



# 2020 Sustainability Report



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## Editing Principles

Taiwan Sugar Corporation (hereinafter referred to as “Taiwan Sugar”, “TSC”, “the Company”, and “We”) started to publish its Corporate Sustainability Report (CSR) annually from 2010, and this is the eleventh publication of our CSR report. This 2020 CSR Report is based on the main theme of “becoming a benchmark enterprise in health and green industries”. We identified our stakeholders and their issues of concern, summarized 22 major sustainability topics, and strengthened disclosures on “Management Approach” to respond to the importance of each major topic to Taiwan Sugar. Meanwhile, our endeavors to implement the SDGs also enable the public to know Taiwan Sugar’s efforts to promote sustainable development.

This Report is compiled based on the meaning of the combination of Taiwan Sugar’s corporate culture and the vision of sustainable management in the future. The Report is divided into seven major themes, including “Policies and Communication”, “Sustainable Governance at Taiwan Sugar”, “Circular Economy”, “Resources and Environmental Protection”, “Meeting People’s Livelihood Demands and Social Needs”, “Management Innovation”, and “Investment and External Cooperation”, disclosing our efforts and results in aspects of economy, product liability, environment, social engagement, labor care, concern for human rights and with related data and detailed description. It is hoped that with the release of this Report, the general public can have a better understanding of and trust in Taiwan Sugar’s performance and efforts in every aspect of the corporate sustainability in 2019.

Taiwan Sugar has established a Corporate Sustainability Area on our official website to constantly update the results of the promotion of sustainable development. In addition, CSR issues of the public’s concern and major events related to Taiwan Sugar will be immediately reported and responded to on the official website to demonstrate our determination to fulfill the corporate social responsibility.

### ● Scope of the Report and Statistics Basis

This Report covers Taiwan Sugar’s corporate sustainability efforts and results from Jan. 1, to Dec. 31, 2019 (for complete disclosure, data disclosed included those in 2018 and some in 2017 in terms of some material topics). Except that corporate governance and financial performance include data of reinvested companies and overseas branches, other performance disclosure focuses on the Company’s operation and activities in Taiwan. The statistical data disclosed in the Report come from the results of Taiwan Sugar’s internal data collection, research and inquisition. The financial data are public information disclosed after being audited and verified by Deloitte & Touche. Some of the statistical data are cited from public information on government websites and all the numbers are presented in the most common way of description. The financial statements have been based on the International Financial Reporting Standards (IFRSs), and the financial data were calculated in NT dollars. For the Environmental performance figures, the data of environmental costs came from TSC AS400 Financial Accounting Management System. Each unit operator enters the “accounting code” when the expenses are reimbursed, and the monthly statistical data cover data from all units. Data of environmental benefits come from the material flow analysis system, and the data are limited to the environmental accounting units, which include input of raw materials, output of products and other items not set up by Environmental Protection Administration (EPA). Taiwan Sugar established management indicators based on the needs of operational management, and the data are all presented in International Generic Indicators. Compared with the 2019 CSR Report, there is merger or withdrawal of some administrative organizations in TSC in this 2020 CSR Report, the scope of this report changed from the 8 business divisions into 7, and the reorganized data are detailed in this Report. The chapters are slightly different for the complete presentation of the sustainable development framework, but it does not prevent readers from comparing the contents with those in the 2019 CSR Report.

### ● Referred Guidelines and Principles

2020 CSR Report was compiled in accordance with the GRI (Global Reporting Initiative) Standards and Article 4 of the Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies stipulating that listed companies within the food industry shall reinforce disclosure items, and the stakeholders’ issues of concern were identified through the model of materiality analysis for the determination of the priorities of these topics. The major sustainability issues, relevant strategies, goals and management policies to be disclosed in this Report were analyzed and compiled in accordance with the reporting principles and requirements while referring to the principles of ISO 26000 Guidance on Social Responsibility, the Earth Charter, the OECD Guidelines for Multinational Enterprises, United Nations Global Compact, Sustainable Development Goals (SDGs), and Integrated Reporting (IR) as the focus and direction for long-term development in the future.

