implement TCFD to identify, assess and manage climate change risks and opportunities.
- ✓ Comply with Sustainability Accounting Standards Board SASB - Disclosure Guidelines for the Metals and Mining Industry

#### Expansion of green investment

- ✓ Establishment of Taiwan Steel Resource Slag 100% reuse
- ✓ Innovative new waste resource recycle and reuse

#### Annual distribution rate of 70%

Dividend distribution rate in 2021 was 79%, demonstrating outstanding outcome. The Company has reached the goal of 70% for five consecutive years.



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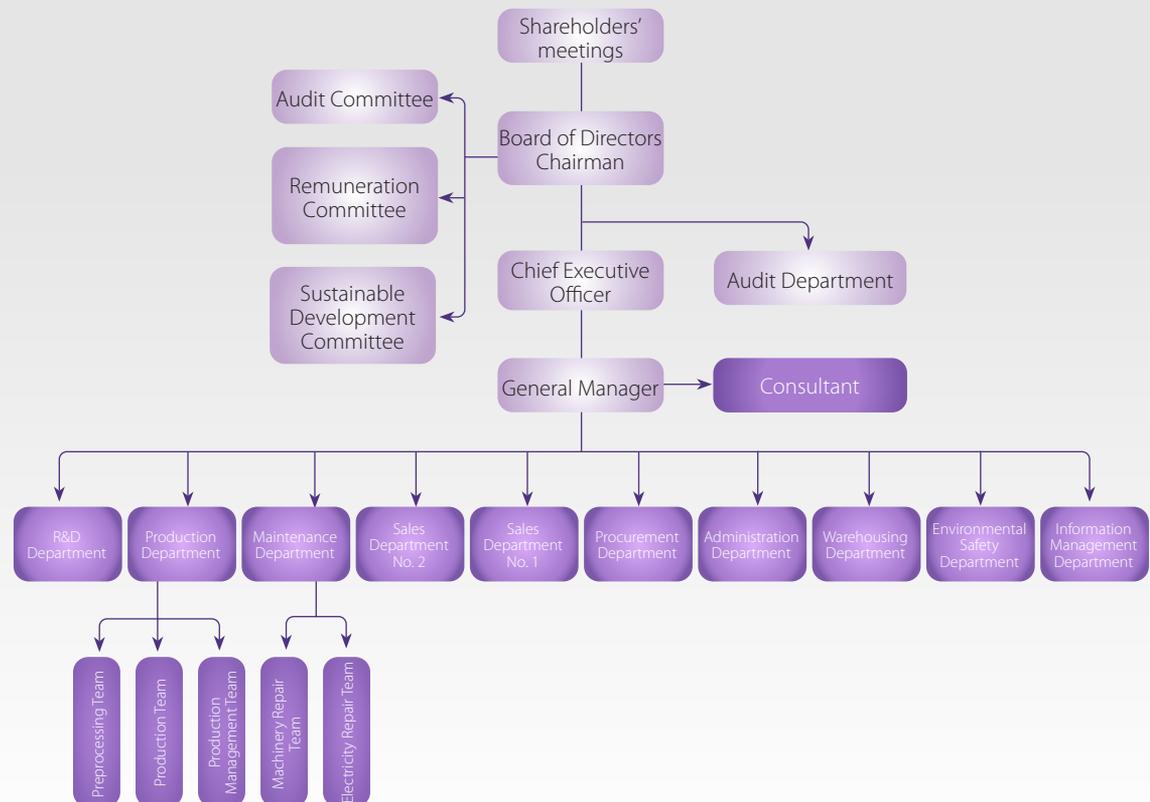
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## 2.1 Corporate governance overview

Taiwan Steel Union has a rigorous corporate governance structure to fulfill corporate responsibility in sustainability. The Board of Directors overseeing general affairs with efficiency is the foundation of good corporate governance. Under the Board of Directors are Sustainability Committee, Remuneration Committee and Audit Committee, to assist the Board of Directors in providing oversight.

To ensure sustainable development, Taiwan Steel Union has established Sustainable Development Committee in January 2022 to be the responsible unit for the sustainability report of Taiwan Steel Union, and the General Manager serves as chairperson of the committee. In addition, the Administration Department and Environmental Safety Department provide support and implementation, in charge of the committee's functioning, project coordination and data collection. The committee identifies major economic, environmental and social topics and engages with stakeholders through a variety of means by responding to stakeholders' concern in main topics. The purpose is to manage sustainability topics and achieve sustainable operation for Taiwan Steel Union. Taiwan Steel Union periodically submits sustainability reports to the Board of Directors and communicates with shareholders' meetings the relevant sustainability performances.



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## Taiwan Steel Union Overview

Data type	2021 relevant data explanation
Company name	Taiwan Steel Union Co., Ltd.
No. of employees	97 employees
Capitalization	NT\$1.11 billion
Liabilities and equity	Liabilities: NT\$621,515 thousand, equity NT\$3,789,183 thousand
Main products	<p><b>Taiwan Steel Union:</b></p> <ol style="list-style-type: none"> <li>1. Pick-up and recycle of EAFD from electric-arc furnaces.</li> <li>2. Recycle of off-site contaminated soils.</li> <li>3. Zinc-containing product resource recovery and reuse</li> <li>4. Incineration plant incineration fly ash reuse</li> <li>5. Solid recovered fuel (SRF) reuse.</li> <li>6. Sale of crude zinc oxide.</li> </ol> <p><b>Taiwan Steel Resource:</b></p> <ol style="list-style-type: none"> <li>1. Pick-up and reuse of reducing slag and oxidizing slag from electric-arc furnaces used for steel making</li> <li>2. Sale of concrete aggregate; base materials or aggregates for the base of pavement engineering (roads, pedestrian walks, container yards or parking spaces); asphalt concrete aggregate; controlled low-strength backfill material aggregates; concrete products aggregates.</li> <li>3. Sale of controlled low-strength materials (CLSMs) and non-structured ready-mixed concrete</li> </ol>
Chairman	Mark Lin
General Manager	Yen-Bin Fang (changed to Tsai-Hsiang Lin assuming the position in April 2022)
Headquarters and operating address	No. 36, Xiangong N. 1st Rd., Changhua Coastal Industrial Park, Shengang Township, Changhua County
Production lines and capacities	Two rotary kilns for high temperature smelting. Annual reusable environmentally permitted volume: 198,900 tons 2021 recycle and treated EAFD: 142,393 tons. 2021 recycle and treated contaminated soils: 4,712 tons. 2021 environmental assessment newly added waste actual reuse and treatment: 2,093 tons.
Net sales	2021 net sales of NT\$1,853,873 thousand
Markets serviced	<p>Waste resource recycling service:</p> <ul style="list-style-type: none"> <li>▶ EAFD, reducing slag: electric-arc furnaces steel industry, dump sites</li> <li>▶ Contaminated soils: contaminated sites in Taiwan</li> <li>▶ Zinc-containing products and wastes: Reuse or treatment institution, water hardware industry, zinc and copper alloy, chemical industry, electroplating industry, etc.</li> <li>▶ Incineration flay ash: waste incineration plants or public/private waste processing organizations.</li> <li>▶ RDF (or SRF) solid alternative (renewable) fuels: waste recycling industry.</li> <li>▶ High calorific value (industrial) waste: manufacturing industry, and disposal sites.</li> <li>▶ Product sale service</li> <li>▶ Zinc oxide: zinc smelting industry, chemicals industry</li> </ul>
Entity included in consolidated financial statements	Subsidiary - Taiwan Steel Resource (trial operation in 2019)
Location	Waste resource recycling service region: Taiwan. Zinc oxide sold to: Taiwan, China, Japan, Belgium, Poland and Thailand.

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#### Taiwan Steel Resource: production lines and capacities

Five autoclaves, annual operating volume permitted: 165,200 tons.

Magnetic separators of crushed slag, annual operating volume permitted: 470,000 tons.

Total of reducing slag, rotary kiln slag, oxidizing slag reuse and treatment amount in 2021: 175,137 tons.

Reported total production volume of base materials for pavement engineering work, concrete aggregates (including asphalt), aggregates for controlled low-strength backfill materials in 2021: 166,554 tons.

Reported production volume of controlled low-strength materials and non-structure concrete in 2021: 42,304 tons.

#### Composition and functioning of the Board of Directors

The Board of Directors is Taiwan Steel Union's highest-level governance unit and key decision maker. We have formulated the Regulations Governing the Election of Directors by specifying qualifications and appointment requirements. This includes diversity and professional knowledge. The tenure of the current board starts from May 29, 2019 and ends on May 28, 2022. The Board of Directors consists of eight directors and three independent directors. There is a female director. Two directors are aged between 30 and 50; all other directors are above 50 years old. Under the leadership of Chairman Mark Lin, the Board of Directors' top priority is to provide supervision via the establishment of functional committees. The purpose is to enhance the quality of oversight and decision-making by the Board of Directors. Taiwan Steel Union's Board of Directors convenes meetings at least once a quarter, to listen to presentations from management team on financials, business and sustainability issues.

#### Performance Review on Board of Directors

Taiwan Steel Union formulated, with the approval from the Board of Directors, the Regulations Governing the Performance Review on Board of Directors. Performance reviews on the Board of Directors and functional committees are conducted at the beginning of each year. According to the assessment on the 2021 performance, only some directors failed to hit targets in terms of meeting attendances in the self-assessment questionnaires for board members. The results of all the other self-assessment questionnaires were normal. The overall attendance rate of the board reached the average of at least 80% criterion during the year of corporate governance assessments. All the board members completed six hours of training.

#### Corporate Governance Officer

According to the resolution of the Board of Directors' meeting of Taiwan Steel Union in February 2021, Kun-Chieh Lin, Manager of Administration Department, was designated to concurrently act as the corporate governance officer of the Union, in order to protect the rights and interests of the shareholders and to strengthen the job functions of the Board of Directors. Its main authorities and responsibilities are: (1) handling company registration and change registration; (2) handling matters related to the Board meetings and shareholders' meetings in accordance with the law, and assisting the Union in complying with relevant laws and regulations on the Board meetings and shareholders' meetings; (3) producing minutes of the Board meetings and shareholders' meetings; (4) providing information required for directors to perform their duties, and the latest developments in laws and regulations related to the Union to assist directors in complying with laws and regulations; (5) handling matters related to investor relations.



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## Remuneration of Directors and Sustainability Performance Institutionalization

The remuneration of directors and supervisors of Taiwan Steel Union is explicitly specified in the Articles of Incorporation, and it is linked to the sustainability performance of the Union. Accordingly, under the condition where there is a profit, no less 3% of the profit is appropriated as the remuneration of directors. In 2021, regarding the percentage of the total remuneration amount over the profit after tax, the remuneration of directors accounted for 1.8% thereof.

### Remuneration Committee

Remuneration Committee has been established under Taiwan Steel Union's Board of Directors. The Organization Charter for Remuneration Committee has been put in place. Remuneration Committee is responsible for design and periodical reviews of performance of directors and managers, as well as remuneration policies, systems, standards and structures. All the three members of Remuneration Committee are independent directors. The convener Tien-Chin Chang is an independent director.

### Link between Board of Directors' Remuneration and Sustainability Performance

Taiwan Steel Union has put in the Articles of Incorporation that directors' remuneration is based on involvement in and contributions to the Union's operations and according to the industry standard in Taiwan. The correlation with the Union's operational risks

and performance in the future has been factored into the equation. This has been submitted to and approved by Remuneration Committee, to ensure a balance for sustainability and risk control. Audit Committee

Audit Committee has been established under Taiwan Steel Union's Board of Directors. The Organization Charter for Audit Committee has been put in place. Audit Committee is responsible for the control and supervision of financial reports, internal control and potential risks. All of the three members of Audit Committee are independent directors. The convener Wu Chuan-Chuang is an independent director.

### Code of Conduct

Taiwan Steel Union has formulated "Code of Conduct" to regulate its directors and managers (including Chief Executive Officer and General Manager and any person who has the right to manage and sign on the behalf of the Union) and to prevent conflict of interest and opportunity of seeking personal gains. The Code of Conduct is fully disclosed.

### Principles of Ethical Business

To deepen a corporate culture and robust development based on trust and integrity and to establish a healthy framework for business practices, Taiwan Steel Union has established "Principles of Ethical Business" to prohibit unethical behavior. The practice of honest business operations is defined and dishonest behavior is prevented.

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## Participation in trade associations

Taiwan Steel Union is dedicated to its core business. To stay close contacts and work with different parties of the society for sustainability, we are involved in various organizations in different ways. The trade associations we are involved with as a director or a supervisor include the following:

Trade associations involved	Participating status	Representative's name
Chinese National Federation of Industries	Vice Chairman	Mark Lin
Taiwan Resource Recycling Industries Association	Director	Yen-Bin Fang
The Formosa Association of Resource Recycling	Director	Tsai-Hsiang Lin
Association of Companies in Changhua Coastal Industrial Park, Changhua County	Member	Taiwan Steel Union
Taiwan Environmental Management Association	Member	Taiwan Steel Union
Taiwan Carbon Capture Storage and Utilization Association (TCCSUA)	Executive Director	Mark Lin
	Director	Yen-Bin Fang

## Company management system

All of Taiwan Steel Union's management systems have been independently verified and have passed inspections.



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## 2.2 Risks and opportunities

### Risk and opportunity assessment

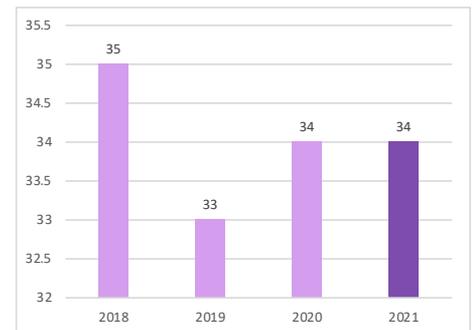
Taiwan Steel Union has formulated the Practical Guides on Corporate Social Responsibility by including an assessment and management mechanism on relevant risks and opportunities for the confirmation of risks and opportunities during the course of company development.

Types of risks and opportunities	Responses to risks and opportunities
Financial risks	We do not have a research department dedicated to exchange rates or LME zinc prices. Hence, we do not hedge in any way against the change of exchange rates or LME zinc prices.
Human resource risks	Retention of high-caliber employees with remuneration and promotions
Raw material risks	Sourcing of waste with zinc contents other than EAFD, to make up the insufficiency of raw materials
Operational risks	The regulations governing identification and management of compliance obligations have been put in place. Inventory and identification are conducted each quarter regarding new and amended laws and regulations. Assessment is performed by relevant units; improvement measures are carried out according to assessment results.
Environmental, safety and health risks	Annual maintenance and periodic replacement of consumables to maintain stable operation of equipment
Climate change, water and energy risks	Introduction of the TCFD mechanism, formulation of climate strategy and action plans, planning of rooftop solar. Establishment of water risk assessment and response measures, introduction of ISO 50001 energy management system.
Information security risks	Advocacy of information security policies, establishment of backup server rooms, retention of important data
Legal compliance	Regular and irregular maintenance of pollution control equipment, to ensure normal functioning
Opportunities	Advocacy of the circular economy's contributions to operation and the society
New disease (Covid -19)	Continued operation plan in response to COVID-19

### Responsible audit units and implementation

Audit Department has been established under Taiwan Steel Union's Board of Directors. Audit Department structures, propose and carry out internal audits and annual inspection plans, covering the risk control and management elements defined by management in corporate governance, operating activities and legal compliance. The audits and inspections serve as the basis for the assessment of the functioning and effectiveness of the internal control system in corporate governance, operating activities and legal compliance. The results are produced into audit reports for submission and reporting to the Board of Directors.

No. of internal audit and inspection plans carried out



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## 2.3 Products and economic performance

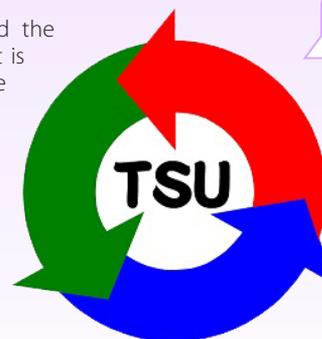
After decades of overdevelopment and overuse, global resources are increasingly depleted. Countries around the world are gradually coming to terms with the limitedness of metal resources. Therefore, the pursuit of sustainable utilization and development of resources has become a key determinant of economic activities going forward. Taiwan Steel Union was incorporated as a EAFD resource recycling company according to the "Regulations Governing Co-Treatment

Organizations for Industrial Waste" issued by the Ministry of Economic Affairs and in the co-treatment system established by the Waste Management Department, Environmental Protection Administration and the Industrial Development Bureau, Ministry of Economic Affairs for waste from electric arc furnaces used in steel manufacturing. As a full-service circular economy company, Taiwan Steel Union is capable of evacuating, treating, cleaning and reusing waste.

### Taiwan Steel Union's CIS (corporate identity system)

The three arrows forming a circle surround the Union's abbreviation in the English language. It is a symbol of our business philosophy in resource sustainability and environmental protection.

Representing the recycled green product zinc oxide and the recycle slag



Representing high-temperature smelting and treatment

Representing EAFD from electric-arc furnaces as a hazardous industrial waste

### Taiwan Steel Union's products and services



Crude zinc oxide



Reusable slag

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## CIS of Taiwan Steel Resource, a Taiwan Steel Union's 100% subsidiary

The three arrows forming into a circle is a counter-clockwise image of the parent company Taiwan Steel Union's logo. Taiwan Steel Resource is a "clockwise" circle, surrounding the Union's abbreviation, as a symbol of the never-ending circles of resource recycling!



**TSR**

Taiwan Steel Resource' main equipment, an autoclave, wrapped by the letters TSR, to represent Taiwan Steel Resource



Representing resource recycling and sustainable cycles



Representing steam, in the high temperature and high pressure inside autoclave



Representing color of slag from electric-arc furnaces

### Taiwan Steel Resource' products and services

Products such as steel slag, reducing slag and oxidizing slag



## Revenue and profit targets



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Taiwan Steel Union sets up annual revenue and profit growth targets. The 2021 revenue increased by 14.28% from last year and the net income after tax also increased by 38.6% from last year. The reason was mainly due to the reduced production of local zinc smelters in response to China's policies and environmental issues during the second half of 2021, and the increase in European green electricity prices forced Nyrstar, Europe's largest zinc refinery, to announce a reduction in production, such that LME zinc prices continued to rise. In addition, the average zinc price in 2021 reached USD 3,005, an increase of 33% from the zinc price of USD 2,265 of previous year. As a result, the income before tax of Taiwan Steel Union increased by NT\$200 million in 2021 from last year.

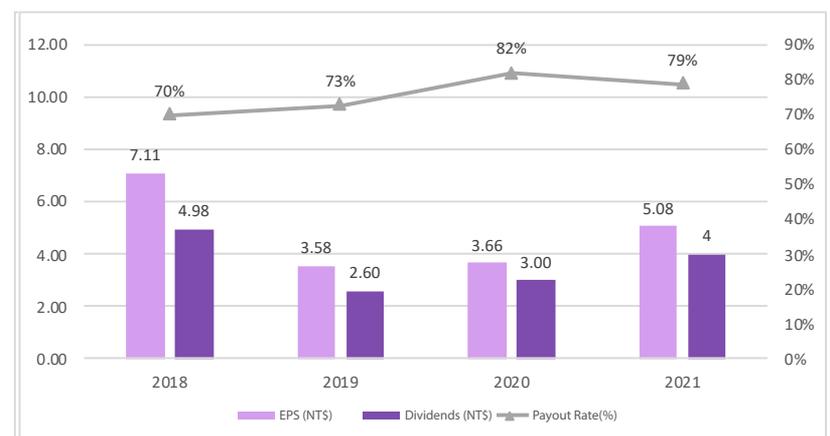


## Expansion of green investment and construction a more comprehensive circular economy system

In 2018, the 100% subsidiary Taiwan Steel Resource was established, to focus on the production of green and environmental-friendly building materials by reusing slag. This was in line with the industry policy on circular economy. Taiwan Steel Resource began formal operation in November 2019 after trial production. Starting from 2021, five production lines of the Union have been in service for full-line operation. The Company has also constructed two factories for recycled aggregates used in ready-mixed concrete started operation to enter the market for ready-mixed concrete made with slag. This is an additional revenue stream with internal resources. It is also playing our part for corporate social responsibility.

## Annual dividend payout ratio of 70%

Taiwan Steel Union targets at a 70% annual dividend payout as a return to the investing public and sharing of operational results with shareholders. The payout ratio was 79% for 2021, above the target of at least 70%.



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## Direct economic value (consolidated financial statements)

Taiwan Steel Union's consolidated financial statements in 2018-2021 are summarized below, without government subsidies.

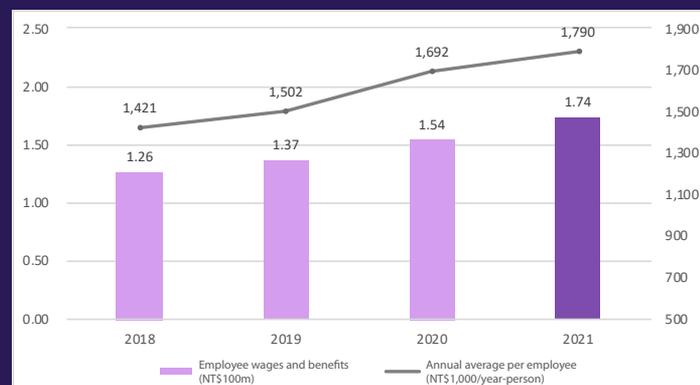
Unit: NT\$'000

Year	2018	2019	2020	2021
<b>Direct economic value created</b>				
Operating income	2,147,371	1,650,701	1,622,229	1,853,873
<b>Economic value distributed</b>				
Operating cost	980,613	916,669	883,443	840,496
Employee wages and benefits	126,460	136,662	153,987	173,606
Payment to capital providers	600,444	556,030	297,730	338,308
Payment to the government	163,571	247,960	13,801	168,462
Community investments	26,313	33,263	47,983	26,639
<b>Economic value retained</b>				
Direct economic value created -Economic value distributed	249,970	-239,883	225,294	306,362
<b>Other items</b>				
R&D expenses	11,125	11,429	21,254	2,113
Training expenses	488	590	489	803
Environmental expenses	122,526	106,762	98,204	102,572

Note: Consolidated financials including the subsidiary Taiwan Steel Resource Co, Ltd.

## Annual growth of employee wages and benefits

Taiwan Steel Union targets at annual growth in employee wages and benefits. The average wages and benefits per employee (including wages and pensions) has been on the rise over the years. The 2021 average wages and benefits stood at NT\$1,790 thousand, up 13% from 2020. Taiwan Steel Union's employee wages and benefits increase each year.



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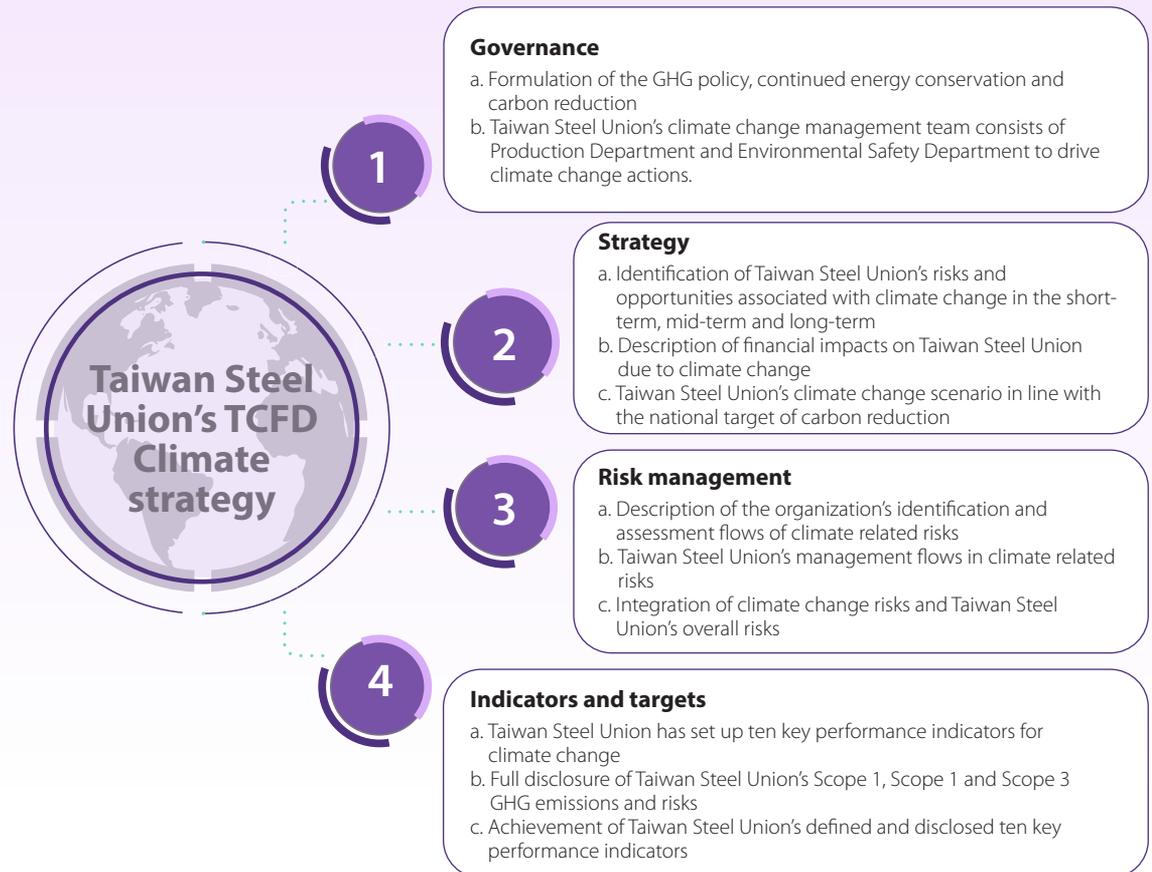
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## 2.4 Climate change strategy and implementation

Taiwan Steel Union follows the management framework advocated by the Task Force on Climate-Related Financial Disclosures (TCFD) in the construction of climate change management and information disclosure.