## ●The Editing, Review and Authorizing Procedure and Verification of this Report

**CSR Editing Group:**The CSR Editing Group for this 2020 CSR Report is under the Corporate Sustainable Development Committee, in charge of the overall planning, communication and integration, data consolidation and editing and revision, with the Vice President of Business Supervision in the Department of Planning serving as the convener of the editorial team, the Director of Planning as the executive secretary, and the members include representatives from all Staff Room of the General Management Office, all business divisions, all district offices, all research units and Taiwan Sugar Union.

**Internal Review and Authorization Procedures:**After the first draft of the contents from all units was compiled by the Department of Planning, the editorial team members are in charge of the proofreading and revision of relevant contents and data, and the draft was finalized after reviewed and approved by the heads of the units(Corporate Sustainable Development Committee), President (Committee Chairman) and then the Chairman(Steering Committee Member). In accordance with the administrative procedures, the finalized content was verified by an impartial third party and then submitted to the 27th Board Meeting (June, 2020) of the 33rd session of BOD for final review and approval before the issuance of this Report, and is disclosed on TSC Sustainability Website.

**External Verification of this Report:**All the information in this Report was verified by the world renowned British Standard Institution (BSI), and both the editing framework and procedure fitted the core items of GRI Standards and AA 1000 Accountability Principles Standard. In addition, to reinforce the reliability of relevant information disclosed, the part stipulated in Article 4 of the Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies that listed companies within the food industry shall reinforce disclosure items was under the verification of AA 1000 AS Type II, high level of assurance. BSI verification report can be found in Appendix VI.

## ●Publishing Schedule of the Report

Taiwan Sugar Corp annually publishes its CSR Report, and this Report is also disclosed to the public in the Corporate Sustainable Development Area on our official website.  
 Previous edition: June, 2019  
 Current edition: June, 2020  
 Next edition: June, 2021



## ●Contact Information

You can download the complete CSR Report in the Corporate Sustainability Area on TSC's official website. Please contact us for any question or suggestion for this 2020 Corporate Sustainability Report (CSR). Your opinions are the driving force for our progress. We look forward to your valuable suggestions to enable our next CSR Report one that is in line with the needs of our stakeholders, providing the information all the stakeholders want to know. Here is our contact information:

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TSC official website



TSC official channel



TSC Fanpage



TSC CSR Fanpage



TSC CSR Newsletter



TSC LINE@



## Message from the Top Management

With the intensified global climate changes and more frequent occurrence of natural disasters, more attention has been drawn to issues like the lack of food and the deterioration of ecological environment. In addition, due to the extended lifespan of humans and the increasing needs for disease prevention, health-related problems have also become one of the most concerned issues. Therefore, green economy and health-related industries have become a development trend, and to respond to the global industrial development trend as well as to strengthen the dynamics in domestic demands, the government has also promoted the Five Plus Two Industrial Innovation Plan in an attempt to enhance the vitality of the overall economy.

Taking into account the overall industrial development trend, TSC has set the vision of “becoming a benchmark enterprise in the green and health industries in the Asia-Pacific Region” based on its abundant land resources and experiences in large-scale agriculture, livestock breeding, and agriculture and livestock processing, and is actively working on the industrial distribution and transformation. The methods are detailed as follows.

### § Promotion of Green Concept Business and Circular Economy

#### ● Green Energy

TSC makes use of the fermentation of pig manure and urine in its livestock farms for biogas energy or power generation and also plans to apply the self-construction, cooperative operation and land leasing models for the installment of solar photovoltaic (PV) facilities to implement the government’s green energy policy. In addition to the installment of solar PV panels on the roofs of the operation bases, under the premise of the coexistence of agriculture, forestry and energy, we have made assessment of the feasibility of the coexistence of agricultural production and solar power generation as well as the afforestation and solar power generation under the guidance of the government.

#### ● Circular Economy

One of the final characteristics of circular economy is “zero waste”. Through the inventory of its internal and external resources, TSC has worked actively toward the goals of waste reduction, zero emissions, carbon reduction and the creation of added value by strengthening the recycling and reuse of resources. What is currently being worked on includes the use of whole hogs, recycling oyster shells for the reprocessing into feed and food additives, Taisugar’s Circular Village (Shalun Smart Green Energy Recycling Residential Park), reconstruction of pig farms with circular agriculture and the management of water resources and energy conservation in factories.

### § Promotion of New Agriculture

The government promotes new agriculture with the purpose of enhancing the competitiveness in agriculture to ensure the safety of the agricultural environment and reinforce the production and marketing capabilities so as to construct high-quality agricultural management conditions. To meet this end, we started from the existing foundation of agricultural management. In terms of the sugar industry, we strengthen the sugarcane nursery, establish field information and develop high-value sugar products. In terms of Phalaenopsis, an advanced management system of production optimization was introduced to strengthen the fit of production and marketing. In addition, the planning of special agricultural zone is also strengthened. Through the cooperation with young farmers, we can provide technical assistance and establish a production and marketing platform with production certification to create a win-win situation.



**Chairman**  
Chao-Yih Chen

## § Promotion of Health Business

### Health Food for Senior Citizens

First, the development technology and experience of the existing health food serve as the basis for the enhancement of the innovative research and development. We target at common chronic diseases in Taiwan and development health food based on the concept of “prevention is better than cure”. At the same time, special nutritious foods for the daily dietary needs of the senior citizens are also developed.

### Green Ecological Tourism

The existing business units and the ecological habitats are used with the introduction of the concept of circular economy for the construction of a multi-functional park with purposes of education, green ecological maintenance, research, culture and leisure health.

### Care for Senior Citizens

Priority is given to cooperate with government policies to provide land for the establishment of welfare institutions for the elderly. Secondly, investment in the construction of the highly functional and diversified residential houses for the senior citizens is evaluated to enable the senior citizens to live in peace and with dignity.

### Safe and Eco-friendly Agriculture

TSC comprehensively promotes environmentally friendly farming, cooperates with farmers, provides the lease of agricultural land, construct special areas for organic farming, and promotes the use of organic fertilizers. Therefore, in addition to reducing the environmental impacts, safe agricultural products with production history can also be provided.

## § Land Activation and Utilization

Land is not only the advantage of TSC bus also the foundation of our business development. In terms of land activation, in addition to giving priority to business investment, we also cooperate with the government’s Statute for Industrial Innovation to assist with the development of the industrial park or release land to be used for the commercial area, development of special trade area or construction of social housing. In addition, TSC also plans to build and sell or lease houses on its own. Currently, TSC is actively evaluating the feasibility of operating residences for the senior citizens. Moreover, the diversified utilization of understorey of the reforestation flat land is also under careful planning.



In addition to the promotion of new businesses and activation of land, TSC also positively works on the optimization of its existing physique, including talent cultivation, organization adjustment, management of responsibility goals, update of production equipment in the factories, and acceleration of cooperation and investment with the outside world. Moreover, an image of excellent quality corporate is also important. Community care services, assisting the government to stabilize the supply and demands of livelihood materials and supplies, making efforts for environmental protection and maintenance of natural resources are all the goals TSC has been making efforts to achieve.

Despite the difficulties and obstacles TSC encountered in the process of new business promotion and transformation, such as the agrivoltaic farm that merges solar farm with the traditional working farm and the pig farm wastewater treatment incident, we still adhere to the practice of continuous improvement and facing the public in an honest manner to solve the difficulties and misunderstanding step by step. It is expected that through the information disclosure in this sustainability report, the general public can have a better understanding of the efforts and contributions TSC has made and give us their support and assistance.

**President**

Tao-I Kwan





## TSC's Corporate Social Responsibility in Response to the New Coronavirus



The outbreak of COVID-19 (coronavirus) was first reported in China in December 2019, and the pandemic spread worldwide, causing huge impacts on domestic industries and global economy. TSC cooperates with the government in making advance deployment of various precautions to effectively prevent the pandemic, such as increasing alcohol production and providing economic relief measures. To bring the spirit of helping the hunger and drowning, we not only expanded our alcohol production line within the shortest time possible but also started the implementation of relief schemes such as rent deferral and rent reduction to work together with our fellow countrymen to go through the pandemic together.

### Production and distribution of anti-pandemic alcohol

In view of the social panic caused by the spread of pandemic and shortage of alcohol supply in the face of increasing demands, TSC staff has started working overtime to increase the capacity of 95% alcohol in 500 c.c. glass bottles with the daily production of 8,600 bottles since February 3. We also produce 60,000 packs of Alcoholic Tissues (portable package tissues) and outsource the production of 75% of anti-pandemic alcohol and market these products to major distribution channels domestically for the timely provision of materials needed for pandemic prevention.