### Governance

Taiwan Steel Union has established the Sustainable Development Committee in January 2022. The independent director serves as chairperson of the committee, to confirm environment performances, climate change issues and corporate concerns each year. Formulation of the GHG policy, continued energy conservation and carbon reduction

Taiwan Steel Union offers incentives for proposals of improvement measures regarding climate change. Bonuses of an appropriate amount are provided to the reviewed and adopted proposals in energy and water conservation and cost reduction. Employees are encouraged to enhance awareness and enthusiasm in work efficiency, energy saving and carbon reduction.

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## Strategy

Taiwan Steel Union formulates its climate change strategies on products, low-carbon investments and operating activities.

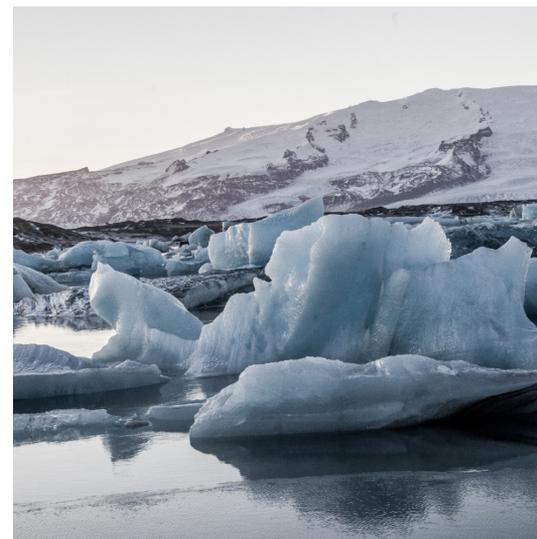
Strategic aspects	Products	Taiwan Steel Union's responding strategy	Circular economy product: crude zinc oxide
	Low-carbon investments		Low-carbon transition projects to achieve carbon reduction goals
	Operating activities		Continued energy conservation and carbon reduction

Response to climate change impact on financials

The climate change impact on Taiwan Steel Union's financials includes a possible increase in operating expenses such as carbon management fees and fines for breaching total control limits.

NDC scenario analysis-transition risk assessment

Regarding the carbon reduction targets of Taiwan Union Steel, the plan is to achieve the reduction of greenhouse gas by half in 2030" and to achieve zero emission in 2050 in accordance with the "Climate Change Response Act. With 2012 as the base year, Taiwan Steel Union assesses the possible transition risks based on the target of reducing the annual emissions by half in 2030 in comparison to the base year.



## Risks and opportunities

Taiwan Steel Union uses its Practical Guides on Corporate Social Responsibility in assessment and management of risks and opportunities due to climate change, formulates, identifies and evaluates strategies, and conducts action plans on climate change. The purpose is to adapt to and mitigate climate change impacts. Corresponding adaptation and action plans are mapped out according to risk analysis and assessment. Emerging business opportunities are explored.



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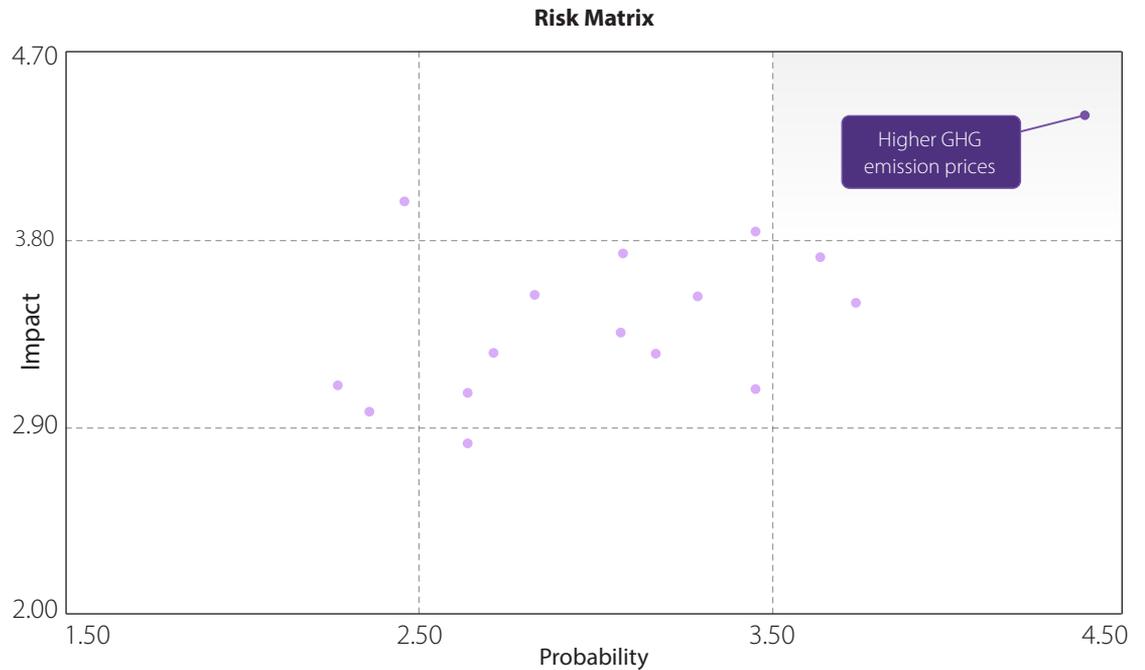
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## Assessment of key risks, potential financial impacts and risk management measures

Taiwan Steel Union's climate change risk assessments and action plans	
Risk type	Transition risks
Item	Policies, laws and regulations
Time	Short-term
Climate related risks	Higher GHG emission prices
Potential financial impacts	Increase of operating costs
Financial impact analysis (Quantitative explanations)	Expected costs and expenses Mid-term 2024-2025 of approximately NT\$45 million Long-term 2024-2030 of approximately NT\$148 million
Responses (solar energy)	1. Risk transfer (price hikes) 2. Risk mitigation (energy saving, carbon reduction, low-carbon investment )
Estimated costs of responding measures	Carbon reduction investment of approximately NT\$150 million (renewable energies, low carbon technologies, carbon capture, utilization and energy saving measures)



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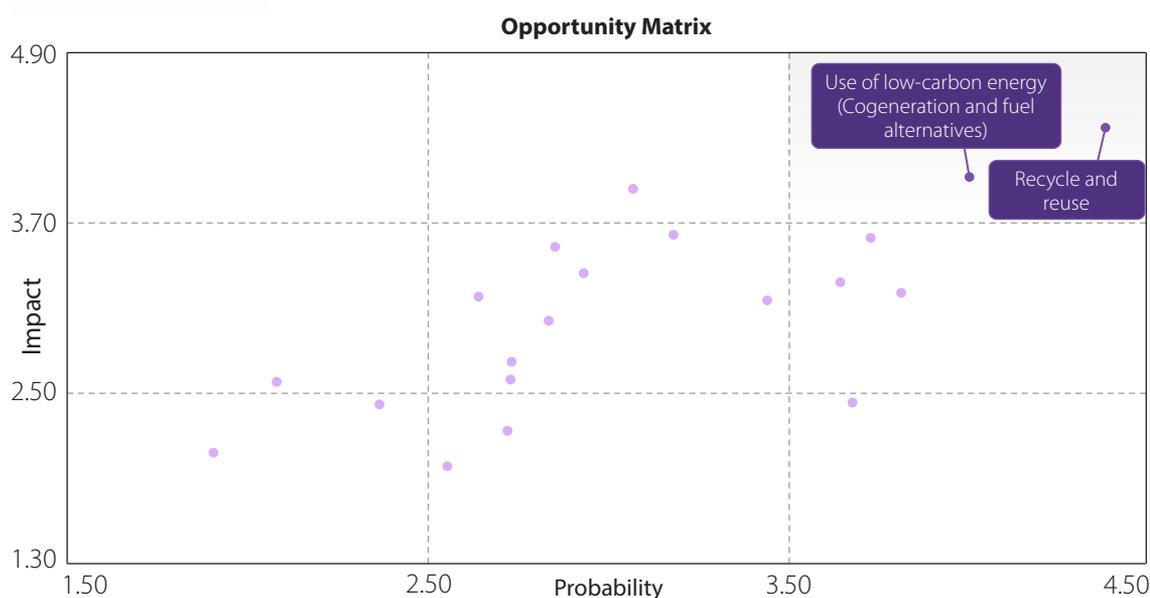
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## Potential financial impact assessment and risk management measures for the two key opportunities

Taiwan Steel Union's climate change opportunity assessments and action plans		
Opportunities	(Slag/zinc oxide/other new waste)	Energy sources
Time	Short-term	Short-term
Climate related risks	Recycle and reuse	Use of low-carbon energy (cogeneration and fuel alternatives)
Potential financial impacts	Increased incomes	Capital expenditures
Financial impact analysis (Quantitative explanations)	Increase of business lines such as incineration fly ash, electroplating sludge, zinc contained waste or industrial waste with high calorific value, to boost the Union's revenue, and to reduce the use quantity of coke and lime.	The installation of solar panels is expected to generate approximately 1,670,000 kWh each year and to save an estimated electricity bill of NT\$3.83 million based on a tariff of approximately NT\$2.3 per kWh.
Responses	Additional personnel and equipment for pre-treatment before manufacturing process	Additional installation of solar energy generation facility to increase the energy source
Estimated costs of responding measures	Extra personnel expenses and equipment purchase cost	Approximately NT\$50 million for rooftop solar panel installation



Indicator	Unit	2030 target
Total GHG emissions	CO <sub>2</sub> e ton/year	Reduction of 50% from 2012
Scope 1 emission intensity	CO <sub>2</sub> e ton/ton treated	0.53
Scope 2 emission intensity	CO <sub>2</sub> e ton/ton treated	0.062
Water recycle and reuse rate	%	45%
Water consumption per unit	Water consumption ton/ton treated	0.49

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# Chapter 3

The circular economy is a regeneration system. The goal of carbon emission reduction is achieved with minimum resource and waste inputs and waste via slowing down, closing up and narrowing the cycles of materials and energies. Production and consumption (purchase) and disposal methods are planned and designed, through principles of reduction, reuse and recycle, to establish an economy and an environment best conducive conditions to sustainable development and resource management.

## Circular Economy

### Management guidelines on circular economy Main Topics: Circular Economy, Waste (GRI 306)



#### Circular economy policy

- ✓ Resource recovery, detoxified, stabilization and reuse of dust from electric-arc furnaces and illegal dumpsites are in line with the government's circular economy policy. Valuable heavy metals are recovered from the dust; rotary kiln slag (R-1207) generated are public listed for reuse. The waste are 100% recycled in the circular economy.
- ✓ Increase the diversity of waste resource recycling, further include zinc-containing resources (wastes) such as: waste zinc, zinc-containing products, electroplating sludge (A-8801), EAFD and sludge of other industries for reuse in order to replace the main raw material of EAFD, and recover valuable metal zinc, and reduce landfill treatment; increase incineration fly ash reuse to replace the secondary raw materials of lime and slaked lime, in order to reduce the mining and reliance of raw materials; further include waste with heating value and solid recovered fuel (SRF) product reuse in order to replace the fuel of coke, to reduce material coke use quantity, and decrease the greenhouse gas emission.

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#### Circular economy commitment

- ✓ Compliance with the laws and regulations, proper implementation of resource recovery, detoxified treatment, stabilization and reuse of dust and reducing slag from electric-arc furnaces are properly managed.



#### Circular economy action and advocacy

- ✓ Assistance to the government in treatment of EAFD and slag illegally dumped at Dadu River in Changhua County without compensation.
- ✓ Promote slag circular economy project.
- ✓ Assistance to the government in the treatment of incineration fly ash of the Xizhou incineration plant in Changhua County, in order to effectively reduce the use quantity of raw material of slaked lime for approximately 320 tons.
- ✓ Assistance to the electroplating operators at the electroplating zone of the Changhua Coastal Industrial Park to implement resource recycling of hazardous industrial waste of electroplating sludge (A-8801), in order to establish the resource recycling supply chain.



#### Effectiveness assessment of the circular economy

- ✓ Through the annual reporting of sustainability report, the effectiveness and result are tracked and assessed continuously.
- ✓ Received the highest honor of Two-Star class of resource recycling outstanding enterprise from the Environmental Protection Administration for the current year.



### Circular Economy Highlights

#### Local job creation

- ✓ The percentage of local Changhua employees of Taiwan Steel Union is 60%.
- ✓ The percentage of local Changhua employees of the subsidiary Taiwan Steel Resource is 59%

#### Carbon footprint reduction by recycling and renewed products

- ✓ In 2021, the reduction of carbon footprint emission of crude zinc oxide products was 47,196 tons of CO<sub>2</sub>e.
- ✓ In 2021, the resource sustainability product carbon footprint and carbon label were obtained.

#### Completion of Circular economy project – slag

Completion of the circular economy project in the reuse of slag. Establishment of a subsidiary dedicated to slag resource recovery.

#### Sustainability benefits of circular recycled products

Resolution to illegally dumping waste; reduction of natural resource excavation and GHG emissions via circular recycled products multiple ESG benefits.

#### Assistance to treatment of illegal EAFD and slag at Xinfeng cost, Dadu River

In 2021, the Union assisted the treatment of EAFD of 962 tons at Xinfeng Township and removal of illegal disposal of EAFD and slag at Dadu River and completed the final removal procedure.



12.5 Prevention, reduction, recycle and reuse to significantly reduce waste generations

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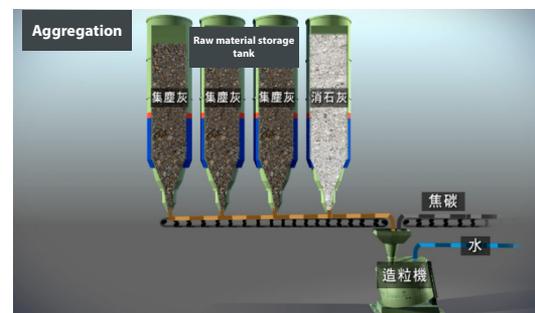
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## 3.1 Circular economy drivers

The circular economy is a philosophy learned from nature in the recycling and reuse of ecosystem resources. It is a new thinking and new development model designed to ensure sustainable recovery, recycle and reuse of resources and reorganization of the society and the economy.

Resource recovery and reuse of dust from electric-arc furnaces is via smelting in high temperatures in rotary kilns. Valuable metals such as lead and zinc are recovered from EAFD to make crude zinc oxide resource recovery product. Taiwan Steel Union adopts Waelz Kiln Process, a commercially mature technology in use for decades in the U.S., Europe and Japan for resource recovery and reuse of EAFD.

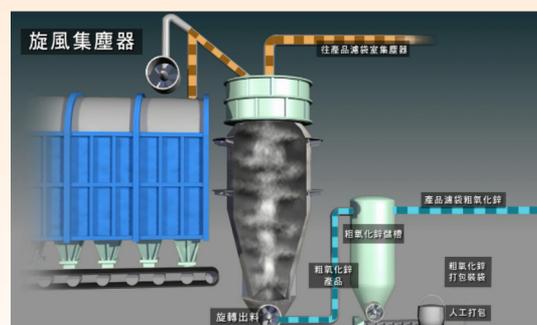
Waelz Kiln Process starts with blending of pelletized acidic or basic SRP EAFD, coke, silica sand (or alternative materials such as internally recycled and reused waste refractory materials, offsite treatment contaminated



soils), or lime/hydrated lime/calcium carbonate materials and feeding via conveyor belt in the environment of 1,000°C-1,300°C high temperature treatment in a rotary kiln. The processing can be divided into two steps:

### First step: material flows

High-boiling-point ingredients in EAFD and slag forming materials such as silica sand (or alternative) or lime/hydrated lime/calcium carbonate (or alternative) are sintered into rotary kiln slag (reusable waste code R-1207). The slag is discharged from the kiln, air cooled in a cooling drum and transported via conveyors and loading shovels for storage in the slag storage yard. Slag can be reused as road bed grade and reclamation filling materials.



### Second step: gas flows

Low-boiling-point ingredients of the feedstock and dust enriched off-gas are processed via air pollution control equipment such as dust settling chamber, Venturi rapid-cooling pipes, cyclone dust collector, activated carbon injection system and two-stage baghouse dust collectors. The processed clean off-gas is then emitted via chimneys. The powder dust materials collected by cyclone and baghouses are bagged as crude zinc oxide products.

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## Sustainability benefits of circular and reuse low-carbon products

A circular economy is an economic and industrial system where resources are recovered and regenerated. This reduces environmental stress and resource consumption. Resources input to the production process can be reduced and waste reuse can be increased by raising resource recovery efficiency to creates environmental and economic co-prosperity.

Taiwan Steel Union's crude zinc oxide is a circular recycled product as compared to the native product manufactured from ore mining, transportation to zinc oxide smelting, Taiwan Steel Union's crude zinc oxide creates multiple sustainability benefits include solution to illegal waste dumping, reduction of natural materials excavation, GHG emissions and provision of renewable resources. The relevant ESG sustainability benefits are as follows:

Type of sustainability benefits	Item	Explanation of sustainability benefits
Environmental benefits (E)	The demand for natural materials excavation is reduced.	Excavation, processing and transportation affect the environment and the landscape. Conversion of waste into raw materials reduces the environmental impact and enhances the efficiency of natural resources utilization.
	Waste processing services are offered to the society.	Taiwan Steel Union processes waste, to resolve illegal waste dumping and avoid ecosystem destruction.
	Lower CO <sub>2</sub> emissions	Use of waste as raw materials reduces the carbon emissions associated with excavation, processing and transportation.
	Lower impact on water resources	Use of waste as raw materials reduces the water resource impacts during excavation, processing and transportation.
Social benefits (S)	Full recycle and reuse of slag	Taiwan Steel Union converts waste slag into valuable resources products, with 100% recycle and reuse.
	Job creation	Create local job opportunities
Economic benefits (G)	Customer relationship improvement	This responds to the expectation from customers and investors and enhances the engagement with stakeholders.
	Creation of economic benefits	Create positive economic benefits each year
Economic benefits (G)	Resource dependence risk reduction and organizational resilience enhancement	Natural resources are replaced by waste. This reduces the risks of dependency on natural resources and increases Taiwan Steel Union's economic resilience.

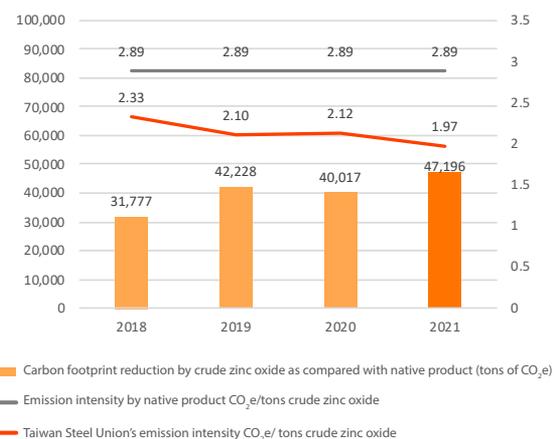
### Local job creation

Natural resources are replaced by waste. This reduces the risks of dependency on natural resources and increases Taiwan Steel Union's economic resilience. The local Changhua County employee percentage is 60%, and the local Changhua County employee percentage of the subsidiary Taiwan Steel Resource is 59%.

### Carbon footprint reduction by recycling and renewed products

Taiwan Steel Union enhances resource efficiency via a circular economy. The production of crude zinc oxide is beneficial to the overall environment and resources, particularly with climate change due to GHG emissions. Compared to the manufacturing process of native zinc oxide, Taiwan Steel Union's circular recycled products enhance resource efficiency and effectively reduce carbon footprint and GHG emissions throughout lifecycles. The 2021 carbon footprint and emissions were reduced by 47,196 tons of CO<sub>2</sub>e. Carbon reduction<sup>Note</sup> equivalent to carbon removed by 121 Daan Forest Parks.

Note: According to briefings by the Bureau of Energy, Ministry of Economic Affairs (p3 on carbon absorption), one Daan Forest Park absorbs 389 tons of carbon each year.



- Note: 1. Electricity and diesel emission coefficients based on the numbers provided by Environmental Protection Administration's carbon footprint calculation platform  
 2. Carbon emission coefficient for coke based on Taiwan Steel Union's material balance calculation.  
 3. Emission coefficient for native zinc oxide based on Gabi lifecycle assessment (V7.3.0.40)  
 4. Carbon footprint reduction not independently verified by third parties  
 5. The 2018 and 2019 electricity carbon footprint coefficients were updated to 0.642 and 0.601kgCO<sub>2</sub>e respectively. Accordingly, there were changes to the values in the report of last year.  
 6. This calculation refers to the emission intensity during the manufacturing stage of Taiwan Steel Union.

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## 3.2 Resource sustainability product carbon footprint and carbon label

Taiwan Steel Union is established through the joint venture of more than 10 domestic steel manufacturers, and its main business is to handle the EAFD generated by the steel making plants of the shareholder manufacturers during the manufacturing process. With the guidance of the Industrial Development Bureau, the Union has qualified the updated environmental assessment standard certification. Presently, the Union and electroplating operators in the industrial park jointly propose the industrial waste reuse plan, and it is expected to produce zinc oxide recycled from the zinc-containing wastes during the second half of 2022, in order to achieve urban mining. Taiwan Steel Union assisted electroplating operators to transform zinc-containing sludge into zinc oxide products, followed by the smelting and purification processes, in order to produce raw materials useable to electroplating operators, thereby establishing a resource recycling supply chain.

In 2021, Taiwan Steel Union obtained ISO 14067: 2018



electric furnace steel making EAFD and contaminated soil treatment service (heat treatment) carbon footprint" and "carbon label" dual certifications. The greenhouse gas emission of each stage is – raw material use: 425.201 kg CO<sub>2</sub>e, service process: 560.942 kg CO<sub>2</sub>e, waste treatment: 0.823 kg CO<sub>2</sub>e, and the total emissions is 986.97 kg CO<sub>2</sub>e. The Union has also obtained "ISO 14067: 2018 crude zinc oxide carbon footprint" certification. The greenhouse gas emission of each stage is as follows – raw material: 1,374.241 kg CO<sub>2</sub>e, manufacturing: 1,728.903 kg CO<sub>2</sub>e, and the total is 3,103.14 kg CO<sub>2</sub>e.



"ISO 14067: 2018 electric furnace steel making EAFD and contaminated soil treatment service (heat treatment) carbon footprint" and "carbon label" dual certifications.



"ISO 14067: 2018 crude zinc oxide carbon footprint" certification.

Taiwan Steel Union expects to continue to increase the diversity of waste resource recycling, further include zinc-containing resources (wastes) such as: waste zinc, zinc-containing products, electroplating sludge (A-8801), EAFD and sludge of other industries for reuse in order to replace the main raw material of EAFD, and recover valuable metal zinc, and reduce landfill treatment; increase incineration fly ash reuse to replace the secondary raw materials of lime and slaked lime, in order to reduce the mining and reliance of raw materials; further include waste with heating value and solid recovered fuel (SRF) product reuse in order to replace the fuel of coke and to reduce material coke use quantity. With the aforementioned benefit from

waste replacement, the greenhouse gas emission can be reduced, and the carbon footprint emission can be significantly reduced.

Taiwan Steel Union uses wastes as the raw material to replace the crude material in order to reduce the emission of greenhouse gas. In the future, it is expected to enhance the supply chain audit, in order to link the upstream, midstream and downstream of the supply chain for achieving low-carbon and sustainable process model and continuous manufacturing of low-carbon products, such that Taiwan Steel Union is able to serve as a sustainable and eco-friendly enterprise of continuous operation with respect to the three aspects of environment, society and economy.

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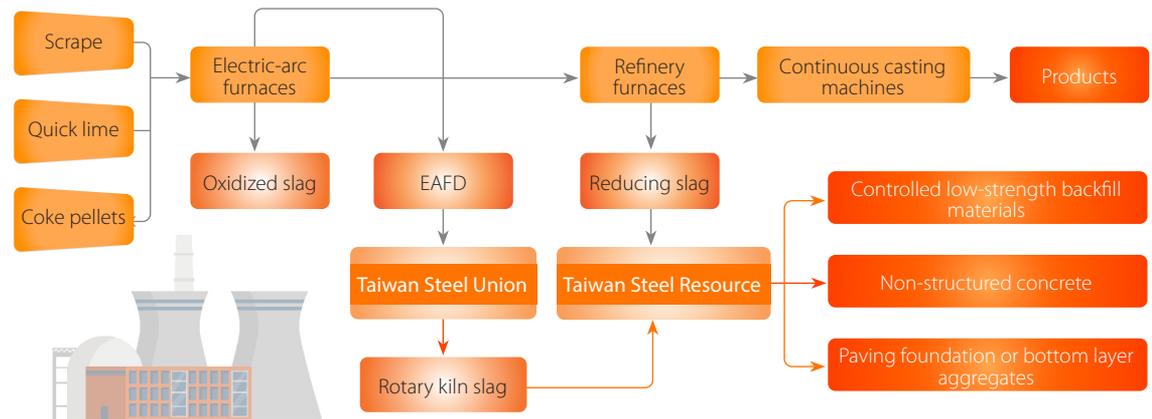
## 3.3 Special report on circular economy of slag

The biggest concern with the reuse of reducing slag is the high volumetric expansion, due to a large amount of quick lime not completely reacted. The calcium oxide not fully reacted exists in the form of free-CaO, likely to react with water and carbon dioxide digested into calcium hydroxide and calcium carbonate. In the process of free-CaO converting into calcium hydroxide, slag volume will expand causing social incidents so called roads expansion and "pimples" on the walls.

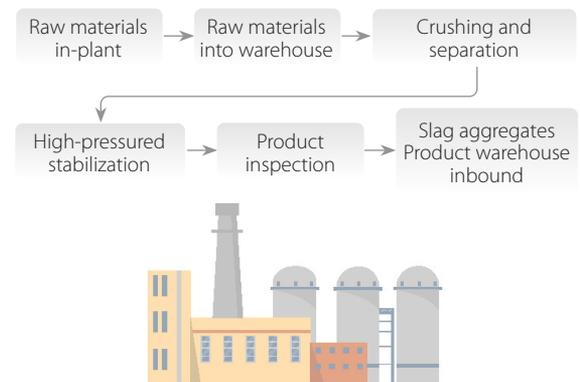
Taiwan Steel Union established the subsidiary company Taiwan Steel Resource mainly for stabilization and treatment of reducing slag. Slag is stabilized utilizing high pressure and high temperature resource recovery techniques, so that they will no longer expand and can

be used as a useful resource product, in combination with the recycling of rotary kiln slag produced by Taiwan Steel Union. Taiwan Steel Union achieves 100% recycle and reuse model for circular economic and is a role model for the circular economy in Taiwan and abroad. TSU Step feet into reuse of slag for the production of green and environmental-friendly building materials is in line with the circular economy and industrial policy.

Taiwan Steel Resource also built two in-house ready-mixed concrete plants solely made from recycled aggregates, will formally enter the market for ready-mix slag concrete business. Dedicated concrete-mix plant for slag with complete tracking and control of material flows. Contracts have been signed with downstream customers and product delivery began already.



Taiwan Steel Resource stabilizes the reducing slag with high temperatures and pressurized steam processes via crushing, magnetic separated and sifted. Pellets are crushed into below 5mm size for conveyer belt transportation to autoclaves for stabilization. Shown in the graph



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### 3.4 Taiwan Steel Union and Taiwan Steel Resource working together to clean up Electric Arc Furnace dust (EAFD) and slag on high bank of the Dadu River free of charge

Since 2005, many residents and environmental groups reported the illegal dumping of large quantities of slag and EAFD in the tidal zone along the Changhua side river bank of the Wu River mouth, between 162K West Coast Expressway (Provincial Highway No. 61) and Provincial Highway No. 17 within Changhua County. In 2020, Taiwan Steel Union and Taiwan Steel Resource helped to thoroughly clean up 3,326 tons of EAFD and slag deposited on the high bank of the Dadu River for three decades.

With the rising awareness for environmental protection, there have been efforts to prevent continued pollutions due to illegal dumping along rivers and public lands. Taiwan Steel Union and Taiwan Steel Resource decided to carry out corporate friendliness measures by actively assisting the local communities in resolving the environmental problem. On a free-of-charge basis, Taiwan Steel Union processed the EAFD and Taiwan Steel Resource screened and processed slag and removed EAFD etc. hazardous waste. The clean-up, screening and removal job duration were completed at the end of December 2021. With the help from Taiwan Steel Union and Taiwan Steel Resource, the EAFD and slag piled on the high bank of the Dadu River for 30 years were completely cleaned up. This action protected the estuary wetland and Wildlife conservation zone of the Dadu River.

In 2021, Taiwan Steel Union completed the removal and treatment of hazardous wastes of EAFD at high bank of Dadu River for a total of 962 tons. The toxic Xinfeng coastal line has now become one of the most beautiful and cleanest coastal lines in Taiwan. Presently, 11.8km of green coastal line has been planned and developed completely, allowing Xinfeng coastal line to become a great recreational place for the general public, thereby contributing an effort to the social common good and inclusion while fulfilling the environmental and social responsibilities.



The EAFD and slag accumulated at the high bank of Dadu River have been removed completely through the joint efforts of Taiwan Steel Union and Taiwan Steel Resource, thereby fulfilling cooperate social and environmental responsibilities.

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## 3.5 Increasing strength of the circular economy

To resolve lack of treatment facilities for other reusable waste in Taiwan and to respond to government policy for resource recovery and waste-to-energy, Taiwan Steel Union filed an application on February 15, 2020 for environmental impact assessment changes. The application was passed on November 25, 2020 and approved on January 22, 2021 by Environmental Impact Assessment Committee. The environmental assessment changes approved new acceptable resource waste categories are as follows:

### Acceptance Standards and Maximum Treatment Volume for Each Individual Waste

Acceptable Items	Explanation	Maximum Treatment Volume (ton/year)	Acceptance Standards
Other EAFD from steel making	As part of transformation into a General-Case recycle and reuse processor of EAFD (waste code: A-7101), except collection from the existing steelmakers other local electric arc furnaces steel mills (including carbon steel and stainless steel) are newly added.	28,000	Zn ≥ 2.5%
EAFD from illegal dumpsites	Collection of EAFD (A-7101) at local illegal dumpsites are newly added, to provide proper treatment channel and speed up the activation and utilization of national land.	25,000	
Waste zinc (single metal)	Waste zinc /slag/ashes (R-1303) etc. waste generated from all industrial processes with at least 40% zinc content	1,500	
15%-40% zinc content products from recycle or treatment facilities	Collection of products with lower zinc content of 15%-40% which are produced from recycle or treatment facilities and are difficult to sell are newly added. However, such products can become our company's raw materials for rotary kiln high temperatures smelting process and to be recycled as crude zinc oxide product.	4,000	
Waste zinc-manganese alkaline batteries	Collection of waste zinc-manganese alkaline batteries are newly added to assist the Environmental Protection Administration's Recycling Fund Management Board in resolving lack of proper waste batteries final treatment facilities issue in Taiwan. The valuable zinc metal resources in waste batteries can be recycled as crude zinc oxide product via high-temperature smelting at rotary kilns.	4,000	
EAFD or sludge with zinc content ≥2.5% (e.g., faucet related hardware industry, zinc-copper alloy industry etc.)	Sources of EAFD or sludge from other industries with zinc content ≥2.5% are newly added (e.g., faucet related hardware industry, zinc-copper alloy industry etc.)	2,000	
Electroplating dewatered sludge	Collection of electroplating dewatered sludge (A-8801) with zinc content ≥2.5% which are produced via wastewater treatment plant of electroplating processes are newly added. The primary contents of this waste are heavy metals and can be resource recovered and recycled as crude zinc oxide product via high-temperature smelting processes of our plant's rotary kilns. In this way, the purpose of 100% proper treatment and resource recovery of waste can be achieved.	20,000	

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Acceptable Items		Explanation	Maximum Treatment Volume (ton/year)	Acceptance Standards
Additive Raw Materials	Incineration fly ash from municipal solid waste incinerators or public/private waste treatment facilities incinerators	Incineration fly ash containing $\leq 3\%$ chlorine generated from municipal solid waste incinerators or public/private waste treatment facilities incinerators, can be used in lieu of the hydrated lime/lime additive raw materials input for high-temperature smelting process in rotary kilns providing proper digestion channels. It mitigates the problems associated with existing incineration fly ash must be solidified and landfilled for a long time and also reduces local landfill site demands and lengthens the service life of existing landfill sites and frees up national land resources.	35,000	Cl $\leq 3\%$
Fuels	RDF (or SRF) solid alternative (renewable) fuels	RDF (or SRF) solid alternative (renewable) fuel products are newly added and can be recycled and reused as an auxiliary fuel via high-temperature smelting process in the rotary kilns. This helps the Industrial Development Bureau to resolve the disposal problems of such wastes and also complies with government's promotion of waste-to-energy and the circular economy policies.	30,000	Heating value $\geq 1,500$ kcal/kg
	Solid (industrial) waste with a heating value	Solid industrial waste with a heating value (acceptance heating value $\geq 1,500$ kcal/kg) or any solid waste with a heating value specially case approved by local/central environmental authorities and produced via screening pre-treatment processes are newly added which can be recycled and reused as a process auxiliary fuel via high-temperature smelting process in the rotary kiln. This is in line with the government's promotion policy for waste-to-energy circular economy.		
	Waste bag filters from electric arc furnaces steel mills	Waste bag filters from electric arc furnaces steel mills (acceptance heating value $\geq 1,500$ kcal/kg) are newly added for the recycled and reused via high-temperature smelting process in the rotary kiln, not only providing auxiliary heating energy for process needs and valuable metal (zinc) in the EAFD residues can also be recycled and reused. This provides proper treatment route of such waste and also complies with the government's promotion policy for waste-to-energy circular economy.		

In 2020, Taiwan Steel Union completed its transformation and preparation is ready for newly added resource waste from various sources in 2021 and injection of motivations for diversified growth gradually. Business discussions have been ongoing with Polish smelting plant (ZGH) and tests will be conducted soon. As the LME zinc price level this year looks to be higher than last year, the company expects new growth in both revenue and profit.

The company expects increasing revenue growths after two decades of planning and arrangements, via the addition of new recyclable resource wastes and production capacity and ready-mixed concrete plant expansions completed by Taiwan Steel Resource, in order to ease our revenue impact by LME zinc price. The outlook for business performance this year looks brighter than last year.



Taiwan Steel Union's General Manager Yen-Bin Fang (middle), Environmental Safety Manager Tsung-Lin Hsieh (right) and Administrative Department Manager Jackie Lin (left)

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1

## Management mechanism after change of development behavior

Taiwan Steel Union has been in the business operation of hazardous waste EAFD cleaning and removal for numerous years, and the Union has established relevant internal control management regulations related to the receipt and cleaning operations, in order to maintain standard and consistent operations, thereby achieving the goal of proper control and treatment of wastes.

2

## Receipt and treatment volume upper limit and early warning control mechanism

The internal control order receipt management regulations have specified that during the contract signing stage, the sales unit shall confirm the current production status with the production unit, and after the contract signing, the production plan shall be adjusted in order to arrange the treatment volume of such lot of wastes and its schedule. In addition, production meeting shall be convened periodically to review and adjust the product plan. Furthermore, the Union calculates the pollutant emission total volume of the quarter according to the chimney emission inspection value of each quarter, and calculates the annual cumulative total volume. During the monthly production and sales meeting, the cumulative pollutant emission total volume and items are further reviewed, such that when a pollutant item reaching 90% of the pollution total volume, early warning is issued, in order to perform necessary receipt and feed control on wastes, thereby ensuring that it does not exceed the pollution annual total volume.

3

## Receipt treatment item acceptance standard and management mechanism

Regarding the incoming control management method, the factory of the Union requests the production source to provide waste sample to the Union's laboratory for chemical testing and analysis, or the production source provides the waste test report. The contract is accepted and signed only after the waste complies with the acceptance standard of the factory of the Union.

For the present change, the acceptance standard and the execution method of the test item, test method and test frequency of each type of waste are further included, such that before the factory entrance of the wastes, samples are obtained from each vehicle for testing first, and waste is accepted only when it complies with the acceptance standard of the factory of the Union. All wastes failing to comply with the standard are rejected without acceptance. Relevant management methods are included in the order acceptance management regulations and warehouse inbound management regulations of the Union, and standard and consistent operations are maintained in order to achieve the goal of proper control and treatment of wastes.



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## 3.6 Waste management

### Waste diverted from disposal

Taiwan Steel Union is a 100% recycle and reuse company, from cradle to cradle. We have set up a waste recycle and reuse policy, carried out the slag reuse project, established waste reuse KPIs and made transparent disclosure.



#### 1

### Waste reuse

Taiwan Steel Union's total waste in 2021 weighed 118,297 tons, comprised of general industrial waste of 116,397 tons and hazardous waste of 1,900 tons. All the waste are return scrap. The outsourced treatment of general waste includes domestic waste for incineration and waste timber for reuse. The bulk of general industrial waste is 116,375 tons of rotary kiln slag (R-1207), for resource recovery and reuse for products. The slag reuse rate was 100% and the industrial waste reuse rate was 99.997% in 2021.

#### 2

### New KPIs and targets in waste reuse management

Taiwan Steel Union has newly set up a new set of KPIs and targets for waste reuse. This includes general waste reuse rates, hazardous waste reuse rates and no major waste leakages or breaches.

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KPIs and targets in waste reuse

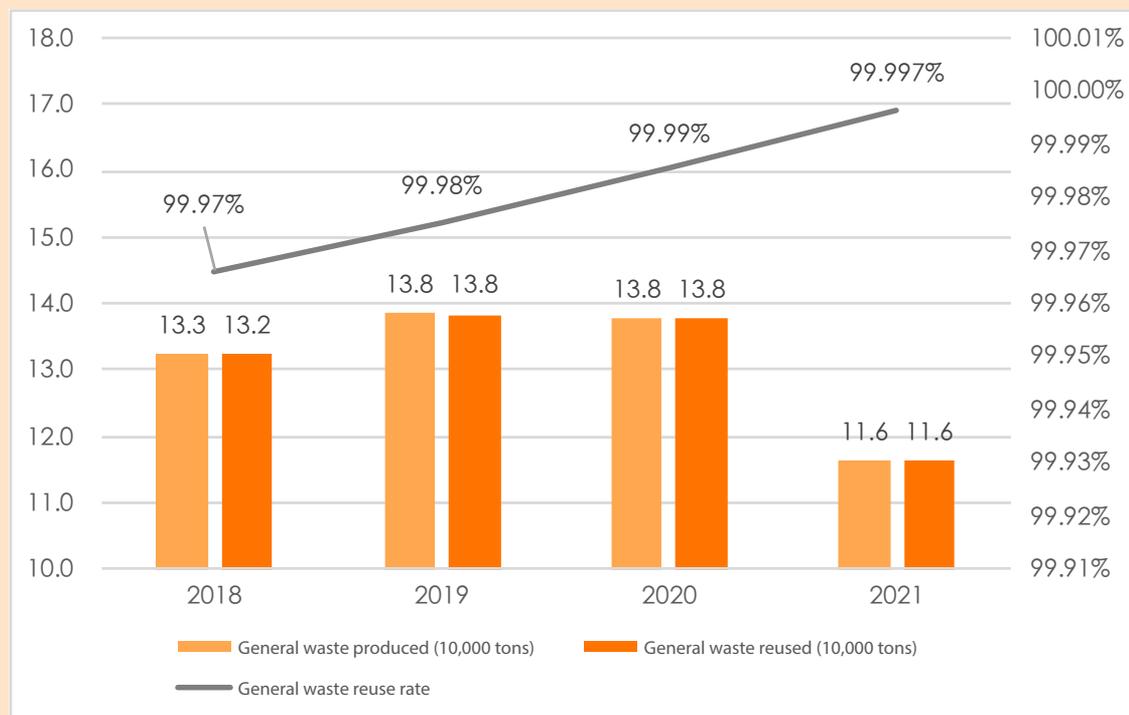
Key Performance Indicators		Long-term target for 2030	
• Industrial waste reuse rate		• Close to 100%	
• Slag reuse rate		• 100%	
• Major waste leakages or breaches		• No major leakages or breaches	

2021 Key Performance Indicators (KPIs)			
Industrial waste reuse rate (%)	Slag reuse rate (%)	No. of major waste leakages and breaches (No. of times)	
2021 99.99	2021 100	2021	0
2020 99.99	2020 100	2020	0
2019 99.98	2019 100	2019	0
2018 99.97	2018 100	2018	0

2021 target achievement		
Target achievement	Target achievement	Target achievement



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# Chapter 4

Taiwan Steel Union's value chain consists of the supply chain and customers. In the upstream are EAFD or sludge (A-7101) as waste from steel making electric-arc furnaces and the resource recovery, processing and treatment of reducing slag. The most important activities downstream are the collection of products and waste, fleet management of collection vehicles and compliance with laws and regulations.

## Value Chain Management



### Management guidelines on value chain

Main topic: transportation  
safety and regulations



#### Management system

- Transportation safety management and training.



#### Value chain management goals

- 100% compliance with laws and regulations; no major traffic accidents and injuries/deaths.
- No violation of environmental laws or regulations.



3.6 Halving of the number of injuries and deaths due to traffic accidents around the world

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### Value chain Management highlights

#### Transportation safety

A total of 117.07 million ton-kilometers transported over the past nearly four years. The number of injuries/death due to traffic accidents and the number of major traffic accidents were 0.

#### Satisfaction level of EAFD customers and contaminated soils customers reached target

- ✓ 2021 satisfaction level of EAFD customers received 5.3 points.
- ✓ 2021 satisfaction level of contaminated soils customers received 5.8 points. (A full score of 6; target at 5.4)

#### Class A supply chain

The percentage of Class A suppliers was **100%**.

#### Satisfaction level of crude zinc oxide customers

2021 satisfaction level of crude zinc oxide customers received 5.7 points (Full score of 6 points, and target score of 5.4 points)

#### Transportation laws and regulations

A total of 117.07 million ton-kilometers transported over the past nearly four years. There was no transportation suspension or vehicle confiscation due to breach of traffic rules.



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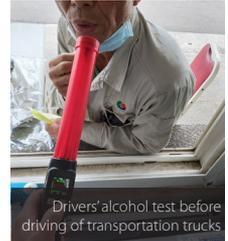
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## 4.1 Transportation safety laws and regulations

### Transportation management

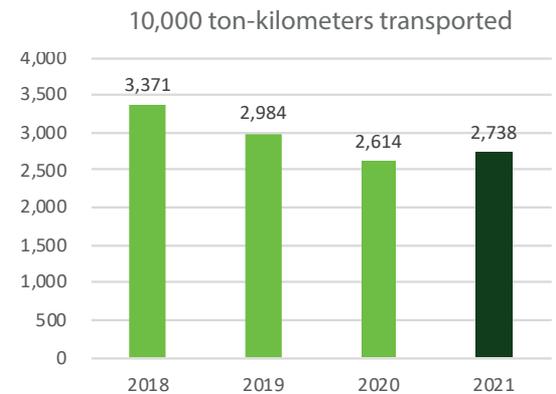
Taiwan Steel Union transports waste such as EAFD from electric-arc furnaces to the designated sustainability sites through fleet contract management, including the installation of the GSP system as required by the Environmental Protection Administration, protective measures required during transportation, training and management of vehicle cleaning and transportation personnel and inspection performed according to the self-inspection requirements of the motor vehicles office. Transportation management is implemented day-to-day, with a zero-tolerance policy, in order to ensure transportation safety and legal compliance.



Drivers' alcohol test before driving of transportation trucks

### Transportation safety

Taiwan Steel Union exercises a strict control over transportation safety. Regarding the United Nations' Sustainable Development Goal (SDG) of 3.6, the goal is to reduce the global deaths due to traffic accidents by half in 2020. Based on this, Taiwan Steel Union has set a zero tolerance for traffic accidents and injuries/deaths due to traffic accidents. For the past four years, the transportation vehicles of the Union have driven a distance of 117.07 million ton-kilometers. The number of injuries/death was zero, reaching 100% of the target.



### Transportation laws and regulations

Taiwan Steel Union demonstrates robust transportation management, without violation of any transportation safety laws or regulations over the past four years.

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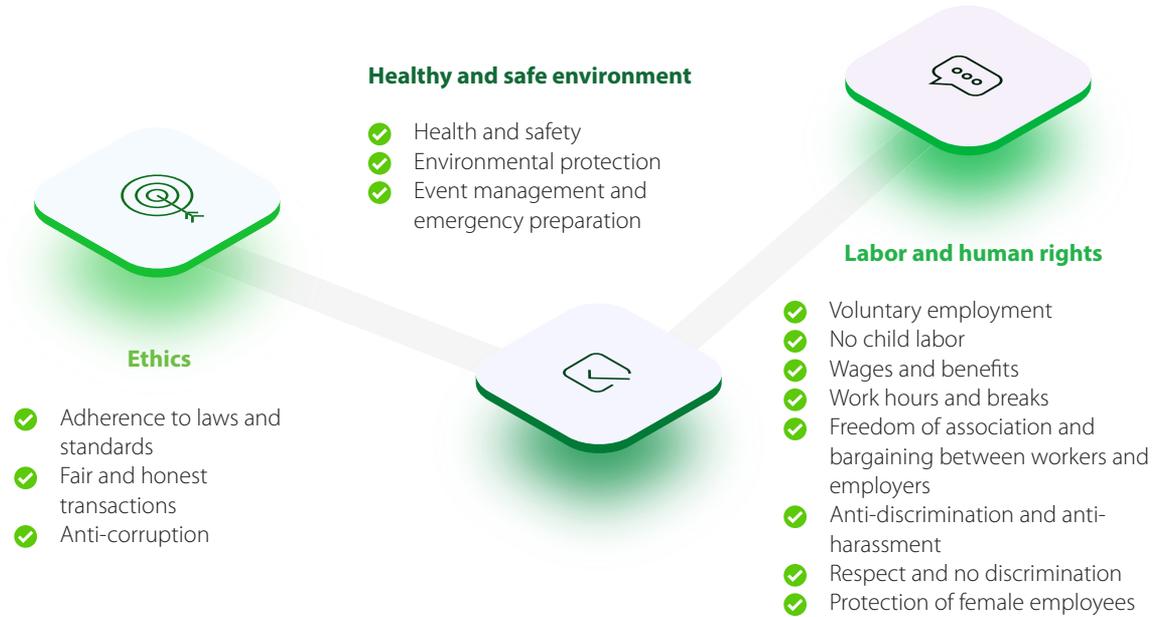
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## 4.2 Supply chain management

Taiwan Steel Union has put in place "Suppliers' Code of Conduct" for supplier management by incorporating expectations in ethics, healthy and safe environment, labor and human rights.



### Suppliers' Code of Conduct



Taiwan Steel Union is a driver of the 100% circular economy. Other than zinc oxide customers and contaminated soils customers, the supply chain structure is shown on the right. At the upstream are suppliers of raw materials, equipment maintenance service providers.



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## Key suppliers

Key materials are defined as materials capable of affecting production directly in case of material shortage. Key suppliers are defined as business operators for providing key materials. Key material suppliers are identified to be suppliers of coke, slaked lime and quick lime. The procurement from key suppliers account for 33% of the total purchase.



Note: Key tier 1 suppliers refer to suppliers supply materials to Taiwan Steel Union directly



## Taiwan Steel Union's management of key supplier risks

Taiwan Steel Union's management method of key supplier risks includes the variety of sources, real-time tenders to avoid shortage of materials, contracts signing with domestic suppliers to ensure supplies, and at least two suppliers for each key material.

The Union maintains three suppliers of quick lime, and most of such raw material is imported from Vietnam. Starting in 2019, the Union has further included raw materials imported from Thailand and Sultanate of Oman. In 2021, the international market price for coke plunged significantly causing decrease of the overseas purchase price and increase of the domestic purchase ratio. Accordingly, the transportation emission was reduced and the coke carbon emission effect was increased.

Furthermore, the increase of the acceptance of incineration fly ash for lime and the acceptance of SRF for coke are able to reduce the risk of insufficient supply in the supply chain, and to further increase the waste recycling and regeneration effect.



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## Supplier assessment management

To enhance the sustainability management of the supply chain, Taiwan Steel Union has established the "Supplier Management and Assessment Guidelines" to the management standards for the supplier and contractor performance evaluation and assessment. Assessment when procurement exceeds NT\$200,000 during the annual year of concern

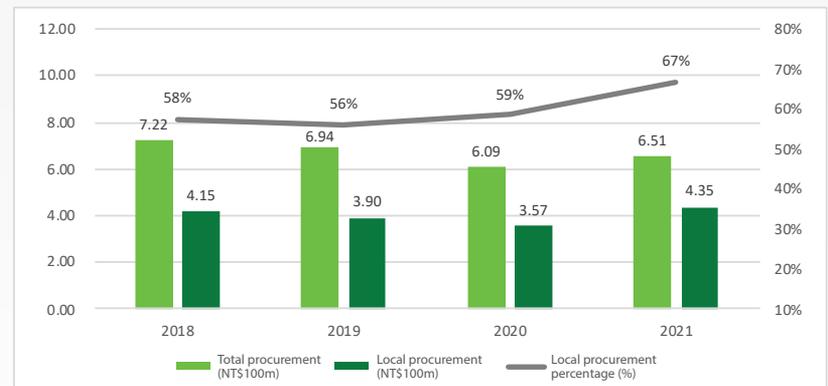
## Supplier assessment results

Assessment of suppliers and contractors is divided into monthly assessments and annual assessments, primarily on product delivery, quality, environmental safety and health. Assessment results are categorized in levels for subsequent tiered management. The assessment results in 2016-2021 are as follows: There were a total of 127 suppliers and contractors in 2021. The ratio of Class A suppliers reached 100%.