### Relief schemes of land rent deferral and rent reduction

In response to the possible impact on the lessees' income of COVID-19 during the pandemic period, relief schemes are provided in accordance with the "Rent relief measures to tenants of state-owned enterprises under MOEA affected by severe pneumonia with novel pathogens" to provide bail-out programs to reduce the burden of enterprises and to fight against this pandemic together with our tenants (see the table below for the bail-out plans).

TSC'S CORPORATE SOCIAL RESPONSIBILITY IN RESPONSE TO THE NEW CORONAVIRUS

## TSC Supports its Tenants- Rent Reduction Measures During Pandemic!

Relief schemes are provided in accordance with the "Rent relief measures to tenants of state-owned enterprises under MOEA affected by severe pneumonia with novel pathogens" proclaimed on April 24, 2020.

The tenants of TSC's land and premises (excluding government agencies but not limited to government agency tenants providing land or premises to private sectors in accordance with the contract, and the reduction amount should be returned to the actual user).

<div style="background-color: #ffff00; padding: 5px; margin-bottom: 10px;"><b>Beneficiary: Non-manufacturers</b></div> <div style="background-color: #e91e63; color: white; padding: 10px; margin-bottom: 10px;"> <h3 style="margin: 0;">Rent deferral</h3> <p style="font-size: x-small; margin: 0;">Exemption of liquidated damage and deferred interest</p> <p>(Application required)</p> <p><b>Extension of payment deadline:</b></p> <ul style="list-style-type: none"> <li>● Until the end of December, 2020</li> </ul> <p><b>Payment in installments:</b></p> <ul style="list-style-type: none"> <li>● If lump-sum payment is not possible, monthly installments (over 3 years) can be made</li> </ul> </div> <div style="text-align: center;"> </div> <div style="background-color: #004a99; color: white; padding: 10px; margin-top: 10px;"> <h3 style="margin: 0;">Rent reduction</h3> <ul style="list-style-type: none"> <li>● Reduction of 20% of the rent for the whole year in 2020</li> </ul> <p style="font-size: x-small; margin: 5px 0;">If the tenant meets the criteria of enterprises in difficult conditions as prescribed in the Relief and Revitalization Measures for Industries and Business proclaimed by MOEA, 45% of the rent shall be reduced.</p> <p style="font-size: x-small; margin: 0;">(The rent after the reduction shall not be lower than the land price tax or other costs TSC has to bear)</p> </div> <div style="text-align: center;"> </div>	<div style="background-color: #004a99; color: white; padding: 10px; margin-bottom: 10px;"> <h3 style="margin: 0;">Beneficiary: Manufacturers</h3> </div> <div style="background-color: #e91e63; color: white; padding: 10px; margin-bottom: 10px;"> <h3 style="margin: 0;">1 Rent deferral</h3> <p style="font-size: x-small; margin: 0;">Exemption of liquidated damage and deferred interest</p> <p><b>Implementation duration:</b></p> <ul style="list-style-type: none"> <li>● Apply before June 30, 2021</li> </ul> <p><b>Measures:</b></p> <ul style="list-style-type: none"> <li>● Defer payment of 1-year rent and amortize evenly over 3 years</li> </ul> </div> <div style="text-align: center;"> </div> <div style="background-color: #004a99; color: white; padding: 10px; margin-top: 10px;"> <h3 style="margin: 0;">2 Rent reduction</h3> <ul style="list-style-type: none"> <li>● Reduction of 20% of the rent for 6 months</li> </ul> <p style="font-size: x-small; margin: 5px 0;">(the rent after the reduction shall not be lower than the land price tax or other costs TSC has to bear)</p> </div> <div style="text-align: center;"> </div>
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	Huailong Operation Branch: Section Chief Lu, (03)8704125 #125 Section Chief Chang, (08)227720 #500	

### TSC's own epidemic prevention measures

TSC convened a video conference on pandemic prevention in January 2020 chaired by the chairman, and all units were instructed to take relevant supporting and corresponding measures to prevent the spread of the pandemic while minimizing the impact of the pandemic on the business of the company. "Taiwan Sugar Corporation's Response Plan for COVID-19 Pandemic Prevention" was also formulated in the meeting.