Classification	Classification standard	2016 No. of suppliers and contractors	2017 No. of suppliers and contractors	2018 No. of suppliers and contractors	2019 No. of suppliers and contractors	2020 No. of suppliers and contractors	2021 No. of suppliers and contractors
Assessment of suppliers	A Level (90-100 points)	27	36	51	44	45	48
	B Level (61-89 points)	1	0	1	1	1	0
	C Level (≤60 points)	0	0	0	0	1	0
Assessment of contractors	A Level (90-100 points)	64	37	68	67	68	79
	B Level (61-89 points)	0	0	0	1	1	0
	C Level (≤60 points)	0	0	0	0	0	0

## Local procurement

Taiwan Steel Union advocates local procurement in Taiwan, to promote the economic development of Taiwan, by at least purchasing 50% locally. This target was attained in 2018-2021.



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## 4.3 Customer relation management

Taiwan Steel Union conducts annual surveys on levels of satisfaction among EAFD customers and zinc oxide customers, in order to maintain customer trust and manage customer satisfaction. In 2018, the reused soils customers were added to the survey for levels of satisfaction. The rating scale is 5 to 6 points for satisfaction, 3 to 4 points for acceptance, and 1 to 2 points for dissatisfaction. The target is set of 5.4 for high quality.



### 1

#### Satisfaction level of EAFD customers

12 copies of survey questionnaires were issued and collected from EAFD customers. For the last four years, the customer satisfaction surveys indicated results above the expected standard, and the customer satisfaction score in 2021 was 5.3 points.

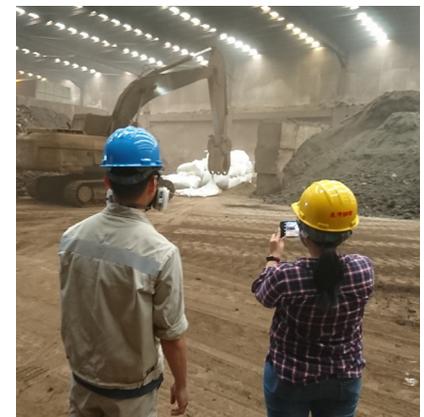
👤 EAFD Customer A: We hope that the normal transportation and disposal service can be resumed as soon as possible.

👤 EAFD Customer B: The cooperation level of Taiwan Steel Union has been excellent for a long period of time in the past; however, starting from the middle of 2021, the number of tank truck trips has been reduced or cancelled under temporary notice, causing great pressure to the field unit for the packaging operation. We recommend that the Union can improve such situation as soon as possible.

👤 EAFD Customer C: The number of tank trucks was once insufficient for a period of time.

👤 EAFD Customer D: The price change is sudden and unexpected. Although we can understand the operating cost problem of Taiwan Steel Union, we still hope that the price related information can be informed in advance in the future rather than requesting customers to browse website for own discovery individually.

👤 EAFD Customer E: We demand approximately 4 trips of disposal daily; however, the drivers of Taiwan Steel Union seems to have hard time meeting our demand. We recommend that the Union can comprehensively plan the disposal of each production source and the reuse volume, and properly arrange sufficient manpower for the drivers in order to satisfy the demand of each plant.



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## 2

### Satisfaction level of contaminated soils customers

The satisfaction level survey on reused soils customers began in 2018. 15 copies of survey questionnaires were issued to and recovered from government agencies and private organizations in 2021. The customers' satisfaction indicated the result of 5.8 points, close to the full score of 6 points.

## 3

### Satisfaction level of zinc oxide customers

8 copies of survey questionnaires were issued to and 7 copies were recovered from zinc oxide customers. The level of customers' satisfaction for 2021 was 5.7, reaching the target of 5.4 points. Taiwan Steel Union maintains good communication with customers and assists customers to keep an eye on the steel market and the zinc ore market in Taiwan and overseas. Hopefully this creates win-win for Taiwan Steel Union and customers with stable demand and supply by helping customers make adjustments to market change and providing materials specific to requirements.



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# Chapter 5

## Management guidelines on green manufacturing process

Taiwan Steel Union is a company that reuses waste from steel making electric-arc furnaces in Taiwan. To fulfill corporate social responsibility, we translate our long-standing philosophy into effective resource planning. Potential hazards, risks and environmental impacts are effectively controlled with an environmental health and safety management system on production activities, products and services, in order to achieve sustainability.

# Green Manufacturing Process

Main topics: climate change, materials (GRI 301), energy (GRI 302), water and effluents (GRI 303), GHG emissions (GRI 305), environmental compliance (GRI 307), effluents, and occupational health and safety (GRI 403)



### Green manufacturing process and environmental safety and health policy

- Adherence to the government's laws, regulations and other requirements in environmental safety and health
- Continuing operations in accordance with green, environmental protection and safety policies
- Environmental safety and health education to enhance employees' awareness in environmental safety and health
- Hazard and pollution prevention to establish a quality work environment
- Continued improvement to enhance management performance in environmental safety and health
- Industrial waste reduction to lower pollutant emissions and protect the environment
- Adherence to environmental safety and health issues to achieve sustainable operation
- Safe and healthy environment to prevent injuries and diseases
- Increase worker consultation participation and improve environmental safety and health performance.



### Management system

- Continued promotion and maintenance ISO 14001 and ISO 45001 environmental safety and health management system



### Green manufacturing process targets

- Compliance with emission standards stipulated in all environmental laws
- 2030 water reclamation and reuse rate of 45%
- 2015-2024 electricity saving 1% p.a.



### Assessment of green manufacturing process effectiveness

Through the annual reporting of sustainability report, its effectiveness is tracked and assessed continuously.



6.4 Significant improvement of water consumption efficiency for different industries, to ensure the sustainability of fresh water supply and recycling



7.a. Enhancement of energy infrastructure and investment in clean energy technology

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#### Green Manufacturing Process Highlights-1

##### Energy intensity level maintenance

2021 energy intensity was 0.7 (TJ/ton treated), and the standard level was maintained.

##### Key Scope 3 emission

Emissions related to the transportation of upstream raw materials, upstream energy transportation and coke excavation totaled 15,000 tons, accounted for 14% of the total emissions.

##### Environmental protection expenses

The expense amount in 2021 was NT\$103 million.

##### Achieved national emissions target in phases

The greenhouse gas emission in 2021 was reduced by 33% from the base year (2012).

##### 100% material recycle and reuse

Material inputs are EAFD and contaminated soils. Outputs are crude zinc oxide products and recycle slag. The slag is converted by Taiwan Steel Resource into recycled products, such that 100% of materials are circular recycled.



#### Green Manufacturing Process Highlights-2

##### Continuous reduction of water consumption intensity

The water consumption of unit treatment volume was 0.389 tons/ton of waste treatment.

##### Excellent power consumption intensity

Electricity consumption intensity in 2021 was 127 (kWh/ton treated), and the standard level was maintained.

##### Excellent water reclamation and reuse rate

2021 water reclamation rate reached 43%

##### Industrial waste reuse rate close to 100%

The general and hazardous industrial waste reuse rate was close to 100% and the slag reuse rate was 100%.

##### Coke energy efficiency project

The coke consumption per ton treated was significantly reduced, and the cumulative reduction over the past two years reached 37%.

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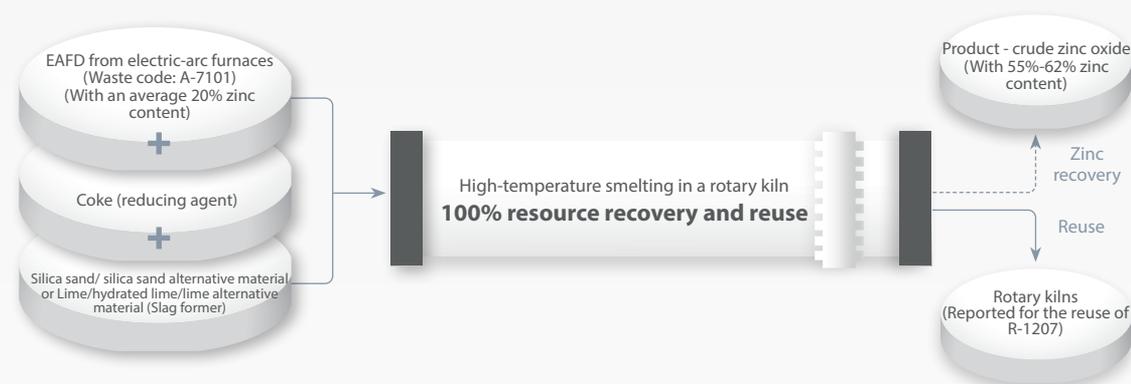
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## 5.1 Environmental-friendly green manufacturing process

Taiwan Steel Union adopts Waelz Kiln Process with high-temperature smelting in rotary kilns, for resource recovery and stabilization of EAFD from electric-arc furnaces (A-7101) and contaminated soils. The converted products are crude zinc oxide and recycle slag, 100% circular recycled in an environmental-friendly process including best available control technology (BACT), the optimal and feasible control technology, optimization and improvement of manufacturing process, an enclosed transportation system, cooling system improvement, thermal recovery and fleet management.



### ✓ Air pollution control technology

Taiwan Steel Union uses air pollution control equipment of the best available control technology (BACT). This includes a dust settling chamber, Venturi cooling pipes, hydrated-cyclones, activated carbon injectors, slaked lime injectors, two-stage bag-type dust collectors (product bags and absorption bags), bag-type dust collectors for entry ends and kiln entries. Meanwhile, preventive measures are in place to control fugitive pollution from stored materials. Warehouses are built for raw materials, products and Phase III, so that raw materials as inputs, rotary kiln slag and products as outputs are all kept indoors. This reduces fugitive pollutions due to blowing of strong winds.

### ✓ Manufacturing process optimization and improvement

Taiwan Steel Union optimizes and improves the manufacturing process such as review of parameters of pH value adjustments and betterment of the cooling system. The purpose is to reduce the consumption of coke and liquid oxygen and the generation of wastewater.

### ✓ Enclosed transportation system

The transportation system is enclosed in the underground hallway, to reduce fugitive emissions of materials. Dust collectors are installed at the warehouses for incoming materials.

### ✓ Aircooler and thermal recovery

Taiwan Steel Union's No. 2 Kiln and No. 1 went through revamps for the cooling system in 2015 and 2016, respectively. A cooling kiln was added to recover hot air. The cooling system has been changed from water-based to air-based. Counter-current heat exchange is processed for slag and cold air. After the heat exchange, hot air is recovered at about 320~400°C, as an input to the main rotary kiln to fuel combustion. Once cooled, the temperature of slag can be reduced to 50~80°C, conveyed to the disposal site. The improved manufacturing process saves 10-20% coke consumption. It also reduces the consumption of liquid oxygen and running water and the emission of wastewater. This reduces energy and water consumption, as well as carbon reduction.

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✓ **Fleet management**

To reduce the pollution risk due to fugitive emissions of dropped materials, the purchase contracts require the cleaning of the vehicle after the uploading of each batch. When leaving the factory, vehicles are inspected at the weighing room for cleaning and prevention of fugitive materials.

✓ **100% recycle and reuse of materials**

Taiwan Steel Union's input materials are EAFD and contaminated soils. Outputs are crude zinc oxide and slag, both non-renewable. The subsidiary Taiwan Steel Resource converts slag into products, with 100% resource recovery and reuse.

In 2021, the subsidiary Taiwan Steel Resource reported the processing of 57,000 tons of reducing slag, 110,000 tons of rotary kiln slag, 7,000 tons of oxidized slag, 9,000 tons of cement and 7,000 tons of furnace slag.

**Output – resource recovery of slag (10,000 tons)**

2018	2019	2020	2021
13.2	13.8	13.7	11.6

**Inputs (10,000 tons)**

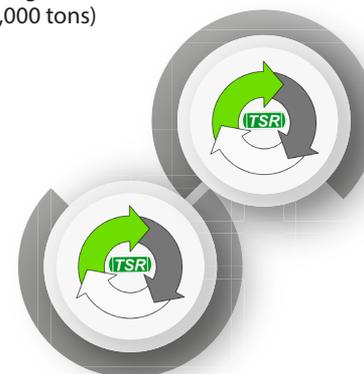
	2018	2019	2020	2021
EAFD	14.5	14.4	14.7	14.2
Contaminated soils	1.7	2.1	1.8	0.5
Others	3.0	3.5	3.3	2.6
Environmental assessment newly added waste actual reuse and treatment volume (tons):				0.163

Material output - Total of base materials for pavement engineering work, concrete aggregates (including asphalt), aggregates for controlled low-strength backfill materials (in 10,000 tons)

2020	2021
15.3	16.7

Material inputs (10,000 tons) - Total of reducing slag, rotary kiln slag, oxidized slag, cement, furnace slag (in 10,000 tons)

2020	2021
15.42	18.2

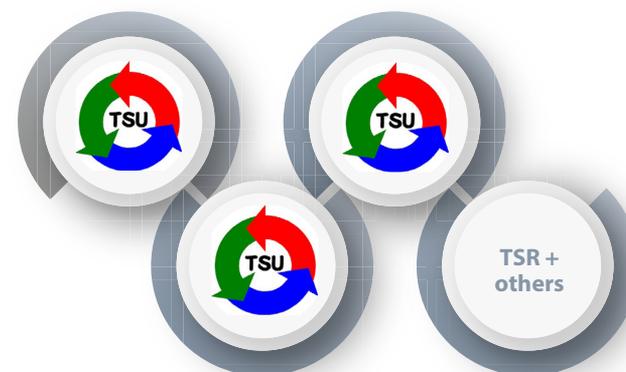


Material outputs - Reported production volume of controlled low-strength materials and non-structure concrete (in 10,000 tons)

2021
4.2

**Outputs – crude zinc oxide (10,000 tons)**

2018	2019	2020	2021
5.64	5.35	5.19	5.13



**Material output – slag (10,000 tons)**

2018	2019	2020	2021
13.2	13.8	13.7	11.6

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## 5.2 Environmental policy and management system

To implement ISO 14001: 2015 environmental management system, ISO 45001: 2018 occupational health and safety management system and to fulfill corporate social responsibility, Taiwan Steel Union has formulated its environmental health and safety policy as the highest principle for environmental health and safety management.



### Environmental standards and policy

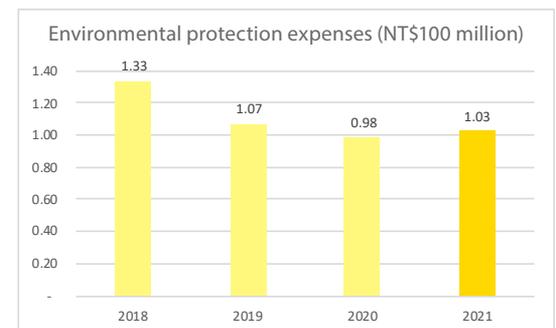
Taiwan Steel Union is a company that reuses waste from steel making electric-arc furnaces in Taiwan. To fulfill corporate social responsibility, we translate our philosophy into effective resource planning. Potential hazards, risks and environmental impacts are effectively controlled with an environmental health and safety management system on production activities, products and services, in order to achieve sustainability.

### Environmental management system implementation and validation

Taiwan Steel Union continues to drive its environmental health and safety management system, with annual targets, goals and management initiatives. A robust management method is implemented to reduce pollutions and emissions, improve the operating environment and enhance management performance in environmental health and safety. The purpose is to ensure the environmental friendliness of the manufacturing process and the creation of a safe operating environment.

### Environmental protection expenses

Taiwan Steel Union's environmental protection expenses include wastewater treatment and emission charges, air pollution processing and emission charges, waste collection and processing fees, regular inspection fees, cleaning and maintenance of factory facilities and cultivated plants and costs for environmental management and preventive measures. 2021 expense amount was NT\$103 million.



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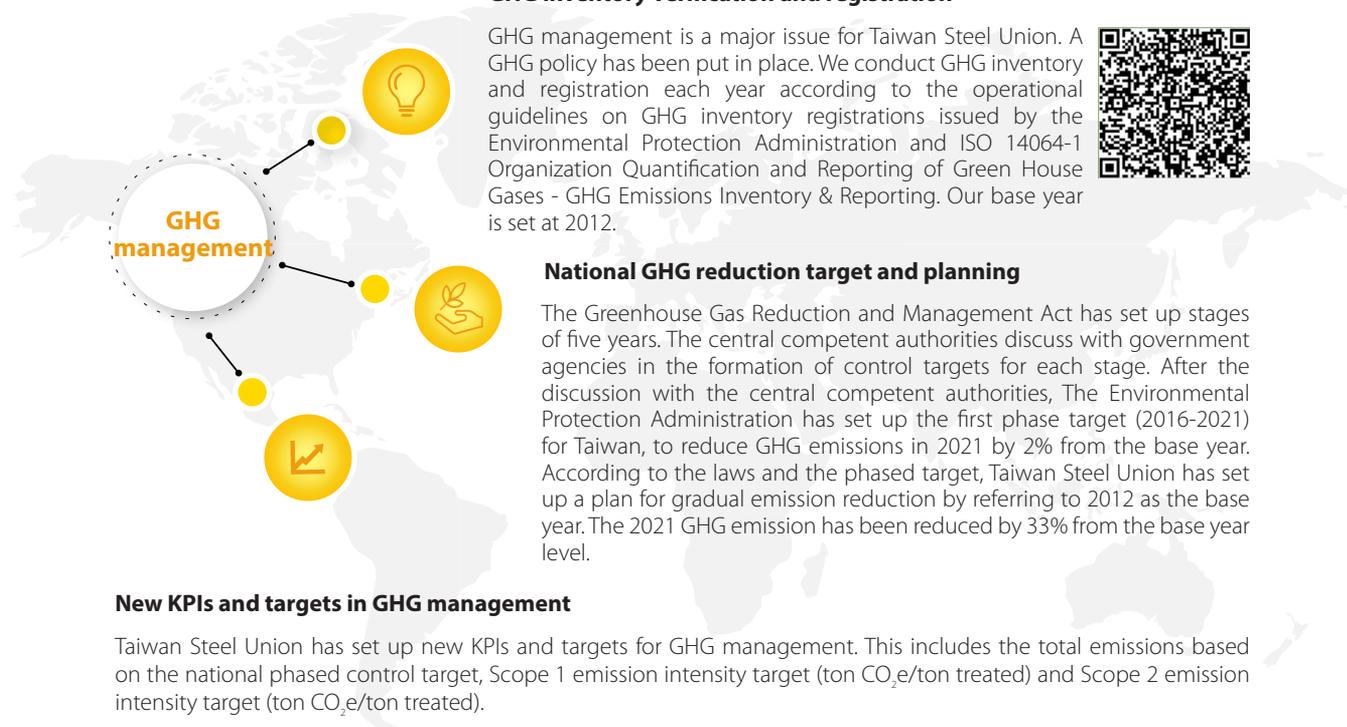
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## 5.3 Operational ecosystem efficiency



### GHG inventory verification and registration

GHG management is a major issue for Taiwan Steel Union. A GHG policy has been put in place. We conduct GHG inventory and registration each year according to the operational guidelines on GHG inventory registrations issued by the Environmental Protection Administration and ISO 14064-1 Organization Quantification and Reporting of Green House Gases - GHG Emissions Inventory & Reporting. Our base year is set at 2012.



### National GHG reduction target and planning

The Greenhouse Gas Reduction and Management Act has set up stages of five years. The central competent authorities discuss with government agencies in the formation of control targets for each stage. After the discussion with the central competent authorities, The Environmental Protection Administration has set up the first phase target (2016-2021) for Taiwan, to reduce GHG emissions in 2021 by 2% from the base year. According to the laws and the phased target, Taiwan Steel Union has set up a plan for gradual emission reduction by referring to 2012 as the base year. The 2021 GHG emission has been reduced by 33% from the base year level.

### New KPIs and targets in GHG management

Taiwan Steel Union has set up new KPIs and targets for GHG management. This includes the total emissions based on the national phased control target, Scope 1 emission intensity target (ton CO<sub>2</sub>e/ton treated) and Scope 2 emission intensity target (ton CO<sub>2</sub>e/ton treated).

#### KPIs and targets in GHG management

Key Performance Indicators	Long-term target for 2030
• Total emission target based on national phased control	<ul style="list-style-type: none"> <li>• 2% reduction by 2020</li> <li>• 10% reduction by 2025</li> <li>• 50% reduction by 2030</li> </ul>
• Scope 1 emission intensity target (tonCO <sub>2</sub> e/ton treated)	<ul style="list-style-type: none"> <li>• 2025 target: 0.56</li> <li>• 2030 target: 0.53</li> </ul>
• Scope 2 emission intensity target (tonCO <sub>2</sub> e/ton treated)	<ul style="list-style-type: none"> <li>• 2025 target: 0.064</li> <li>• 2030 target: 0.062</li> </ul>

#### 2021 Key Performance Indicators (KPIs)

Phased control reduction target (%)	Scope 1 emission intensity (tons CO <sub>2</sub> e/ton treated)	Scope 2 emission intensity (tons CO <sub>2</sub> e/ton treated)
2021 33	2021 0.481	2021 0.064
2020 18	2020 0.556	2020 0.061
2019 17	2019 0.540	2019 0.063
2018 1	2018 0.668	2018 0.064

#### 2021 target achievement

The volume of reduction in 2021 was 33%, and continuous improvement is to be implemented.	Scope 1 emission intensity in 2021 was 0.469, achieving the 2025 target early.	Scope 2 emission intensity in 2021 was 0.065, achieving the 2025 target early.
---	--	--

Note 1: The KPIs in the 2020 report are different from Scope 1/2 emission intensity of 0.540/0.063 stated for 2019 stated in the 2019 report. Data has been updated. The treatment volume in 2021 included EAFD, contaminated soil and other newly added 5 treatment items.

Note 2: In 2021, Taiwan Steel Union's subsidiary, Taiwan Steel Resource, did not perform greenhouse gas inspection, and it is expected to perform the inspection disclosure in 2023.

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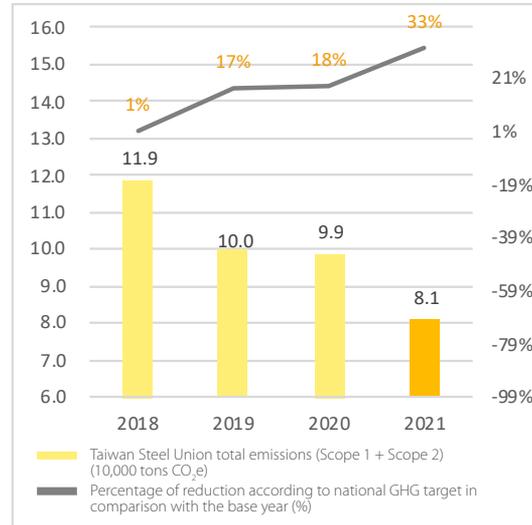
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## Taiwan Steel Union's total GHG emissions (Scope 1+ Scope 2)

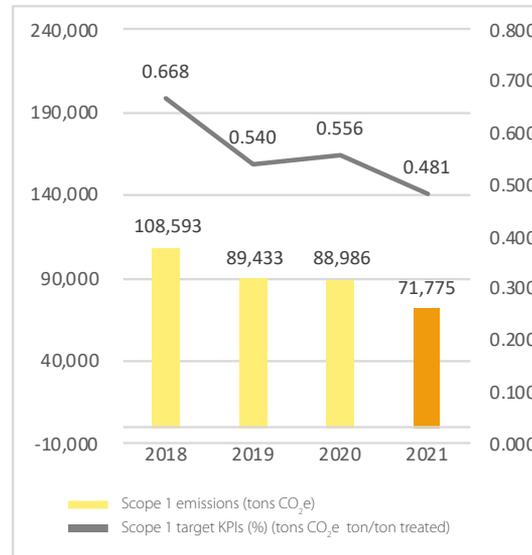
Total emission target based on national phased control



Taiwan Steel Union is classified as the first group of entities requiring the registration of Scope 1 and Scope 2 emissions according to the classification control of the Environmental Protection Administration, and the Union has qualified the SGS third party external audit to obtain the ISO 14064-1 greenhouse gas inspection declaration.

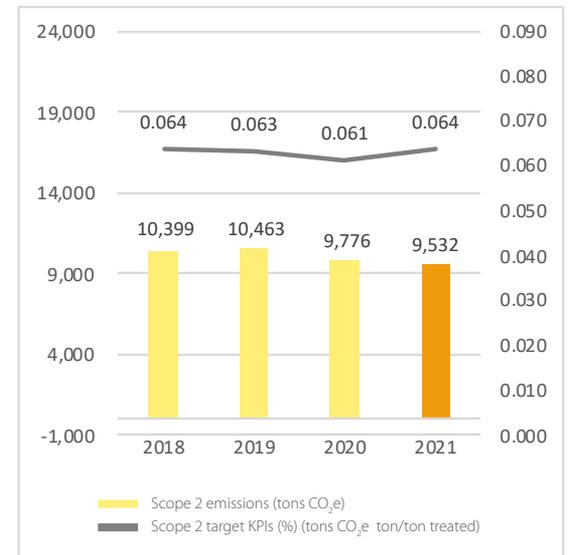
## Taiwan Steel Union's greenhouse gas Scope 1

Emission intensity (tons CO<sub>2</sub>e/ton treated)



## Taiwan Steel Union's greenhouse gas Scope 2

Emission intensity (tons CO<sub>2</sub>e/ton treated)



The greenhouse gas emission coefficient uses the 3.0.0 version announced by the Environmental Protection Administration, and the source of the Global Warming Potentials (GWP) uses IPCC AR4,2007 version.