### Establishment of the Epidemic Prevention Response Team

In response to the needs for the prevention of the severe pneumonia with novel pathogens, TSC set up an epidemic prevention response team convened by the president. Each unit also set up an emergency response team to take anti-epidemic measures and cooperate with government authorities in the formulation of anti-epidemic measures, impact assessment and response, purchase of protective facilities and equipment, supervision and auditing of implementation effectiveness, implementation of educational training and publicity, keeping up with the latest epidemic prevention information and reviewing the countermeasures for epidemic prevention so that the company can keep on its operations.

### Establishment of the epidemic report system

Once our employees, their dependents and labor personnel in the factory area are infected with COVID-19 (coronavirus) or are notified of home isolation, home quarantine or independent health management, the notification process is as follows.



### Relevant epidemic prevention measures

#### Adoption of a single main entrance/exit

Implement access control and adopt a single main entrance/exit. Body temperature is taken at the entrance, and once the temperature exceeds 37.5 degrees Celsius, the person will be asked to leave to see a doctor.

#### Planning of offsite work/ division of different working areas

To avoid the risk of cross-infection caused by staff gathering in the office, two parties are required to wear masks and maintain social distancing throughout the process when contacting with colleagues. Meanwhile, the frequency of meetings is also reduced and replaced by video conferences instead.



#### Prepare 75% alcohol in place in every workplace

We strengthen the cleaning of the environment and send dedicated personnel or outsourced cleaners to wipe the surface of frequently contacted items (such as door handles, switch panels, desktops and so on) with alcohol or diluted bleach, and the office space and floor is also regularly disinfected.



#### Transmission of epidemic prevention information

We send out messages and information concerning epidemic prevention through various line groups and emails, and at least one advocacy message is sent out weekly to inform our employees the latest epidemic situation, new anti-epidemic messages and government announcements.



With the rampant pandemic of new coronavirus, TSC will continue to review and revise the anti-epidemic contents and plans in accordance with the epidemic prevention measures announced by the Central Epidemic Command Center (CECC) and actively implement anti-epidemic measures to avoid the spread of COVID-19. All TSC business units will also face the pandemic carefully and have a close grasp of the trends and changes of the pandemic so as to adjust the company's corresponding measures accordingly to pragmatically face the challenge of this epidemic and actively implement various projects to open new resources of income and cut expenses to reduce the losses caused by the pandemic and open up new business opportunities.



# 2019 Sustainability Results and Recognitions

2019 SUSTAINABILITY RESULTS AND RECOGNITIONS



Jianshanpi Jiangnan Resort was awarded the "2019 Excellence Award for the Promotion of Environmental Education in Tainan City- Agency (Institution) Group."



TSC's Smooth Amino Acid Shampoo was awarded the Production Innovation Silver Award of the 2019 Taiwan Circular Economy Awards.



TSC actively engaged in the food safety control and was awarded as an excellent food supplier by the Food and Drug Administration of the Ministry of Health and Welfare.



Shalun Smart Green Energy Recycling Residential Park Project won the Excellence Awards in Planning & Design Category- Residential in 2019 FIABCI-Taiwan Real Estate Excellence Awards.



Three employees were awarded Model Civil Servants and Outstanding Employee in 2019 by MOEA.



TSC's edible oils were awarded the excellent manufacturer by Taiwan Quality Food Association (TQF).



Awarded Common Wealth's Corporate Citizenship Award- Common Wealth Top 50.



Awarded "TCSA's Taiwan Top 50 Corporate Sustainability Report Rewards - Platinum Award and TCSA's Taiwan Top 50 Corporate Sustainability Report Rewards - Comprehensive Performing in the Traditional Manufacturing Industry Category."



Awarded Taiwan Excellence in Sustainability Awards by British Standards Institution (BSI).



Xiaogang Sugar Refinery of Sugar Business Division was awarded 2019 Outstanding Green Services and Green Mark & Low-carbon Product Award & Contribution to Carbon Footprint Emissions by Environmental Protection Administration.



Hualien Tourism Sugar Factory was awarded the Outstanding Award of the National Environmental Protection Education Award.



The first livestock industry that passed BS8001 Circular Economy Certification in the world.