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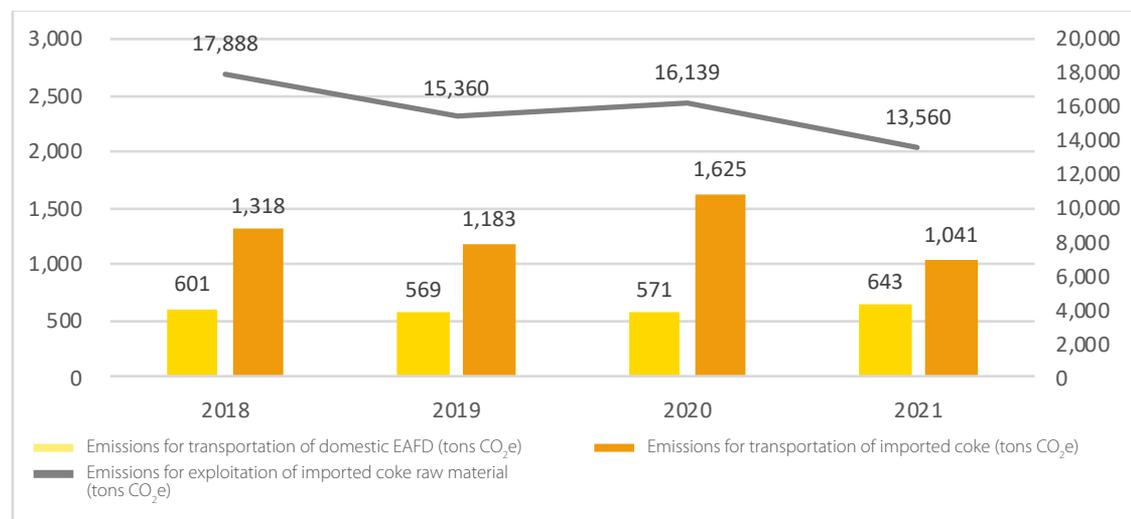
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## Taiwan Steel Union's Scope 3 emissions

Taiwan Steel Union follows the TCFD framework in conducting and disclosing the inventory of Scope 1 to Scope 3 emissions. Our identification of the key Scope 3 emissions are the transportation of EAFD as a raw material, the transportation of energy and coke and the excavation of coke as an energy input. Each Scope 3 GHG emission is as follows: (lifecycle emission coefficients based on the numbers provided by Environmental Protection Administration's carbon footprint calculation platform

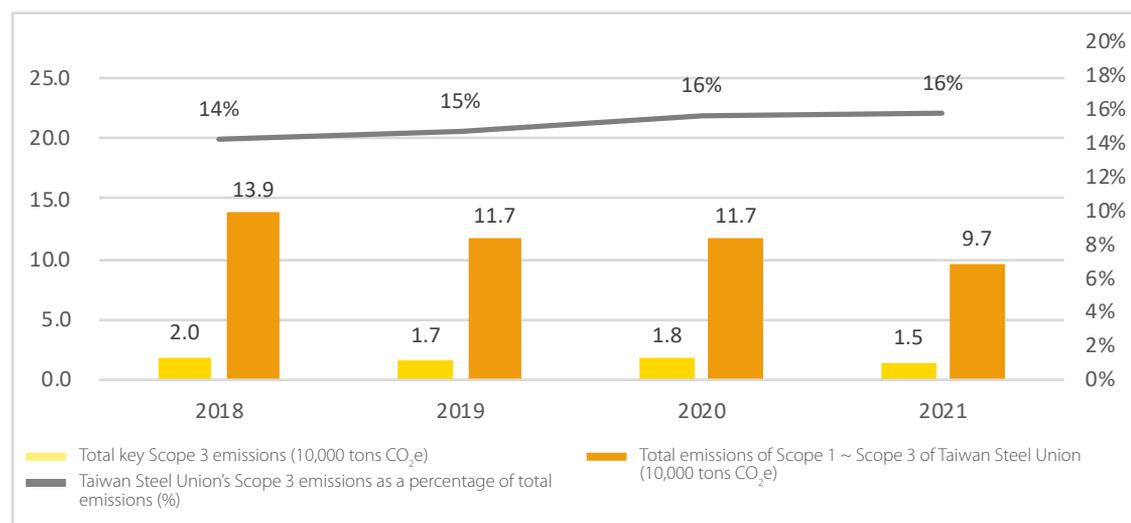
Taiwan Steel Union Scope 3 emissions (ton CO<sub>2</sub>e)



Note: The emissions associated with the excavation of imported coke are higher than the other two items and off the chart. A linear graph is used, instead of a bar chart.

## Taiwan Steel Union's Scope 3 emission risks

Taiwan Steel Union's Scope 3 emissions account for 14%-16% of the total emissions. This is not a high percentage.



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## Taiwan Steel Union's GHG reduction measures

- ✓ The company planted 76 indigenous arbor trees on No. 52 green space during April 2021 for offsetting carbon, in order to increase carbon fixation effects.
- ✓ The Union replaced one unit of frequency air compressor in 2021 in order to increase efficiency and to reduce energy consumption. It is expected to save approximately 224,976 kWh of electricity p.a. According to the latest electricity carbon emission coefficient of 0.502 (kg CO<sub>2</sub>e/kWh) announced by the Bureau of Energy in 2020, approximately 113 tons of greenhouse gas emission was reduced. Variable frequency models will be adopted to reduce energy consumption and carbon emission, for any large air compressors or blower/exhaust fan used in the high-temperature smelting process.
- ✓ Starting in 2021, the Union has further included the acceptance of RDF (or SRF) solid alternative fuels and solid industrial waste/solid waste/waste bag filters for steel-making electric arc furnaces with a thermal value to replace up to 6,429 tons of coke each year. This provides carbon reduction benefits in the midterm.
- ✓ The factory of the Unions plan to install a rooftop solar energy generation system of 7,686 square meters in 2022 in order to supply electricity for internal use. The system is expected to have 1,356 kW of capacity (approximately 100 W/m<sup>2</sup>), and its power generation capacity after completion is

estimated to be approximately 1.67 million kWh/year. It is able to reduce approximately 834 tons/year of greenhouse gas emission, thereby achieving long-term and stable carbon reduction benefits.

Note: Solar power generation system installation area is based on the document provided by the procurement supplier. The power generation capacity estimation refers to the 20-year arrearage power generation estimation value of 4,570 kWh /day x 365 days/year=1,668,050 kWh, and the 2019 electricity coefficient emission of 0.502 kg CO<sub>2</sub>e / kWh is used for calculation, and the calculated emission reduction volume is 837,361.1 kg CO<sub>2</sub>e.

## Energy management

- ✓ Taiwan Steel Union continues to implement action plans for energy efficiency and carbon reduction, by improving energy consumption efficiency and energy performance. Taiwan Steel Union is categorized as an electricity user for at least 800kW capacity and subject to the Regulations on Setting Energy Conservation Objectives and Execution Plans for Energy Users. This requires at least 1% average electricity saving rate p.a. in 2015-2024. By 2021, the average electricity saving rate is 1%, with saved calorific value of 0.7 TJ.

Year	2017	2018	2019	2020	2021
Total electricity consumption (kWh)	18,850,400	18,669,600	18,717,600	18,332,000	18,976,000
Annual electricity saving (kWh)	106,425	683,664	10,764	9,777	188,412 <sup>Note 2</sup>
Energy saving (TJ)	0.4	2.5	0.04	0.04	0.7
Annual electricity saving rate %	0.76	1.41	1.16	0.99 <sup>Note 1</sup>	1.00
Carbon reduction (ton CO <sub>2</sub> e)	59	364	6	5	95

Note 1: The 2020 average annual energy saving rate was found to have an error during the energy audit reporting, and such error was revised in the 2021 sustainability report.

Note 2: The 2021 electricity saving measure was to reduce the air compressor running pressure by 0.5 kg/cm<sup>2</sup> x Air compressor of 995.91 kW x 0.8 (air pressure whole-year average load) x 0.03 (decreased pressure of 0.5 kg electricity saving percentage) x annual running hours of 8,600 hours x implementation period of 11/12 months =188,412; carbon reduction conversion coefficient uses the 2020 electricity carbon emission coefficient of 0.502 (kg CO<sub>2</sub>e/kWh) for calculation.

Non-renewable energy	2018	2019	2020	2021
Non-renewable energy - electricity consumption (MWh)	18,669	18,718	18,332	18,976
Non-renewable energy - Diesel (KL)	294	281	317	274
Non-renewable energy - Coke (ton)	38,140	32,295	31,648	28,591
Total of non-renewable energy -TJ	1,195	1,024	1,005	916

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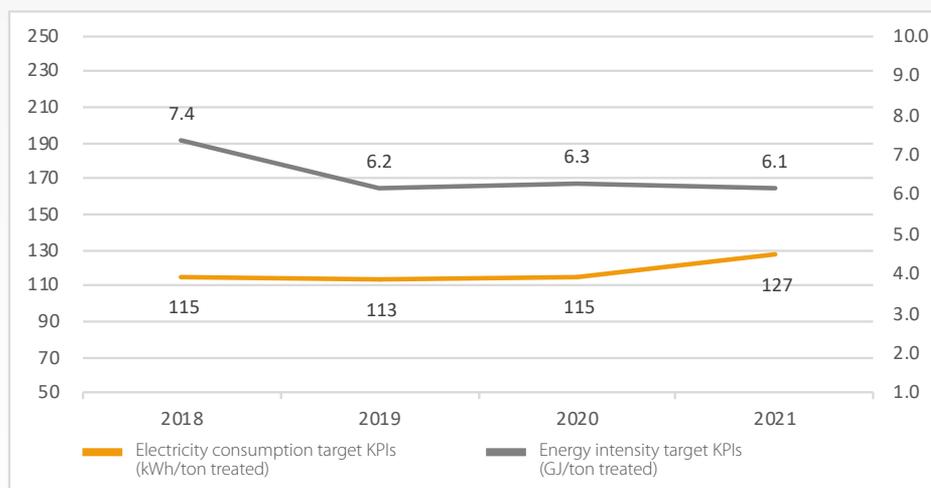
## New KPIs and targets in energy management

Taiwan Steel Union has set up new KPIs and targets for energy management. This includes the average annual electricity saving rate in 2015-2024, energy intensity target (GJ/ton treated), energy consumption intensity target (kWh/ton treated).

KPIs and targets in energy management		
Key Performance Indicators	Long-term target for 2030	
<ul style="list-style-type: none"> <li>• Annual electricity saving rate in 2015-2024</li> <li>• Energy consumption intensity target (GJ/ton treated)</li> <li>• Electricity consumption intensity target (kWh/ton treated)</li> </ul>	<ul style="list-style-type: none"> <li>• Annual electricity saving 1% to 2024 (10% over the 10 year period)</li> <li>• 6</li> <li>• 110</li> </ul>	
2021 KPIs		
Annual average electricity saving rate (%)	Energy consumption intensity target (GJ/ton treated)	Electricity consumption intensity target (kWh/ton treated)
2021 1.00	2021 6.1	2021 127
2020 0.99	2020 6.3	2020 115
2019 1.16	2019 6.2	2019 113
2018 1.41	2018 7.4	2018 115
2021 target achievement		
Target achieved	Ongoing	Ongoing

Note: In the current condition of the 2020 report KPIs, the 2019 average annual electricity saving rate/energy intensity target is 1.1.6/6.2, which is different from the target indicated in 2019 report, and the data has been updated. The treatment volume in 2021 included EAFD, contaminated soil and other newly added 5 treatment items.

### Taiwan Steel Union's energy consumption intensity target and electricity consumption intensity target



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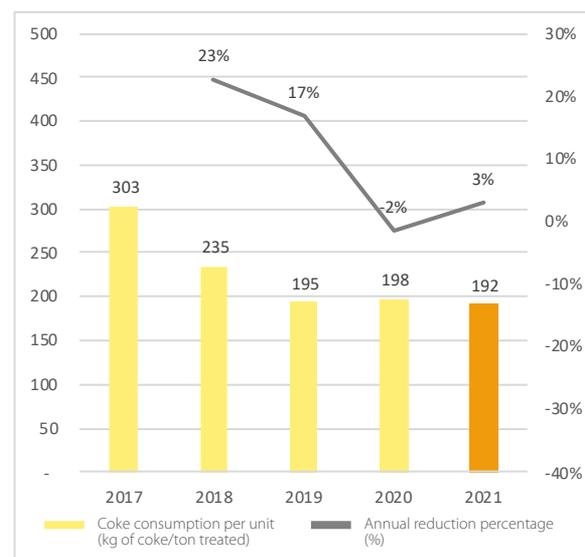
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## Coke energy efficiency improvement project

Taiwan Steel Union implemented the “Coke Energy Efficiency Improvement Project” during 2018-2021. The reuse rate of contaminated soils was increased by adjusting basicity in a timely basis. With gradual reduction of coke as an input and at a lower ratio of coke to EAFD, the reaction within a kiln can slowly stabilize. Coke consumption per ton treated significantly decreased from 303kg in 2017 to 192kg in 2021, and the cumulative reduction reached 37%. Taiwan Steel Union has started to use solid recovered fuel (SRF) in September 2021 as auxiliary fuel, and it is able to replace 20~25% of crude coke without affecting the production capacity and quality, and the usage quantity is approximately 455 tons, which is able to reduce approximately 1,252 tons of CO<sub>2</sub>e greenhouse gas emission.



## Air pollution emission management

Taiwan Steel Union carries out air pollution control measures to ensure all the pollution control equipment maximize effectiveness. We also strictly adhere to laws, regulations and environmental assessment and commitment and make transparent disclosure.

### ✓ Environmental-friendly air pollution control

Taiwan Steel Union controls air pollution in a robust and environmental-friendly manner. This includes the transportation enclosure in vehicles for incoming materials, reduction of fugitive emission by using container bags, vehicle cleaning after uploading, highly efficient dusk collectors, enclosed transportation systems in underground hallways, back-end pollution control facilities and ongoing monitoring and analysis of air pollutants. Except the main chimney for No. 1 Kiln slightly breaching the committed value in environmental assessments for mercury (a heavy metal) emission in the fourth quarter of 2019, all the other emissions to date have been lower than legal standards or maximums committed in environmental assessments. To enhance mercury pollution control in waste air, special filters of activated carbon were introduced in 2021 to improve mercury removal rate by over 90% in the air pollution control equipment.

### ✓ Regular monitoring and transparent disclosure

In addition to air pollution inspection at the chimney outlets, Taiwan Steel Union regularly monitors the ambient air quality for two stations, dioxins in the air for three stations, dioxins in the air dust for three stations. Despite a lack of control standards on dioxins in the air and in the air dust in Taiwan, Taiwan Steel Union has been monitoring and analyzing the data and disclosing the results in its official website each quarter.

### ✓ 100% compliance with air pollution laws and regulations

The emissions of nitrogen oxides (NOx), sulfur oxides (Sox) and particle matters have been lower than the maximums committed in environmental assessments. The emission of volatile organic compounds (VOC) is limited to fugitive from the diesel storage tank and only 0.004 tons p.a. The subsidiary Taiwan Steel Resource emitted 4.58 tons of NOx and 3.5 ton of particle matters in 2021. Air pollution emissions were in line with legal standards. To exercise strict control, the Union is committed to significant reduction of annual air pollution emissions starting in 2021, to a maximum of 95% reduction. This showcases our corporate social responsibility to maintain lowest emissions with best available control technology (BACT).

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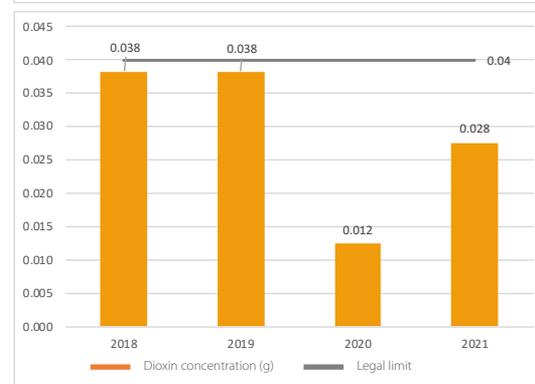
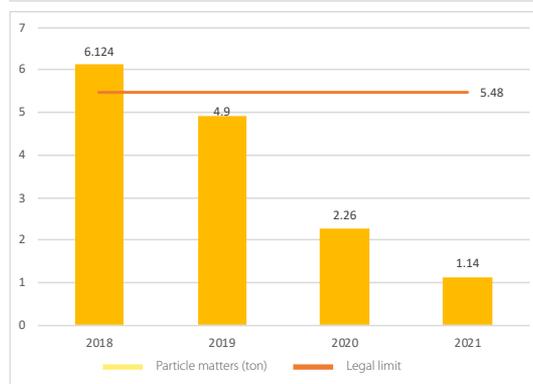
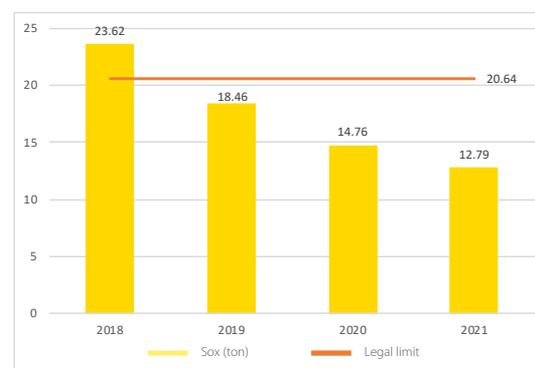
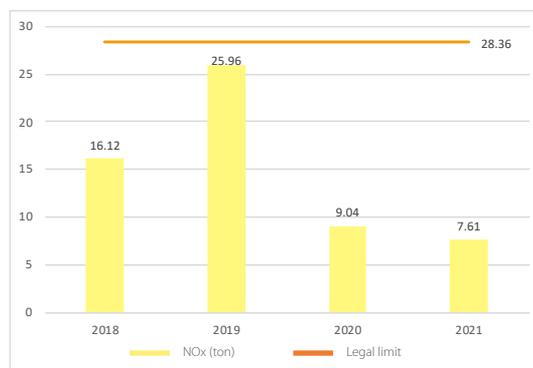
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## ✓ 2021 air pollution emissions



## ✓ Our commitment to annual air pollution emission reduction

Year	Committed emission starting in 2021	Committed emission starting in 2021	Committed reduction percentage	2020 Actual emission	2021 Actual emission	In 2021 comparing with 2020
Particle matters (ton/year)	5.48	17.46	-69%	2.26	1.14	-1.12
SOx (ton/year)	20.64	116.18	-82%	14.76	12.79	-1.97
NOx (ton/year)	28.36	47.97	-41%	9.04	7.61	-1.43
Lead (ton/year)	0.06	0.51	-88%	0.014	0.0093	-0.0047
Zinc (ton/year)	0.43	2.31	-81%	0.151	0.098	-0.053
Cadmium (ton/year)	0.0024	0.01	-76%	0.00087	0.00024	-0.00063
Mercury (ton/year)	0.432	0.54	-20%	0.0705	0.02962	-0.04088
Dioxin (gram/year)	0.04	0.717	-95%	0.017	0.028	0.011

Note: The actual emission of entire factory air pollutant in 2021 decreased from the emission in 2020, and only dioxin slightly increased in volume.



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## 5.4 Water risk management

Water resource management is Taiwan Steel Union's priority. We have put in place a water risk management policy to assess water consumption risks. We are committed to water reclamation and reuse. A set of KPIs on water resource management have been established. We also manage and monitor sewage discharge and provide transparent disclosure.



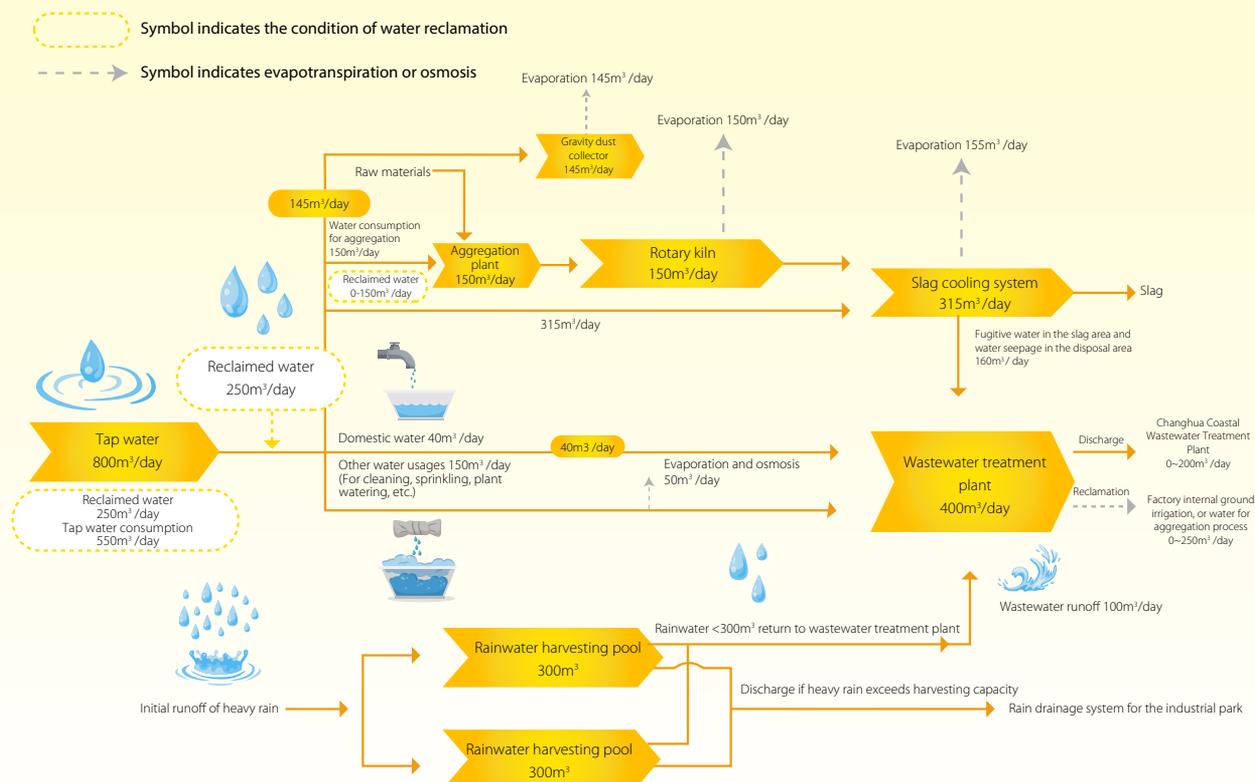
Water risk policy



### Water risk assessment

Taiwan Steel Union is located in Changhua Coastal Industrial Park, Changhua County. Water resource is from running water (from the third party). According to the official website of Changhua Coastal Industrial Park, local running water is from Carp Pond Water Reservoir. The reservoir supplies about 700,000 tons of water each day, and among this 15,000 tons daily to Changhua Coastal Industrial Park. Taiwan Steel Union's average water assumption per day is approximately 0.14% of the reservoir's daily supply. The water acquisition method and volume do not cause significantly adverse influence on the water source. The scarcity risk of water resources is low. It is not a water resource stress spot.

### Taiwan Steel Union water consumption balance diagram



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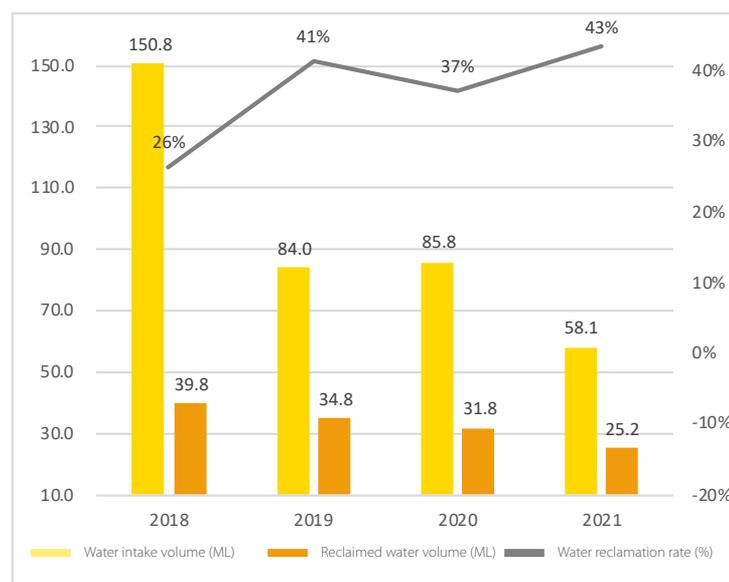
## New KPIs and targets for water resource management

Taiwan Steel Union has set up a new set of KPIs and targets for water resource management. This includes water reclamation rates, water consumption per unit wastewater discharge complying with the sewage influent standards of Changhua Coastal Industrial Park.

KPIs and targets for water resource management		
Key Performance Indicators	Long-term target for 2030	
<ul style="list-style-type: none"> <li>• Water recycle and reuse rate</li> <li>• Water consumption of unit treatment volume</li> <li>• Wastewater influent pipes</li> </ul>	<ul style="list-style-type: none"> <li>• 45%</li> <li>• 0.49</li> <li>• No material breach</li> </ul>	
2021 Key Performance Indicators (KPIs)		
Water recycle and reuse rate (%)	Water consumption per unit (ton/ton waste treated)	Zero breach
2021 43	2021 0.389	2021 0
2020 37	2020 0.536	2020 0
2019 41	2019 0.507	2019 0
2018 26	2018 0.927	2018 0
2021 target achievement		
Ongoing	Target achievement	Target achievement

## Water reclamation and reuse

Taiwan Steel Union uses water primarily for aggregation manufacturing process, rotary kilns, slag cooling, pollution prevention, cleaning, sprinkling and watering, service water for employees, etc. A portion of water is evaporated. To effectively use water resources, the water used for the manufacturing process is reclaimed and reused. The harvested rainwater and pre-treated wastewater from the manufacturing process are reused for aggregation manufacturing, road sprinkling and cleaning onsite. Total water obtained in 2021 was 58,055 ML, reclaimed and reused volume 25,189 ML, at a reclamation rate of 43%.



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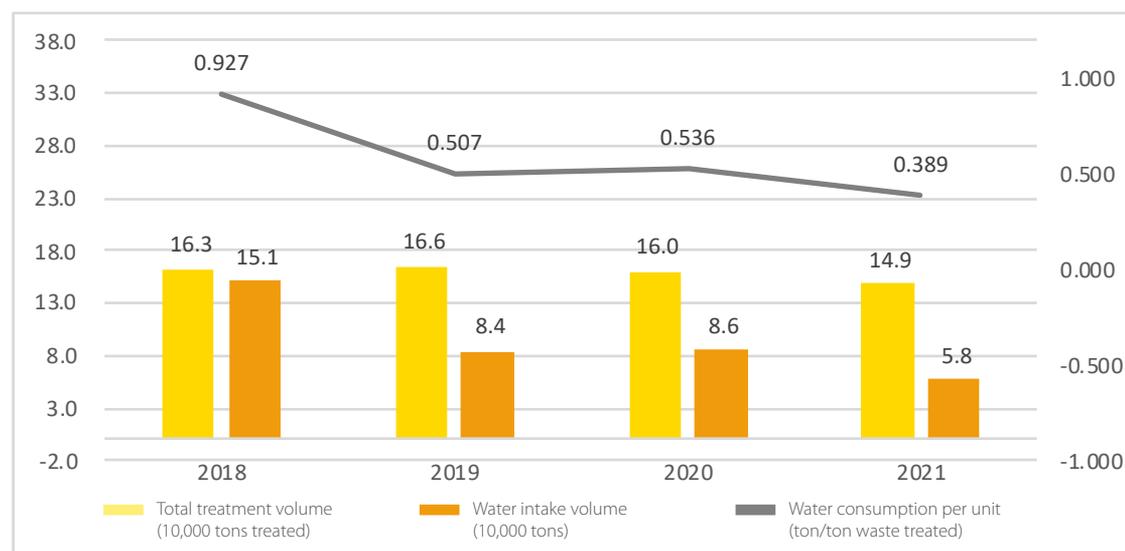
## 2021 water consumption improvement plan

Taiwan Steel Union has established a water resource monitoring system. In 2018, we identified continued increase of running water consumption, above the normal level. The thorough investigation found broken running water pipes and ongoing leakage in the factory site. After the pipelines were dug out for repair, the water consumption significantly dropped.

To boost the water reclamation rate for the manufacturing process, the reclamation and reuse automation control system for sewage pipes was changed in 2018, by prioritizing the reclaimed sewage for aggregation. This is followed by sprinkling onsite before excess is discharged. This has greatly reduced running water consumption. Due to the water shortage event occurred during the beginning of 2021 in Taiwan, Taiwan Steel Union implemented the water saving plan, and newly constructed 2 units of water reclamation tank with total of 20 tons for aggregation process, such that the water consumption of unit treatment volume in 2021 was significantly reduced to 0.389 tons of water consumption/ton treated.



Water saving plan with new addition of 2 units of water reclamation tank with total of 20 tons for aggregation process



## Wastewater discharge management

All of Taiwan Steel Union's wastewater is pre-treated onsite, to the standards required by Changhua Coastal Industrial Park, in order to become influents to Changhua Coastal Industrial Park's sewage system. There is no discharge of wastewaters directly to the ground. In addition to the water quality examination for influents to the sewage system, regular inspections are conducted on the water harvesting pool for two stations, upstream/downstream groundwater for two stations, and soils for two stations. Strict monitoring and data analytics are performed. Quarterly monitoring results are disclosed via the official website.

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## 5.5 Environmental laws and regulations

Adherence to environmental laws and regulations is the most important issue to Taiwan Steel Union. We strive to meet all the regulatory requirements in energy, air pollution, wastewater, waste, transportation, reporting and monitoring.

### Details of environmental regulatory breaches

In 2021, Taiwan Steel Union had no record of violation of penalties due to violation of environmental protection laws and regulations. Its subsidiary, Taiwan Steel Resource, was subject to 2 violation incidents only, and all improvements have been completed to prevent re-occurrence of such incidents.

Penalties under environmental laws	Penalty-issuing authority and official letter No.	Fine amount	Improvement status	Whether improvement has been completed
1 According to the audit of the Industrial Development Bureau, MOEA, on July 20, 2021, for the reuse product sales certificate of Taiwan Steel Resource during the period from May 2020 to April 2021, the controlled low strength material (CLSM) and non-structure ready-mixed concrete made from reuse electric arc furnace steel-making slags failed to record the reuse type of the electric arc steel-making slag used. Your company failed to comply with the electric arc furnace steel-making slag reuse management method requirements specified in the attachment form of the "Regulations Governing Reuse of Industrial Wastes", and the delivery order of the CLSM and non-structure ready-mixed concrete reuse product shall indicate the type of waste being used.	Environmental Protection Bureau, Changhua County October 8, 2021 (Penalty Notification No.: 40-110-100002)	NT\$12,000	Fine paid before specified deadline.	Improvement is not required, and administrative fine is imposed (non-continuous penalty)
2. According to the facility plan layout indicated on the waste disposal documents of Taiwan Steel Resource, the organic sludge storage location is located at the waste treatment machine room. However, during the audit on July 20, 2021, your company failed to use bulk bag for packaging the inorganic sludge and use canvas for covering and storing at outdoor storage area. Consequently, your company failed to operate according to the waste disposal documents approved.	Environmental Protection Bureau, Changhua County October 8, 2021 (Penalty Notification No.: 40-110-100003)	NT\$6,000	Fine paid before specified deadline.	Improvement is not required, and administrative fine is imposed (non-continuous penalty)

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Employees are the irreplaceable asset of the Union. Taiwan Steel Union believes that only at a safe work environment can our healthy employees provide trustworthy products and services.

## Happy Workplace

### Management guidelines on happy workplace

Main Topics: Occupational Safety and Health (GRI 403), Education and Training (GRI 404), Employment (GRI 401), Labor/Management Relations (GRI 402)



#### Happy workplace commitment

- A zero-hazard work environment is created to protect the health and safety of employees. Annual health inspections and comprehensive training & education are offered.



#### Happy workplace targets

- No major occupational injuries occur each year. The target is to keep improving on the record of zero hazard hours.
- Regular and ad-hoc training and education programs or external training resources are provided.



#### Happy workplace complaint mechanism

- Establishment of an opinion box for employees and convening of labor relation meetings from time to time as channels for employees to provide feedback on a timely basis.



#### Happy workplace effectiveness evaluation

- Through the annual reporting of sustainability report, the effectiveness and result are tracked and assessed continuously.



### Happy workplace management system

- Operating environment monitoring is implemented according to the frequency specified in the Occupational Safety and Health Act. In addition, respiratory protective equipment airtightness test and general health examination, special operation health examination and health classification management are implemented for all employees of the factory.
- Plan management and performance reviews are performed annually. ISO 45001: 2018 occupational health and safety management system is promoted and maintained.
- Employees receive training according to the frequency and hours required by law.
- Factory protection system is implemented, and assistance to the labor health protection of health management, occupational disease prevention and health promotion, etc. is provided.



### Happy workplace responsibilities

- Health and safety management, employees' health checks, employee training are planned and implemented.
- Division managers: instructions according to job duties and authorities, supervision of operations carried out by employees, oversight on health and safety matters, and coordination and guidance on implementation by personnel.
- All employees: obligation to undertake training and education in health and safety, adherence to "Health and Safety Work Rules" and "Training and Education Implementation Rules".



8.8 Protection of labor interest, promotion of workplace safety

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## Happy Workplace Highlights

### No major occupational disasters

Whole year of 2021 of Taiwan Steel Union  
No major occupational disasters

### Employee Remuneration institutionalization

The company charter specifies that no less than 1% of the annual profits shall be appropriated as employees' remuneration, in order to retain talents

### Employee performance evaluation

100% of employees received the periodic performance evaluation

### Implementation of ISO 45001

Occupational safety and health management system of ISO 45001 continued to be implemented in 2021

### Gender equality

There is no difference in remuneration due to gender or ethnicity for new employees of the same job positions and the same job ranks. Basic salary ratio for female and male employees is 1:1.



Happy workplace - Taiwan Steel Union's employees praying for blessing



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## 6.1 Human resource management

Employees are Taiwan Steel Union's most valuable asset. The company has established a fair, reasonable and competitive remuneration and promotion systems for human resources management and employees' right protection. We observe all the regulations outlined in the Labor Standards Act. We have a reasonable structure for employees' salaries. We regularly organize communication meetings and the welfare committee meetings for employees' opinions. The two-way communication with employees is healthy.

To encourage a strong work ethic, we and employees work together for the business. We have put in place relevant codes of conduct, incentive schemes and penalty standards for employees. We have also established a comprehensive communication mechanism. A letterbox was provided to employees for complaints, in order to protect employees' rights. The number of complaints regarding labor conditions to date is zero in 2021.

### Employment

As of the end of 2021, Taiwan Steel Union had 97 employees, including 20 male foreign workers on term contracts for operator. All the others are full-time permanent employees and Taiwanese citizens. As a traditional environmental protection business, most of TSU's employees are male. In 2021, we had 84 male employees, accounted for 87% of the total number of employees. The number of female employees was 13, accounted for 13% of the total number of employees. Taiwan Steel Union is a stable SME (small-and-medium enterprise). The change over the years was limited.

Category		Taiwan Steel Union								Taiwan Steel Resource			
		2018		2019		2020		2021		2020		2021	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Managers	<30	0	0	0	0	0	0	0	0	0	0	1	0
	30-50	7	0	8	0	7	0	7	0	5	2	4	2
	>50	4	1	4	1	5	1	5	1	1	0	3	0
Administration staff	<30	0	1	0	2	0	2	0	2	4	2	0	2
	30-50	8	6	9	6	6	6	7	5	16	7	10	5
	>50	2	0	1	0	2	0	2	0	2	0	1	0
Field operator	<30	1	0	1	0	1	0	4	1	5	0	8	0
	30-50	52	4	49	4	49	4	49	4	16	0	25	1
	>50	3	0	6	0	8	0	10	0	0	0	1	0
Total		77	12	78	13	78	13	84	13	49	11	53	10

Note 1: All of Taiwan Steel Union's employees are full time. We do not hire temporary workers or part-time personnel.

Note 2: Managerial personnel is directors or above.

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## New and resigned employees

In 2021, Taiwan Steel Union had 97 employees, including 11 new staff and 11 resigned. The subsidiary Taiwan Steel Resource had 63 employees, including 20 new employees and 13 resigned.

Category	Taiwan Steel Union								Taiwan Steel Resource				
	2018		2019		2020		2021		2020		2021		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
New staff	<30	0	0	0	2	0	0	3	1	5	0	3	0
	30-50	5	0	10	0	11	0	7	0	10	2	12	3
	>50	0	0	0	0	0	0	0	0	2	0	2	0
Category	Taiwan Steel Union								Taiwan Steel Resource				
	2018		2019		2020		2021		2020		2021		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
New staff rate %	<30	0%	0%	0%	100%	0%	0%	75%	33%	56%	0%	33%	0%
	30-50	7%	0%	15%	0%	18%	0%	11%	0%	27%	22%	31%	38%
	>50	0%	0%	0%	0%	0%	0%	0%	0%	67%	0%	40%	0%
Total new staff rate %	6%	0%	13%	15%	14%	0%	12%	8%	35%	18%	32%	30%	

Note: The new staff rate is the number of new staff divided by the total number of employees for each category by the end of the year.

Category	Taiwan Steel Union								Taiwan Steel Resource				
	2018		2019		2020		2021		2020		2021		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Resigned	<30	1	0	0	0	0	0	0	0	1	0	2	0
	30-50	3	0	9	1	7	0	7	0	12	0	9	2
	>50	1	0	0	0	4	0	4	0	1	0	0	0
Category	Taiwan Steel Union								Taiwan Steel Resource				
	2018		2019		2020		2021		2020		2021		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Resigned rate	<30	100%	0%	0%	0%	0%	0%	0%	0%	11%	0%	22%	0%
	30-50	4%	0%	14%	10%	11%	0%	10%	0%	32%	0%	23%	25%
	>50	11%	0%	0%	0%	27%	0%	0%	0%	33%	0%	0%	0%
Overall turnover rate	6%	0%	12%	8%	14%	0%	7%	0%	29%	0%	21%	20%	

Note: The resigned rate is the number of resigned divided by the total number of employees for each category by the end of the year.

## Gender equality

Remuneration Committee has been established under Taiwan Steel Union's Board of Directors. The Organization Regulation for Remuneration Committee has been put in place. Remuneration Committee is responsible for design and periodical reviews of performance of directors and managers, as well

as remuneration policies, systems, standards and structures. There is no difference in remuneration due to gender or ethnicity for new employees of the same job positions and the same job ranks. Basic salary ratio for female and male employees is 1:1.

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## 6.2 Talent attraction and retention



Taiwan Steel Union has established a comprehensive scheme for employee benefits and retirements. The company shares profits with employees. The company's charter stipulates that no less than 1% of the annual profits shall be appropriated as employees' remuneration, and the amount of year-end bonus in number of months of personal salary issued is linked to the profit status of the Union, in order to retain talents. Employees' Welfare Committee often organizes leisure and cultural activities for relaxation and bonding between colleagues, in order to make Taiwan Steel Union a happy company.



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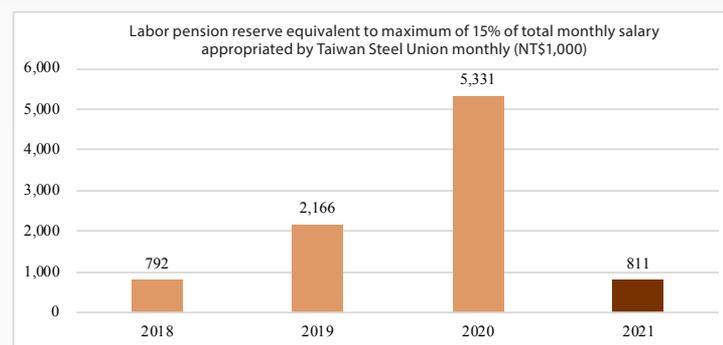
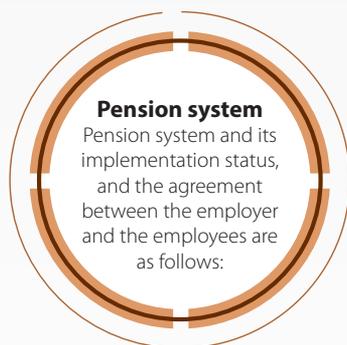
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Taiwan Steel Union's pension system is a defined pension plan administered by the government in accordance with the Labor Standards Act of R.O.C. Pension fund is appropriated according to 8% of the total monthly salary of employees. Since the implementation of the new labor pension system on July 1, 2005, according to the Labor Pension Act, the monthly appropriation of the pension fund shall not be lower than 6% of the monthly wage of employees. In addition, retirement related affairs are handled in accordance with relevant provisions of the Labor Pension Act and Taiwan Steel Union's "Employment and Dismissal Regulations", and labor-management meeting is convened periodically.



Taiwan Steel Union has put in place the retirement scheme for employees. We have also set up Labor Pension Supervisory Committee with government approval.



Since 1997, Taiwan Steel Union has hired actuaries to calculate pensions according to relevant requirements set forth in the Labor Standards Act.



Taiwan Steel Union cooperates with the new Labor Pension Act. For the new employees joining the Union from July 1, 2005 onwards are entitled to the seniority under the old system based on the Labor Standards Act but opt for the new system starting on July 1, 2005, the Union contributes to the individual pension accounts of employees according to the Labor Pension Act.

### Retaining the position without pay for baby nursing

Colleagues may request for up to two years of unpaid parental leaves before children are three full years old. To help employees return to their jobs after unpaid parental leaves, we provide refresher courses for an update. There were one male employee and one female employee of the subsidiary Taiwan Steel Resource entitled for unpaid parental leaves in 2021 requested for such a leave. No application for unpaid parental leaves in 2018-2021 with Taiwan Steel Union or Taiwan Steel Resource.

### Employee performance evaluation

Taiwan Steel Union conducts periodical performance evaluation on all employees. Annual scores are assigned based on employees' self-assessments and interviews with managers and finalized by General Manager. The scores for division managers and auditors are finalized by Chairman.

### Employee turnover

Job position change, resignation and retirement of employees of Taiwan Steel Union are handled according to regulations. Official employees may apply for retirement upon the service age of 65 years old according to the "Labor Standards Act" or may apply for early voluntary retirement according to the laws. For job position change of an employee, prior to the change, the direct supervisor negotiates with the employee first, and once agreement is obtained, job change is then announced. In case of difficulty in the performance of labor, an employee may request for termination of labor contract or file complaint within the effective day of the change notice. In addition, after the complaint is rejected, the employee may apply for termination of the labor contract with the Union according to the regulations. The shortest advance notice period for major operational changes shall be handled according to the regulatory requirements.



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## 6.3 Training talent

Employees are Taiwan Steel Union's most valuable assets. To become a happy company, we have established a comprehensive human resource management system in remuneration, benefits and promotions. Training & education programs or external training resources are provided to employees each year, to enhance the technical competences, capabilities, knowledge and attitude required for work.

### Employee training and development

The purpose of the training and education provided by Taiwan Steel Union is to enhance the capability and core competence of employees. It is able to increase the work efficiency and to expand the talent pool. "Training and Education Implementation Rules" have been formulated to govern all the matters associated with the Union's training and education. Including:

- ✓ Various trainings and education courses are implemented or professional technicians are invited from overseas to assist the Union's technical personnel and enhance core competence.
- ✓ Employees are encouraged to participate in external workshops, seminars and professional training classes. New employees are provided with assistance to participate in qualification tests in order to obtain operational licenses. The fees are fully paid by the Union.



### Employee training

Taiwan Steel Union organizes regular and ad-hoc employee training or provides external training resources each year. Through training, employees enhance technical competences, capabilities, knowledge and attitude required for work.

- ✓ Internal employee training: Internal training programs are organized to meet divisional requirements. Dedicated department are responsible for progress monitoring.
- ✓ External training courses: Employees are encouraged to participate in external training classes and obtain relevant licenses.



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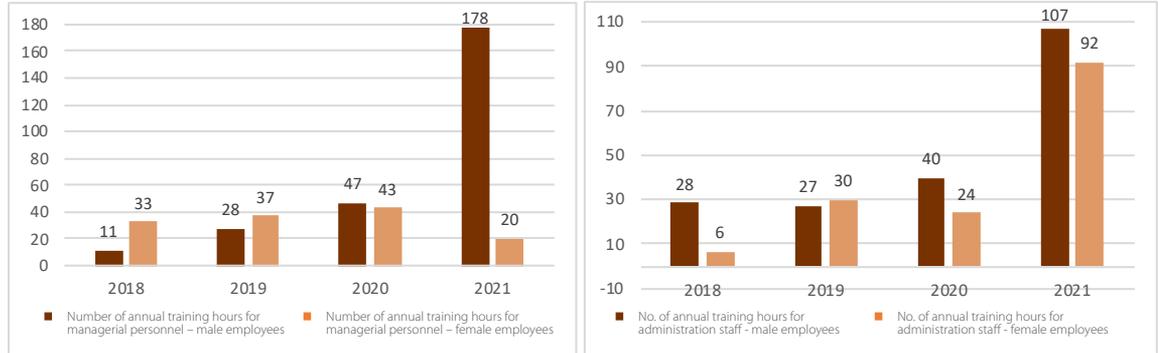
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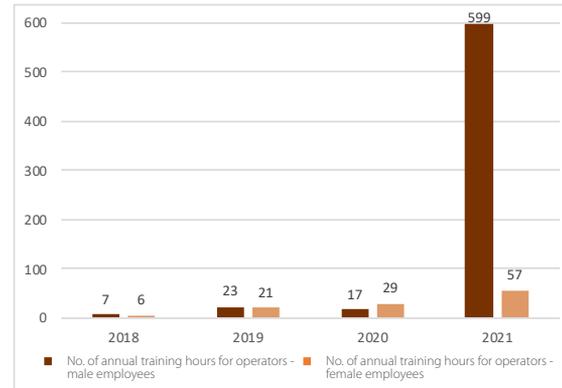
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## Implementation and assessment of employee training

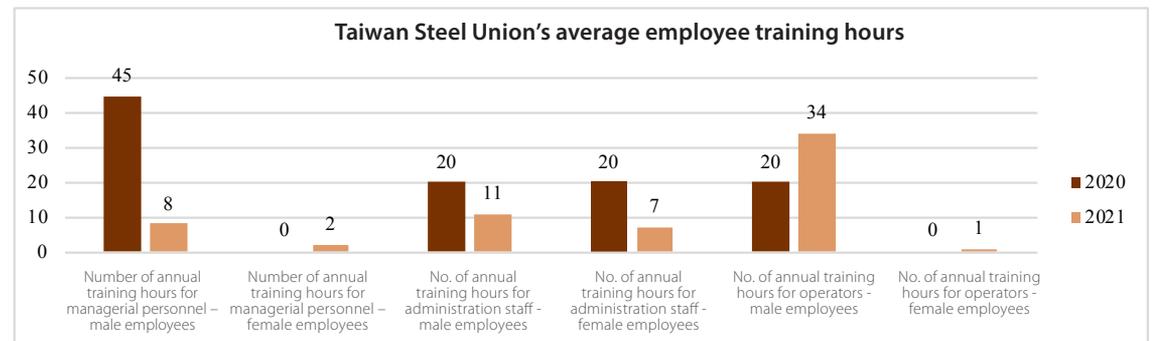
Taiwan Steel Union organizes regular and ad-hoc employee training or provides external training courses each year. Employees receive on the job training according to the frequency and hours required by law. Managerial personnel received trainings in 2018-2021 according to law. The number of training hours received by managerial personnel continues to increase over the years. For the average number of training hours of Taiwan Steel Union and the subsidiary Taiwan Steel Resource in 2021, the average number of education training hours for male employees was higher.



Note: In 2021, the average number of training hours for managerial personnel and administration staff was higher for males than females in Taiwan Steel Union. This was mainly due to that greater number of courses were provided to managers and most of the female employees were administrative staff and annual trainings were not provided on a regular basis.



Note: The average training hours for operators (male employees > female employees) of Taiwan Steel Union in 2021, and this was mainly due to that the operators include migrant workers newly included for external trainings.



Note: The average training hours for operators was increased; however, courses were not scheduled on an annual basis regularly, and trainings were provided only when there were courses necessary for the job.

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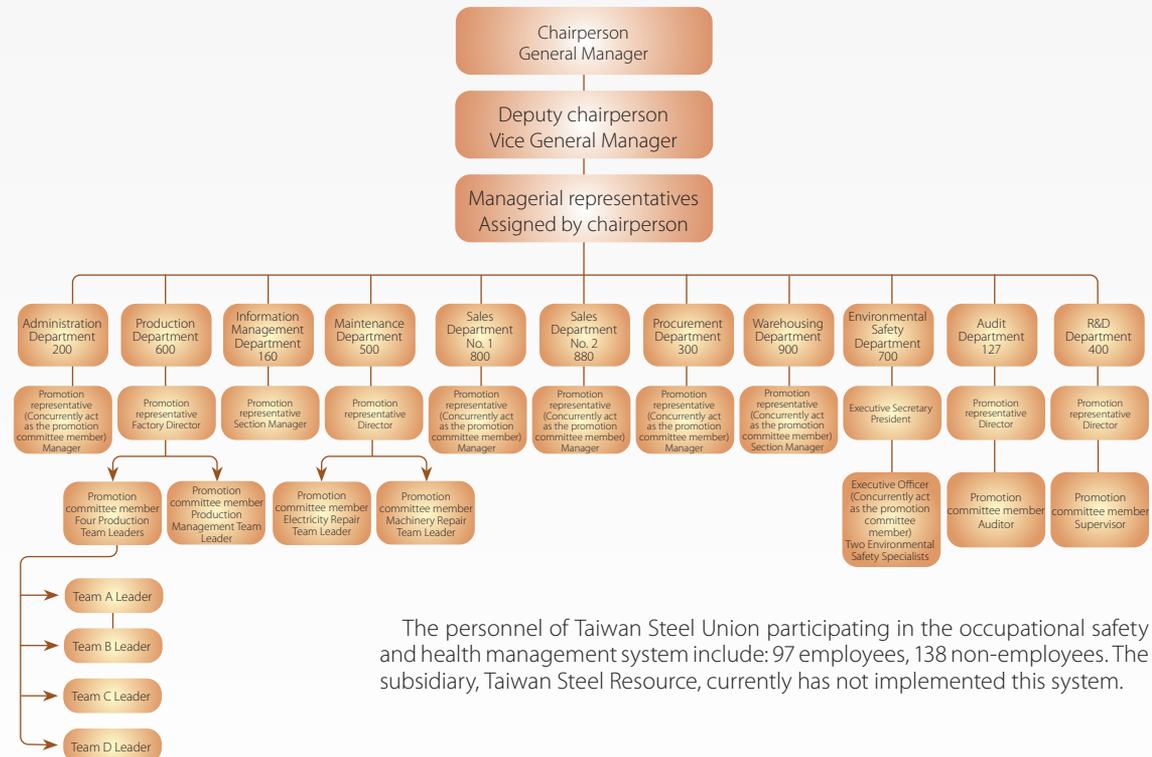
## 6.4 Occupational safety and health

Occupational health and safety is one of the most important issues for stakeholders. Employees and employees' families are all concerned with this issue. Accordingly, to create a healthy and safe workplace for employees, Taiwan Steel Union revised its occupational health and safety management system to ISO 45001 in 2018. We strive to create a healthy and safe organizational culture. We continue to improve and offer a healthy and safe work environment so that our employees and their families can rest assured.

### Occupational health and safety management system

Taiwan Steel Union implements ISO 45001: 2018 occupational health and safety management system. The management includes the following:

- ✓ Workplace monitoring: monitoring conducted according to the frequency stipulated in the Occupational Safety and Health Act
- ✓ Health checks: General health checks for employees and health checks for special operators are provided each year. Tiered health management is administered according to regulations.
- ✓ Safety and health education and training: New employees and on-job employees are offered training and education. This consists of internal training and external training (e.g., training and refresher courses in health and safety qualifications). The purpose is to enhance the employees' awareness in health and safety.
- ✓ A deficiency improvement system has been established for environmental health and safety issues. Any problems identified are immediately registered, notified and followed up for improvement.
- ✓ Plan management and performance reviews are performed annually. Occupational health and safety management system is promoted and maintained.



The personnel of Taiwan Steel Union participating in the occupational safety and health management system include: 97 employees, 138 non-employees. The subsidiary, Taiwan Steel Resource, currently has not implemented this system.

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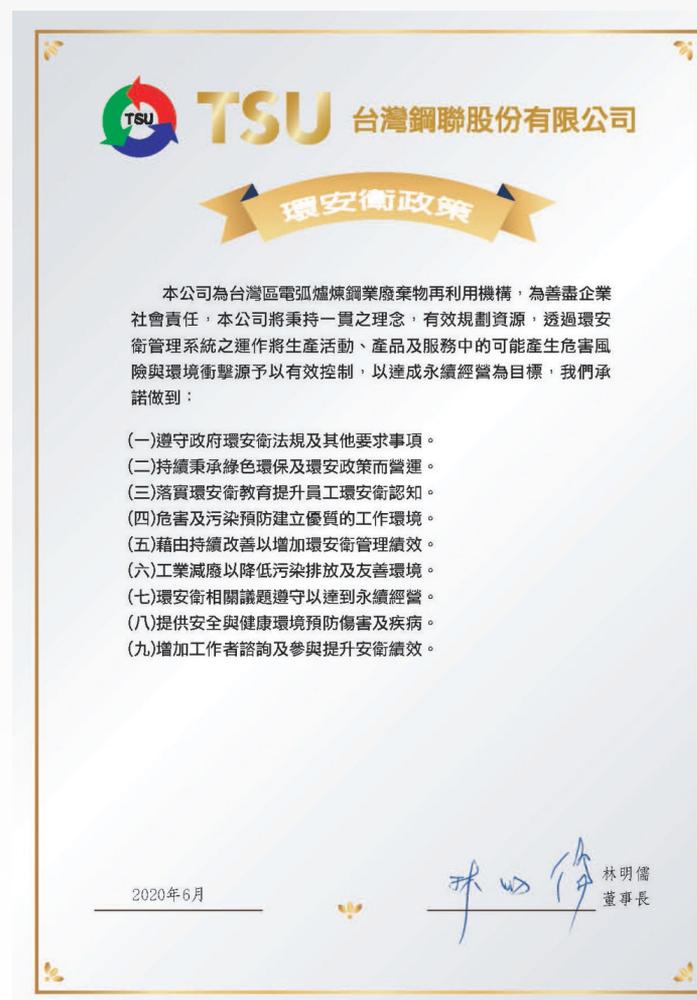
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## Occupational health and safety management system



## Environmental safety and health goal and management plan

Taiwan Steel Union establishes environmental safety and health goals that can be measured, monitored and conveyed with best effort, in order to use it as the basis for environmental safety and health goal assessment and measurement, and updates of such goals are maintained timely. The promotion representative of each relevant unit shall establish and maintain documented environmental safety and health goal, and shall achieve consistency with the commitment of the environmental safety and health policy. To achieve the existing goal, the promotion representative of each relevant unit shall establish environmental safety and health management plans whenever necessary, and such plans shall include the responsibility allocation, achievement method and schedule, in order to facilitate the execution management. For new or modified equipment assessed to have major impact on the environmental safety and health, such equipment shall be included in relevant impact assessment of environmental and hazardous risks for management.

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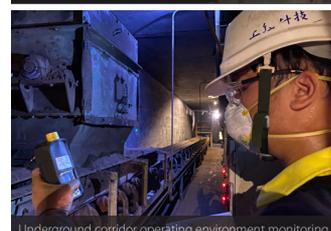
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## Employees' health management and operational environment monitoring

In adherence to the Occupational Safety and Health Act, Taiwan Steel Union conducts risk assessments on hazardous workplaces with noise, dusts and ionizing radiation. Relevant health and safety operational standards are set up accordingly. Operational environmental monitoring plans are drawn in line with regulations. The sampling items and frequencies for operational environmental monitoring are listed in the lower right table below. Environmental monitoring and inspection and personnel health checks are conducted regularly by commissioned external parties. Specialty doctors are hired to visit the sites and observe the workplace, in order to provide health and safety assessments and suggestions for improvement. In addition, the Company arranges personnel of the operation area to perform respiratory protective equipment airtightness test annually, in order to ensure the respirator protection capability of operators and to make correction timely.

According to the Occupational Safety and Health Act and the Labor Health Protection Act, labor selection and task assignments are implemented based on the physical examination forms submitted by new employees. Classification management are implemented based on regular health examination of employees and health inspections for workers working on hazardous operations. The nature of jobs are also adjusted appropriately according to health condition.

Taiwan Steel Union provides periodical health checks and personal protective equipment to employees. This is to protect the health of employees and avoid injury to physical health due to work process or damage to laborers' right to life. For operation items with high risks or high incidence of specific diseases include slag removal from rotary kilns, process air pipe (PAP) replacement, corrugated roof sheet replacement, replacement of fire-retardant materials and filter bags for rotary kilns during periodical maintenance, occupational safety and health management is executed rigorously.



No.	Item	Monitoring frequency	
1	Total dust amount	Once every six months	
2	Respirable dust		
3	Lead		
4	Manganese		
5	Cadmium		
6	Zinc		
7	CO <sub>2</sub>		
8	Oxygen		
9	Noise		
10	Wet Bulb Globe Temperature (WBGT)		Once a quarter
11	Sulfuric acid		Once every six months
12	Wind velocity		



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## Training & education in health and safety; regular fire drills

To enhance the quality, technical and core competence of our practitioners, to establish awareness in health and safety and the ability to prevent hazards, Taiwan Steel Union organized periodical and ad-hoc training and education in health and safety in 2021. Fire drills were conducted regularly. All the internal training, external training and license acquisitions were in compliance with laws and regulations.



Rescue Division (drills for burn and scald injury first-aid care)



Fire Extinguishing Division



Evacuation Division



Instruction & Guidance Division



Education and training



Reporting and Communication Division (broadcasting and reporting)

## Emergency response

Taiwan Steel Union values the safety of workers in priority. To effectively prevent occurrence of occupational accidents, and to provide safe working environment, the Union implements explanation of work rules and regulatory education during the new employee orientation. When any worker discovers immediate hazard during execution of job duty, he or she may suspend the operation individually without affecting the safety of other workers and retreat to a safe place, and the Union also complies with the regulations to protect such employee from any disciplinary actions.

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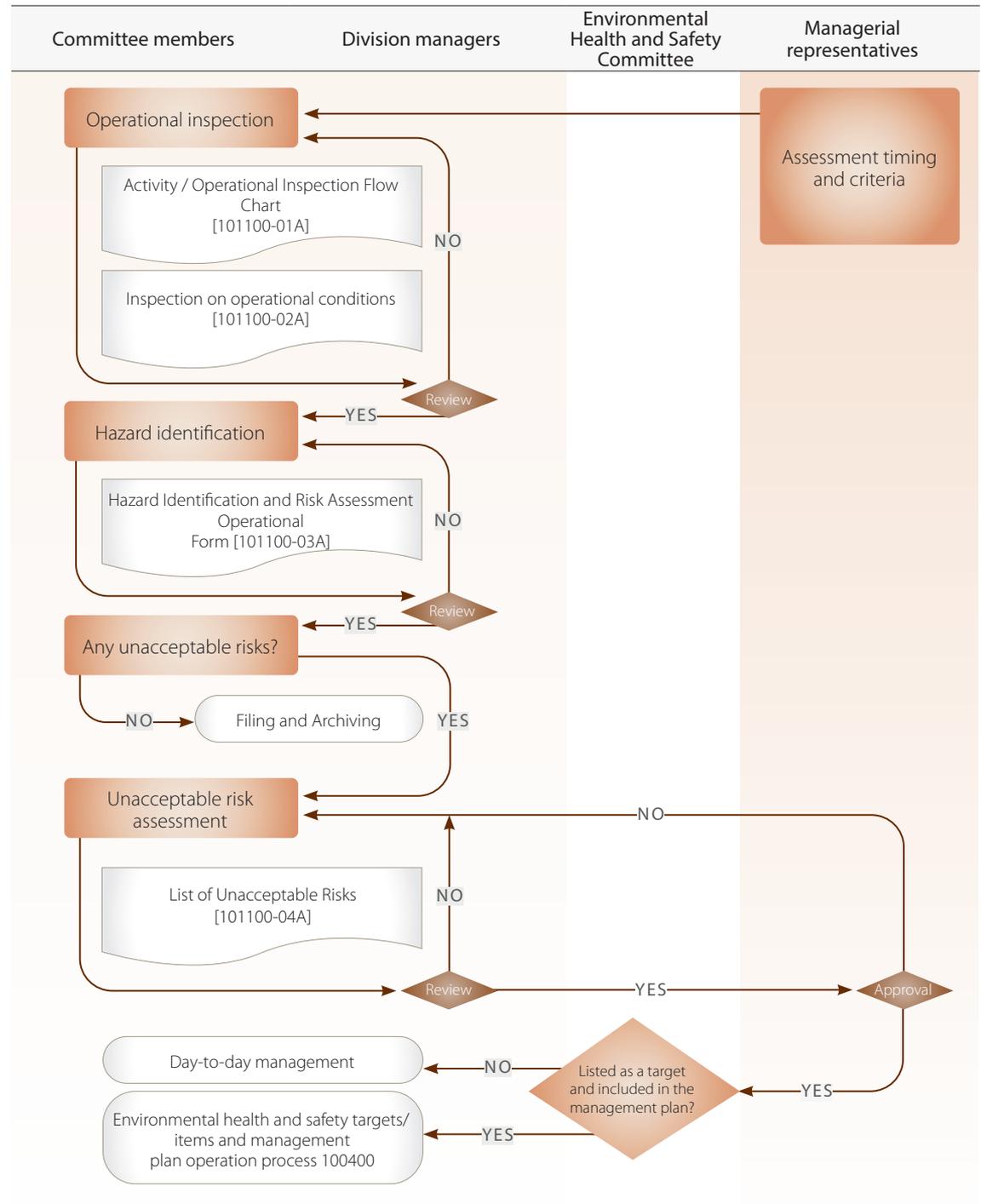
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## Hazard identification and risks assessment process

Taiwan Steel Union refers to Hazard Identification and Risk Assessment Operational Form in the analysis of inherent and potential operational risks by considering personnel, machinery, facilities, methods, materials, energy and relations with workplace. Hazard identification and risk assessment are conducted on operational activities and procedures, by considering the causes, consequences and characteristics as well as hazard characteristics (e.g., physical, chemical, biological and ergonomic).



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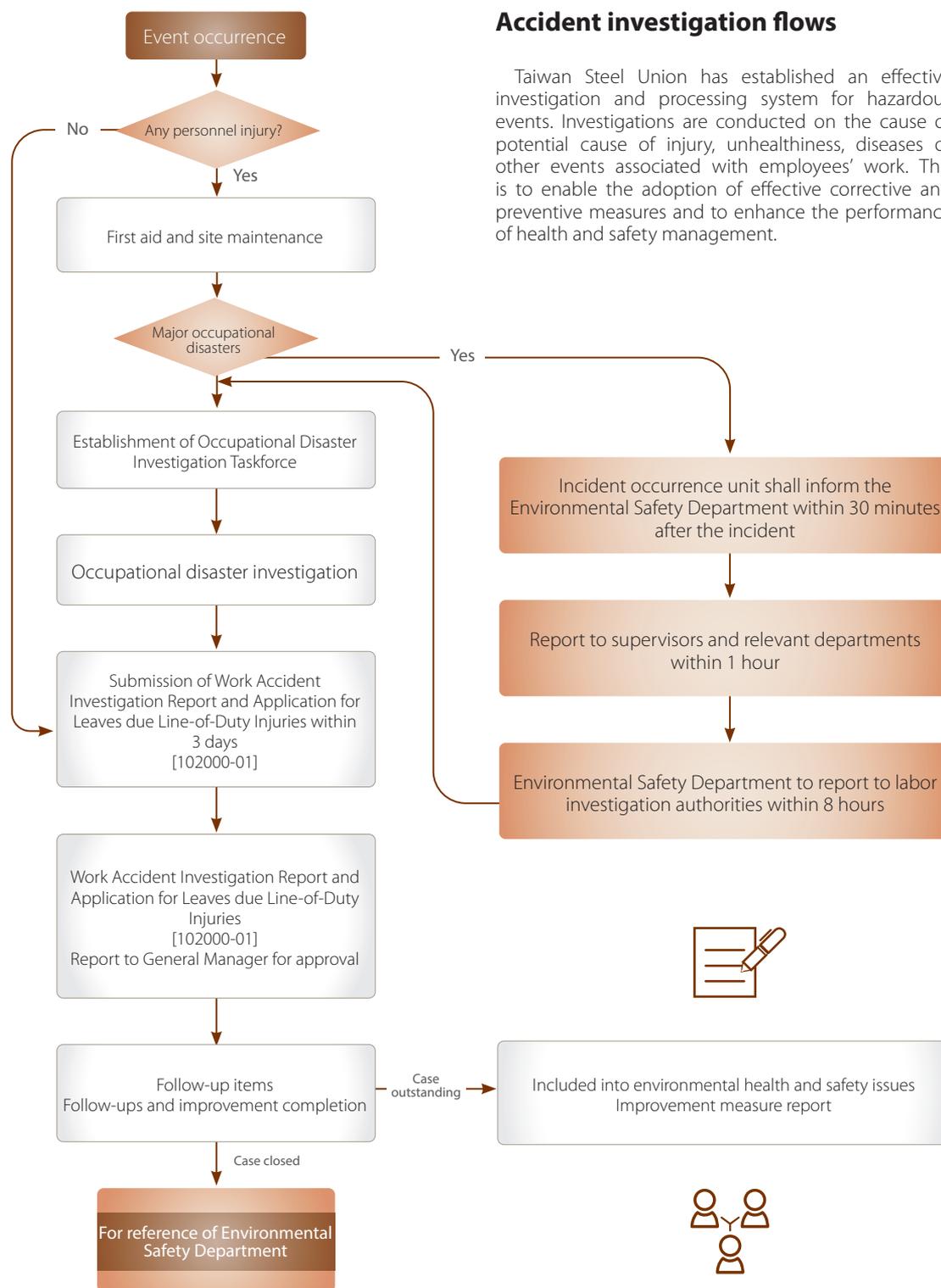
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## Accident investigation flows

Taiwan Steel Union has established an effective investigation and processing system for hazardous events. Investigations are conducted on the cause or potential cause of injury, unhealthiness, diseases or other events associated with employees' work. This is to enable the adoption of effective corrective and preventive measures and to enhance the performance of health and safety management.





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## Abnormal condition control and prevention



## Agreement organization and hazard notifications

Taiwan Steel Union has integrated contractors into an agreement organization and treats their laborers as ours. In addition to onsite audits and highlight support, we also provide relevant training and education to enhance health and safety performance. Based on the type of operations and the list of potential hazard factors, contractors should require hazard prevention measures such as training and education, protective equipment or qualifications in machinery operation. It is necessary to be equipped with personal protective equipment (helmets, work shoes, dust masks, workwear, and gloves) when entering the loading/unloading area of EAFD.





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## Employee Health Check and Management

According to the Occupational Safety and Health Act and the Labor Health Protection Act, Taiwan Steel Union requires new employees to submit physical examination forms. Employee health checks are carried out each year. The examination includes chest X rays, cardiopulmonary functions, liver functions and blood lead levels, per the environmental requirements of operations in contact with dust. In case of an excess blood lead level, tiered health management is implemented. Regular follow-ups and re-checks are carried out. Jobs are changed, if necessary, in order to protect employees' health.



## Maternal health protection for female laborers

Maternal Health Protection Plan has been put in place. "Classification Reference for Hazards and Risks to Maternal Health" is provided, along with "Job Suitability Arrangements Forms". "Operational Venue Hazard Assessments and Measures Adopted for Maternal Health" is the form for hazard and risk classification of the operational venues. For assistance in female health, referrals can be made to labor health service centers or occupational injury/disease prevention centers commissioned by the Occupational Safety and Health Administration (OSHA).

## Employee health promotion activities

Employees' Welfare Committee often organizes leisure and cultural activities for relaxation and bonding between colleagues of Taiwan Steel Union.

## Protection against unusual work hours, ergonomic issues and workplace violence

"Overwork Assessment Form and Overload Assessment Questionnaire" and "Survey on Musculoskeletal Symptoms" are available. The current status obtained from questionnaires and surveys on unusual work hours or musculoskeletal of employees is compared against the relevant database, for the analysis of existing and potential risks of work zones or hazards of operations and the appropriate arrangements with the laborers concerned. Promotional education related to preventive measures at workplace is conducted from time to time to avoid illegal or unusual violations in the work environment.

## Factory physician health consultation

Factory physician and factory nurse are introduced to perform factory medical health consultation. After physical examination, physician is arranged to arrive at the factory to provide onsite consultation, and the consultation rate for personnel above Class 2 is 100%, in order to enhance the employee health care.





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## Occupational hazard statistics

Taiwan Steel Union's annual statistics on occupational disasters are based on the disability indicators published by the Ministry of Labor. A comprehensive reporting procedure and an event investigation mechanism are in place, to report the investigation findings to relevant departments. Corrective and preventive measures are initiated, to reduce the likelihood of the same events and continue to improve workplace safety. In 2021, Taiwan Steel Union had no major occupational disasters for the whole year, and contractors had no occupational injuries throughout the year. The Occupational Safety and Health Administration online reporting system indicated two incident reports from Taiwan Steel Resource.

Item	Taiwan Steel Union								Taiwan Steel Resource				
	2018		2019		2020		2021		2020		2021		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Occupational disaster statistics	Disabling frequency rate (FR)	19.22	0	0	0	0	0	0	0	26	0	20	0
	Disabling severity rate (SR)	1147	0	0	0	0	0	0	0	10,154	0	30	0
	Frequency-severity indicator (FSI)	0.14	0	0	0	0	0	0	0	0	16	0	1
	Occupational disease rate (ODR)	0	0	0	0	0	0	0	0	0	0	0	0
	Line-of-duty deaths	0	0	0	0	0	0	0	0	0	0	0	0



Note 1: The above occupational disasters exclude traffic accidents.

Note 2: The calculation of occupational disasters and absence rates are as follows:

Note 3: Taiwan Steel Union's total work hours were 161,236 hours and the contractors' total work hours were 50,368 hours in 2021.

FR= No. of disabling injuries x1,000,000 / total work hours

SR= No. of days lost due to disabling injuries x1,000,000 / total work hours

FSI =  $\sqrt{((SR \times FR) / 1000)}$

Accident statistics and the reporting system	2018	2019	2020	2021	Remark
Occupational health and safety management system	2	0	2	0	No. of accidents surveyed
Occupational Safety and Health Administration (OSHA) online reporting system (Occupational disaster reporting by business units)	1	0	0	Note	Reporting according to Article 37 of the Labor Occupational Accident Insurance and Protection Act (Hospital stay for 1 person or more)

Note 1: It refers to the resource of the subsidiary Taiwan Steel Resource, and presently, it has not established the occupational health and safety management system. Two cases were reported via the Occupational Safety and Health Administration (OSHA) online reporting system.

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## 6.5 Human rights

Taiwan Steel Union follows the OECD principles and adheres to the internationally recognized human rights standards such as the United Nations' Universal Declaration of Human Rights, Global Compact and International Labor Organization Conventions. Relevant content of regulations have been implemented to provide a fair workplace and a safe work environment, respect human rights at the workplace and ensure information security.



TSU 台灣鋼聯股份有限公司

### 台灣鋼聯公司人權政策

為善盡企業社會責任，保障全體同仁、客戶及利害關係人之基本人權，台灣鋼聯支持並遵循聯合國『聯合國世界人權宣言』等國際人權公約所揭之原則，尊重國際公認之基本人權政策，充分體現尊重與保護人權之責任，並有尊嚴的對待及尊重公司同仁，並恪守公司所在地之勞動相關法規。

本公司人權政策適用範圍包括本公司及子公司，本公司關注之人權議題及政策如下：

#### 提供公平的工作環境：

不因個人性別、種族、社經地位、國籍、年齡、婚姻、家庭狀況、語言、宗教、黨派、外貌身高、身心障礙等，有任何不公平及差別待遇。

#### 提供安全的工作環境：

本公司重視員工安全與健康之工作環境，落實ISO14001環境管理系統及ISO45001職業安全衛生管理系統，持續改善工作環境與衛生條件，致力降低職業災害之風險及保障員工之身心健康。

#### 尊重職場人權：

本公司遵循政府勞動法規，不雇用童工，避免超時、過勞工作。建立暢通溝通管道，並定期召開勞資會議確保雙方權益，建構勞資關係和諧的職場環境。

#### 落實資訊安全：

為尊重各利害關係人之隱私權，保障個人資料的蒐集及合法使用，本公司建置完善之資訊安全管理機制，以管控資料存取及防護資料外洩。

本公司期許所有合作夥伴包含供應商及承攬商等，一同提升人權相關議題的管理及國際人權意識，符合本政策的精神與基本原則。

2020年12月

林明儒  
董事長

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# Chapter 7

Taiwan Steel Union supports the social care of the communities where it operates. Community impact assessments were conducted at the beginning of the facility builds. There are also ongoing community engagements.

## Social Inclusion

### Management guidelines on social inclusion

Main Topics: None



#### Social inclusion target

- Social expenditures as % of net income: 3%.



#### Social inclusion actions

- Promoted community care plan and program.
- Promoted circular economy and environmental education.
- Adopted local windbreak forests and street lamps.
- Sponsored student bus for Keliao community.
- Supported local cultural and arts events.
- Supported local sports development.



#### Social inclusion effectiveness assessment

- Through the annual reporting of sustainability report, the effectiveness and result are tracked and assessed continuously.



### Social inclusion policy

- The percentage of community donations is included into the commitment in Environmental Impact Statement (EIS). NT\$150 is contributed to the good neighbors account for each ton of EAFD reused. Monthly remittances are made to the accounts dedicated to Shengang Township and Xianxi Township for use by township offices.
- The Union adopts windbreak forest, maintains ecological environment and performs environmental cleaning and plant protection, in order to provide an excellent and rich ecological environment for animals and plants. In addition, the Union also mitigates the operating burden of the industrial park management center, in order to allow resources to be effectively utilized for other public spaces, green management and utilization.
- All environmental monitoring items are transparently disclosed on the Union's website quarterly for the review of all different sectors. In addition, one single window is also provided to allow the neighborhood township office and local residents to provide feedbacks on concerned matters and to consult relevant issues of related groups at any time, thereby eliminating any environmental safety concern of the general public.



4 EDUCACIÓN DE CALIDAD

4.7 Assurance that all students acquire necessary knowledge and skills to contribute to sustainability

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## Social Inclusion Highlights

### Comprehensive community impact assessment

Environmental monitoring and disclosure, categorization of monitoring items, formation of environmental monitor plans and assessment of transportation impact.

### Circular economy education

In 2021, due to the impact of the COVID-19, Taiwan Steel Union received 23 visitors, Taiwan Steel Resource had 60 visitors. Accordingly, a total of 83 visitors proceeded to the plant sites.

### Keliao community buses

Safe transportation for young students and senior citizens

### Sponsorships for local wind break forests

Environmental cleaning and vegetation maintenance, to provide a good ecosystem to flora and fauna of the windbreak forests

### Highest percentage of social expense in history

In 2021, the total social expense was NT\$28,790 thousand, accounted for 5.1% of the net income after tax, demonstrating the Union's commitment to the society return and to the fulfillment of corporate social responsibility.





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## 7.1 Community impact assessment

Taiwan Steel Union supports the social care of the communities where it operates. Community impact assessments were conducted at the beginning of the facility builds. This includes environmental monitoring and disclosure, categorization of monitoring items, formation of environmental monitor plans and assessment of transportation impact.

### Strict environmental monitoring and transparent disclosure

Taiwan Steel Union rigorously monitors the environment according to the environment assessment and commitment. There are 21 items in 10 categories for monitoring. All the environmental monitoring data is published on the official website quarterly for the review of all sectors.



[Taiwan Steel Union monitoring information](#)

### Environmental monitoring plan

Monitoring categories	Monitoring frequency	Monitoring locations
Groundwater	Operating period (once per month)	One upstream location and one downstream location of the factory site
Rainwater	Operating period (once per month)	Two rainwater storage tanks
Effluents	Operating period (once per month)	Effluent outlets on the factory site
Soils	Operating period (once per quarter)	One location for the operational processing zone inside the factory
Waste gases	Operating period (once per quarter)	Flue gas outlet (Two locations, P001 for No. 1 Kiln, P003 for No. 2 Kiln)
Slag	Operating period (once every six months)	Temporary storage area for slag
Fugitive granules	Operating period (once every six months)	One upwind location, one downwind location of the factory site
Dioxin in the air	Once per quarter	Southern side of the factory site (next to offices)
	Once every six months	One stop at the Keliao community, one stop at Xian Xi Elementary School
Dust fall	Operating period (once per month)	Three test stations, one at the factory site, on Qingan Road's side, and between Qingan North Road and Zhangbin Road
Zinc oxide	Operating period (once every six months)	Zinc oxide packing area

Note 1: Inspection once per quarter on chloride salt, salinity, TDS and BOD of groundwater

Note 2: Inspection once every six months on arsenic in soils and dioxin

### Transportation impact

A transportation impact analysis was conducted on West Coast Expressway, adjacent to our factory. The current traffic status indicates the road's level of service is between A and B, in a good condition.

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## 7.2 Community concerns

We center social care projects and schemes based on local community needs. This includes the transportation for community safety and sponsorship for the maintenance of windbreak forests in the local industrial park.

### Safety transportation for the community

In addition to community donations, Taiwan Steel Union has been sponsoring the coach buses and event activities of the local Keliao community for NT\$1 million each year. This provides safe transportation for young students and senior citizens and promotes community events.



### Sponsorship for streetlamps of Xianxi Township

Taiwan Steel Union participates in the sponsorship program organized by Xianxi Township for streetlamps. We sponsor 10 streetlamps of Xianxi Township each year, to help the township office maintain the safety and illumination of the streets at night and lighten up the roads for community residents going home.

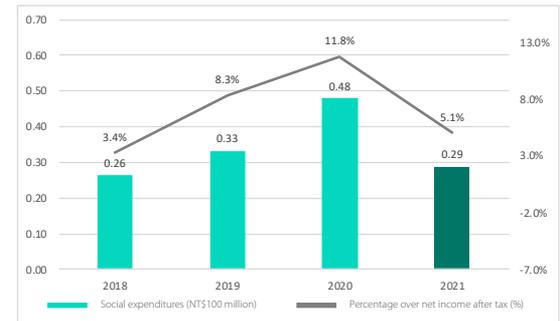


### Sponsorship for maintenance of windbreak forests in the local industrial park

Taiwan Steel Union supports the cleaning and maintenance of the local environments. We adopt windbreak forecasts in the local industrial park for environmental cleaning and vegetation maintenance. The windbreak forest serves as a great habitat for flora and fauna and enriches the ecosystem resources. Hopefully this assists Changhua Coastal Industrial Park in the utilization of resources from the companies onsite and reduces the burden of the government. It enables effective management and use of public spaces and green spaces, beautifies the surroundings of the Union, and boosts the morale and efficiency of employees. The involvement from companies is encouraged in order to establish a common ground and achieve the expected benefits of adoption of windbreak forests. Under the maintenance by Taiwan Steel Union, the windbreak forest has become a beautiful park and a comfortable place for relaxation of the public.

### Social expenditures

Taiwan Steel Union denotes to the local communities according to the recycle volume of EAFD. We also sponsor buses for the Keliao community and the maintenance of the windbreak forest. Starting in 2018, we helped to assist the processing of illegally dumped EAFD on Xinfeng Seaside. In 2021, the total social expenditures was NT\$28,790 thousand, accounted for 5.1% of the net income after tax. Taiwan Steel Union endeavors to return to the society and fulfill our corporate social responsibility.



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## Community concerns

### ✓ Sponsored local student sports activities



### ✓ Sponsored local cultural and arts events



### ✓ Sponsored neighborhood community Lantern Festival activities



### ✓ Sponsored Xianxi Dingzhuang community cultural heritage promotion



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## Community concerns

✓ Sponsored Xianxi Township graduation ceremony gifts



✓ Donated NT\$500 thousand during Level 3 epidemic control stage



✓ Donated Daitien Temple public parking lot



✓ Sponsored water scooters to the Fire Bureau





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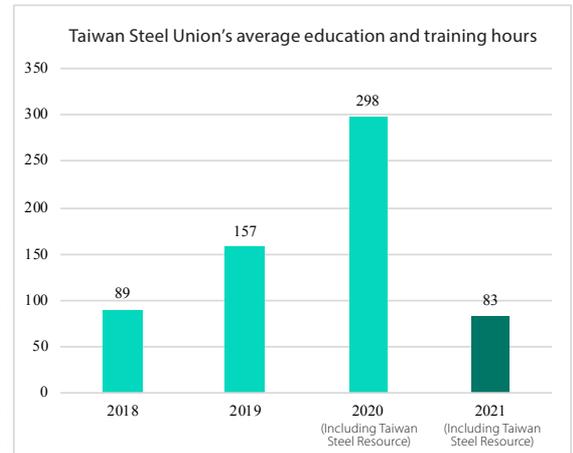
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## 7.3 Circular economy education

Taiwan Steel Union promotes the education on circular economy. We invite students and colleges and universities to visit the Union for career development, in order to allow students to have greater understanding of the domestic resource recycling and environmental protection industry. We offer onsite tours on the processing of Class A and Class B waste and training classes for clean-up technicians. This allows those who are learning about the environmental protection industry to get a hands-on understanding of processing control technology and operational management. Our arranged tours advocate the importance of environmental conservation and resource recycling and promote the efficient use of resources. In addition to the academic sector, the Union also invites the industry sector to visit our plants. In 2021, due to the severe impact of the COVID-19, the visiting activities were significantly reduced to prevent group gathering, and 83 visitors were reduced for the plant site for the actual experience of circular economy.



Taiwan Steel Union and Taiwan Steel Group United continued to cooperate with the national policy in 2021, and actively cooperated with the reuse review of the Environmental Protection Administration, factory visits and survey or audit operations of the Environmental Protection Department, the Industrial Development Bureau and other units.



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### ISO 26000 Guidance on Social Responsibility

ISO 26000 topics relevant to Taiwan Steel Union	Taiwan Steel Union's report chapters and contents
Acknowledgement and understanding of corporate social responsibility	<a href="#">Report Message from Management</a>
Identification and involvement of stakeholders	<a href="#">Chapter 1: Sustainability Management</a>
Organizational governance	<a href="#">Chapter 2: Sustainability Corporate Governance</a>
Human rights	<a href="#">Chapter 6: Happy Workplace</a>
Labor practice	
Environment	<a href="#">Chapter 5: Green Manufacturing Process</a>
Fair practice	<a href="#">Chapter 1: Sustainability Management</a>
Community involvement and development	<a href="#">Chapter 7: Social Inclusion</a>
Action plans	Chapter management guidelines of this report
Communication of social responsibility	Communication through annual reports and website pages
Review and enhancement of corporate social responsibility	Sustainable Development Committee has been established to implement corporate governance and public welfare maintenance operation according to department functions and scopes, and the committee also monitors day-to-day ESG activities, depending on requirements and legal regulations.
Relation between organizational characteristics and social responsibility	Taiwan Steel Union operates a 100% recycle and reuse process, and provides proper treatment channel for hazardous wastes outputted by electric arc furnace steel making industry and converts such wastes into valuable products. thereby contributing efforts in the resource utilization and circular economy in Taiwan and the rest of the world. <a href="#">Chapter 4 Value Chain Management</a>

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## Sustainability Accounting Standards Board SASB - Disclosure Guidelines for the Metals and Mining Industry

Disclosure Topic	Indicator No.	Indicator Item	Value or Explanation	Relevant Chapter
GHG emissions	EM-MM-110a.1	Global Scope 1 total emissions (TCO <sub>2</sub> e)	71,775	5.3 Operational ecosystem efficiency p.67~73
		Scope 1 emission control percentage (%)	88.28%	
	EM-MM-110a.2	Long-term and short-term strategy or plan for managing Scope 1 emission, reduction target and performance analysis	Please refer to p.67 for details	
Air quality	EM-MM-120a.1	Carbon monoxide (CO) (T)	2,182	5.3 Operational ecosystem efficiency p.67~73
		Nitrogen oxides (NOx) (excluding N <sub>2</sub> O)	7.61	
		Sulfur oxides (SOx) (T)	12.79	
		Particulate matter (PM10) (T)	0.8903	
		Mercury (Hg) (T)	0.02962	
		Lead (T)	0.0093	
		Volatile organic compounds (VOC) (T)	0.1838	
		Dioxin (g)	0.028	
Energy management	EM-MM-130a.1	Total energy consumption (GJ)	915,895	5.3 Operational ecosystem efficiency p.67~73
		Grid electricity percentage (%)	7.46%	
		Renewable energy percentage (%)	0%	
Water management	EM-MM-140a.1	Total freshwater extracted (M <sup>3</sup> )	58,055	5.4 Water risk management p.74~76
		Total freshwater consumed (M <sup>3</sup> )	22,372	
		Percentage of areas of high or extremely high baseline water stress (%)	0%	
	EM-MM-140a.2	Number of violations related to water quality permission, standards and regulations	0	
Waste and hazardous material management	EM-MM-150a.4	Total weight of non-mineral waste total generated (T)	118,297	3.5 Increasing strength of the circular economy
	EM-MM-150a.5	Total weight of tailings generated (T)	N/A	
	EM-MM-150a.6	Total weight of waste rock generated (T)	N/A	
	EM-MM-150a.7	Total weight of hazardous waste generated (T)	1,900	
	EM-MM-150a.8	Total weight of hazardous waste recycled (T)	1,900	
	EM-MM-150a.9	Number of major events related to hazardous material and waste management	1 case	
	EM-MM-150a.10	Management policy and procedure for active and inactive operation waste and hazardous materials	According to "ISO 14001: Warehouse inbound management regulations Order acceptance management regulations	

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Disclosure Topic	Indicator No.	Indicator Item	Value or Explanation	Relevant Chapter
Impact of biological diversity	EM-MM-160a.1	Describe the environmental management policy and management of the activity place	Environmental assessment and commitment to retain green land, plant trees, provide ecological environment and adopt windbreak forest	—
	EM-MM-160a.2	Percentage of mining fields of acid rock drainage: (1) Occurrence anticipation (2) Active mitigation (3) Handling or treatment in process	N/A	
	EM-MM-160a.3	Percentage: (1) Proof (2) Under protected condition or at endangered species habitat or possible protection area at the nearby area	N/A	
Human rights and community relations	EM-MM-210a.1	Percentage (1) Proof (2) Likelihood of being at conflict area or nearby protection area	7.1 Community impact assessment	6.5 Human rights 7.1 Community impact assessment
	EM-MM-210a.2	Percentage (1) Proof (2) Within indigenous land or possible energy storage at nearby area	7.1 Community impact assessment	
	EM-MM-210a.3	Discussion on participation process and due diligence implementation related to human rights, indigenous rights and conflict area operation	6.5 Human rights	
		Discussion on the risk and opportunity processes related to management and community rights and interests	7.1 Community impact assessment	
Community relations	EM-MM-210b.1	Risk and opportunity processes related to management and community rights and interests	7.1 Community impact assessment	7.1 Community impact assessment
	EM-MM-210b.2	Number of times of non-technical delays and duration	0	
Labor implementation	EM-MM-310a.1	Percentage of on-job workforce covered by group negotiation, classified into domestic and foreign employees	0	—
	EM-MM-310a.2	Number of times of strike and work suspension and duration	0	
Employee health and safety	EM-MM-320a.1	(1) MSHA full occurrence rate (2) Case fatality rate (3) Near miss frequency rate (NMFR)	N/A	—
		(4) (a) Full-time employee and (b) Contract employee average health, safety and emergency response required training hours	13.4190	
Business ethics	EM-MM-510a.1	Describe the management system for preventing corruption and bribery in the entire value chain	Code of conduct and anti-corruption of the Union	—
	EM-MM-510a.2	Perform production in 20 countries ranked the last in the transparency and international Corruption Perceptions Index (CPI)	Ranked No. 25 in Taiwan in 2021	
Major event risk management	EM-MM-540a.1	Tailings warehouse facility inventory table: (1) Facility name (2) Location (3) Ownership status (4) Running condition (5) Construction method (6) Maximum acceptable storage capacity (7) Current storage tailing volume (8) Consequence classification (9) Date of most recent independent technical review (10) Major discovery (11) Mitigation measures (12) EPRP of specific location	N/A	—
		(1) Tailings management system for monitoring and maintaining tailings storage facility stability and governance structure summary (2) Tailings storage facility emergency preparedness and response planning (EPRP) establishment method	N/A	
	EM-MM-540a.2 EM-MM-540a.3			
Activity indicator	EM-MM-000.A	Production of (1) Metal core and (2) Metal finished products	Crude zinc oxide of 1,283 tons	5.1 Environmental-friendly green manufacturing process
	EM-MM-000.B	Total number of employees, contractor percentage	97 / 58.7 %	6.1 Human resource management p.80

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## GRI Standards Content Index: General Disclosures

	GRI 102: 2016		Page number	External verification
Organizational profile	102-1	Name of the organization	29	V
	102-2	Events, brands, products and services	29	V
	102-3	Location of headquarters	29	V
	102-4	Location of operations	29	V
	102-5	Ownership nature and legal forms	29	V
	102-6	Markets served	29	V
	102-7	Scale of the organization	29	V
	102-8	Information on employees and other workers	90~91	V
	102-9	Supply chains	54	V
	102-10	Significant changes to the organization and its supply chain	No major change	V
	102-11	Precautionary Principle or approach	31	V
	102-12	External initiatives	4	V
	102-13	Membership of associations	31	V
strategy	102-14	Statement from senior decision-maker	5, 6	V
Moral ethics	102-16	Values, principles, standards and codes of conduct	8, 31	V
Governance	102-18	Governance structure	29	V
Stakeholder engagements	102-40	List of stakeholder groups	14	V
	102-41	Collective bargaining agreements	None	V
	102-42	Identifying and selecting stakeholders	14	V
	102-43	Approach to stakeholder engagement	15~22	V
	102-44	Key topics and concerns raised	15~22	V

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	GRI 102: 2016		Page number	External verification
Report parameters	102-45	Entities included in the consolidated financial statements	36~37	V
	102-46	Defining report content and topic Boundaries	23~24	V
	102-47	List of main topics	23~24	V
	102-48	Restatements of information	4 Including the subsidiary Taiwan Steel Resource	V
	102-49	Changes in reporting	24	V
	102-50	Reporting period	4	V
	102-51	Date of most recent report	4	V
	102-52	Reporting cycle	4	V
	102-53	Contact point for questions regarding the report	4	V
	102-54	Claims of reporting in accordance with the GRI Standards	4	V
	102-55	GRI content index	103~110	V
	102-56	External assurance/verification	111~112	V

## GRI Standards Content Index: Specific Disclosures

Economic main topics	Management guidelines and indicators	Page number	External verification	
	103 Management guidelines	26	V	
Economic performance GRI 201: 2016	201-1	Direct economic value generated and distributed by the organization	34~37	V
	201-2	Financial implications and other risks and opportunities due to climate change	38~41	V
	201-3	Defined benefit plan obligations and other retirement plans	83	V
	201-4	Financial assistance received from government	37	V

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Economic main topics	Management guidelines and indicators	Page number	External verification
<b>Taiwan Steel Union's self-defined main topics</b>			
Company's code of conduct	103 Management guidelines	26	V
Circular Economy	103 Management guidelines	42	V

Environmental main topics	Management guidelines and indicators	Page number	External verification
Materials GRI 301: 2016	103 Management guidelines	62	V
	301-1 Materials used by weight or volume	65	V
Energy GRI 302: 2016	103 Management guidelines	62	V
	302-1 Energy consumption with the organization	71	V
	302-3 Energy intensity	70~71	V
	302-4 Energy consumption reduction	70	V
Water and effluents GRI 303: 2018	103 Management guidelines	62	V
	303-1 Interactions with water as a shared resource	75~76	V
	303-2 Management of water discharge-related impacts	75~76	V
	303-3 Water withdrawal	76	V
Emissions GRI 305: 2016	103 Management guidelines	62	V
	305-1 Direct (Scope 1) GHG emissions	68	V
	305-2 Energy indirect (Scope 2) GHG emissions	68	V
	305-3 Other indirect (Scope 3) GHG emissions	69	V
	305-4 GHG emissions intensity	67~69	V
	305-5 Reduction of GHG emissions	67~69	V
	305-7 NOx, SOx and other major gas emissions	73	V

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Environmental main topics	Management guidelines and indicators	Page number	External verification
Waste GRI 404:2016	103 Management guidelines	42	V
	306-1 Waste generation and significant waste-related impacts	42, 47	V
	306-2 Management of significant waste-related impacts	47	V
	306-3 Generation of waste	52	V
	306-4 Waste diverted from disposal	52	V
Environmental protection law compliance GRI 307: 2016	Management Guideline	62	V
	307-1 Non-compliance with environmental laws and regulations	77	V
<b>Taiwan Steel Union's self-defined main topics</b>			
Transportation safety and regulations	Management Guideline	54	V
	Transportation :No. of safe ton kilometers and No. of safety injuries/deaths due to traffic accidents	56	V
	Transportation laws and regulations :Degree of compliance of transportation laws and regulations	56	V
Climate strategy	Management Guideline	38	V
	TCFD TCFD adherence	38~41	V

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Social main topics	Management guidelines and indicators	Page number	External verification
Employment GRI 401:2016	103 Management guidelines	78	V
	401-1 New employees and resigned employees	81	V
Labor/Management Relations GRI 402:2016	103 Management guidelines	78	V
	402-1 Minimum notice periods regarding operational changes	83	V
Occupational Health and Safety GRI 403:2018	103 Management guidelines	78	V
	403-1 Occupational health and safety management system	86	V
	403-2 Hazard identification, risk assessment and event investigations	90~91	V
	403-3 Occupational health services	93	V
	403-4 Worker participation, consultation, and communication on occupational health and safety	88~89	V
	403-5 Worker training on occupational health and safety	88~89	V
	403-6 Workers' health promotion	93	V
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	92	V
	403-9 Occupational injuries	94	V
Training and education GRI 404:2016	103 Management guidelines	78	V
	404-1 Average hours of training per year per employee	85	V

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## AA 1000 v3 External Assurance Statement



### 獨立保證意見聲明書

#### 2021 年台灣鋼聯股份有限公司永續報告書

英國標準協會與台灣鋼聯股份有限公司(簡稱鋼聯)為相互獨立的公司，英國標準協會除了針對 2021 年台灣鋼聯股份有限公司永續報告書進行評估和查證外，與鋼聯並無任何財務上的關係。

本獨立保證意見聲明書之目的，僅作為對 2021 年台灣鋼聯股份有限公司永續報告書所界定範圍內的相關事項進行保證之結論，而不作為其他之用途。除對查證事實提出獨立保證意見聲明書外，對於其他目的之使用，或閱讀此獨立保證意見聲明書的任何人，英國標準協會並不負有或承擔任何有關法律或其他之責任。

本獨立保證意見聲明書係英國標準協會審查鋼聯提供之相關資訊所作成之結論，因此審查範圍乃基於並侷限在這些提供的資訊內容之內，英國標準協會認為這些資訊內容都是完整且準確的。

對於這份獨立保證意見聲明書所載內容或相關事項之任何疑問，將由鋼聯一併回覆。

#### 查證範圍

鋼聯與英國標準協會協議的查證範圍包括：

1. 本查證作業範疇與 2021 年台灣鋼聯股份有限公司永續報告書揭露之報告範疇一致。
2. 依照 AA1000 保證標準 V3 的第 1 應用類型評估鋼聯遵循 AA1000 當責性原則(2018)的本質和程度，不包括對於報告書揭露的資訊/數據之可信賴度的查證。

本聲明書以英文作成並已翻譯為中文以供參考。

#### 意見聲明

我們總結 2021 年台灣鋼聯股份有限公司永續報告書內容，對於鋼聯之相關運作與永續績效則提供了一個公平的觀點。基於保證範圍限制事項、鋼聯所提供資訊與數據以及抽樣之測試，此報告書並無重大之不實陳述。我們相信有關鋼聯的環境、社會及治理等績效資訊是被正確無誤地呈現。報告書所揭露之永續績效資訊展現了鋼聯對識別利害關係人的努力。

我們的工作是由一組具有依據 AA1000 保證標準 V3 查證能力之團隊執行，以及策劃和執行這部分的工作，以獲得必要之訊息資料及說明。我們認為就鋼聯所提供之足夠證據，表明其符合 AA1000 保證標準 V3 的報告方法與自我聲明依循 GRI 永續性報導準則核心選項係屬公允的。

#### 查證方法

為了收集與作成結論有關的證據，我們執行了以下工作：

- 對來自外部團體的議題相關於鋼聯政策進行訪談，以確認本報告書中聲明書的合適性
- 與管理者討論有關利害關係人參與的方式，然而，我們並無直接接觸外部利害關係人
- 訪談 4 位與永續性管理、報告書編製及資訊提供有關的員工
- 審查有關組織的關鍵性發展
- 審查內部稽核的發現
- 審查報告書中所作宣告的支持性證據
- 針對公司報告書及其相關 AA1000 當責性原則(2018)中有關包容性、重大性、回應性及衝擊性原則之流程管理進行審查

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## AA 1000 V3 External Assurance Statement

### 結論

針對 AA1000 當責性原則(2018)之包容性、重大性、回應性及衝擊性與 GRI 永續性報導準則的詳細審查結果如下：

### 包容性

2021 年報告書反映出鋼聯已持續尋求利害關係人的參與，並建立重大永續主題，以發展及達成對永續具有責任且策略性的回應。報告書中已公正地報告與揭露環境、社會及治理的訊息，足以支持適當的計畫與目標設定。以我們的專業意見而言，這份報告書涵蓋了鋼聯之包容性議題。

### 重大性

鋼聯公布對組織及其利害關係人之評估、決策、行動和績效會產生實質性影響與衝擊之重大主題。永續性資訊揭露使利害關係人得以對公司之管理與績效進行判斷。以我們的專業意見而言，這份報告書適切地涵蓋了鋼聯之重大性議題。

### 回應性

鋼聯執行來自利害關係人的期待與看法之回應。鋼聯已發展相關道德政策，作為提供進一步回應利害關係人的機會，並能對利害關係人所關切之議題作出及時性回應。以我們的專業意見而言，這份報告書涵蓋了鋼聯之回應性議題。

### 衝擊性

鋼聯已鑑別並以平衡和有效之量測及揭露方式公正展現其衝擊。鋼聯已經建立監督、量測、評估和管理衝擊之流程，從而在組織內實現更有效之決策和結果管理。以我們的專業意見而言，這份報告書涵蓋了鋼聯之衝擊性議題。

### GRI 永續性報導準則

鋼聯提供有關依循 GRI 永續性報導準則之自我宣告，與相當於“核心選項”(每個涵蓋特定主題 GRI 準則之重大主題，至少一個特定主題的揭露項目依循其全部的報導要求)的相關資料。基於審查的結果，我們確認報告書中參照 GRI 永續性報導準則的永續發展相關揭露項目已被報告、部分報告或省略。以我們的專業意見而言，此自我宣告涵蓋了鋼聯的永續性主題。

### 保證等級

依據 AA1000 保證標準 V3 我們審查本聲明書為中度保證等級，如同本聲明書中所描述之範圍與方法。

### 責任

這份永續報告書所屬責任，如同責任信中所宣稱，為鋼聯負責人所有。我們的責任為基於所描述之範圍與方法，提供專業意見並提供利害關係人一個獨立的保證意見聲明書。

### 能力與獨立性

英國標準協會於 1901 年成立，為全球標準與驗證的領導者。本查證團隊係由具專業背景，且接受過如 AA1000AS、ISO 14001、ISO 45001、ISO 14064 及 ISO 9001 之一系列永續性、環境及社會等管理標準的訓練，具有主導稽核員資格之成員組成。本保證係依據 BSI 公平交易準則執行。

For and on behalf of BSI:

  
Peter Pu, Managing Director BSI Taiwan



Statement No: SRA-TW-2021110  
2022-06-17

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