In 2019, TSC and IMPCT Coffee signed the procurement project of TSC Honduran Coffee Marketing Services and was awarded the 3rd place of The New Product and Service of Social Innovation Purchase Reward Program in the 3rd Buying Power.



After online voting and review by experts in industry, government and academia, TSC's Hualien Tourism Sugar Factory Hotel was awarded 2019 Star Hotel – Smart Environmental Protection Star of Tourism Bureau, MOTC.



## 2019 Sustainable Management Performance of ESG



In 2019, the total power generation from green energy and renewable energy amounted to **15.46 million kWh**.



reducing **824 metric tons of CO<sub>2</sub>e**. The 2019 power generation from the solar PV system was **5,190,000 kWh**, a **24.84% increase** compared with 2018.



Obtained the **first Renewable Energy Certification (REC)** for Biomass Energy in Taiwan in 2019 and produced **100 certificates** of biomass renewable energy, that is, **100,000 kWh** of green electricity.



**40.86%** of the pig manure slag produced in the livestock farms in 2019 was reused by the farms.



The amount of wastewater discharged in 2019 reduced by **6.03%** compared with 2018.



The total green procurement rate in 2019 was **99.86%**.



TSC is devoted to the implementation of the concept of circular economy, and the waste processing amount in 2019 **decreased by 2.99%** compared with 2018.

## S

## Social Aspect



In 2019, TSC assisted various local groups where the operation bases are located with a total of **185 public welfare activities**, including educational & cultural activities, sports activities, activities for the elderly and for people with disabilities, and other emergency assistance, with subsidies of approximately **NTD 8.23 million**.



**100%** of TSC's food products are included in our own Food Safety Traceability Management System (FT).



The score of customer satisfaction survey in 2019 was **94.4 points**.



In 2019, the percentage of new suppliers meeting the selection criteria was **100%**.



In 2019, the average training hours for each physical course and online course were **49.65 hours** and **2.66 hours** respectively, and the staff training expenses totaled **NTD 44,660,000**.



In 2019, we cooperated with the National Disaster Prevention Day to organize earthquake disaster prevention education and emergency evacuation drills. **147 sessions** were held in total and **3,250 participants** attended the training and drills.



In 2019, the rate of the number of employees participating in health examinations in the past three years reached **100%**. In addition, **48 lectures** on health education were provided for employees' health protection with **2,861 participants**.



During 2017 and 2019, a total of **2,325 people** participated in **46 beach cleaning activities**, clearing **9.41 tons** of waste.

# G Corporate Governance



In 2019, a total of **13 board meetings** were convened, and the average attendance rate of directors was **94%**.



In 2019, the Board of Directors reviewed a total of **235 cases** that included political, economic, environmental and social issues.



In 2019, the results of the self-assessment of the performance appraisal of the Board of Directors (Functional Committees) showed that among the 52 items of assessment, 52 of them were rated as "excellent", with the overall rating of "**excellent**".



A total of **15 sessions** of anti-corruption briefings, **30 sessions** of anti-corruption training and advocacy exercises were organized in 2019, with **1,394 employees** participating.



In the handling of various types of procurement tenders, **100%** of the business partners have been notified of anti-corruption policies.



- 1.1 SUSTAINABLE DEVELOPMENT POLICY
- 1.2 IDENTIFICATION OF AND COMMUNICATION WITH STAKEHOLDERS
- 1.3 MATERIAL TOPICS OF SUSTAINABLE DEVELOPMENT
- 1.4 IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT GOALS (SDGS)

1 - POLICIES AND COMMUNICATION



# Policies and Communication



# 1.1 Sustainable Development Policy

The core of development at TSC is agriculture. In addition to the vast land resources, TSC also has abundant experience in large-scale farming, agricultural processing and livestock farming technologies. With these resources, it is advantageous for the promotion of new agriculture, circular economy, biotechnology, green energy and related industries. Therefore, we have set an overall business strategy for the coming 5 years, and will make use of our existing resources, technology and experience to actively become a benchmark enterprise in health and green industries. Specific methods include to “Meet People’s Livelihood Demands and Social Needs” on the bases of “Circular Economy” and “Resources and Environmental Protection”, and to enhance external influence and professional energy through “Investment and External Cooperation”. Meanwhile, internally, we will continue the reorganization, strengthen the management physique and improve the operational efficiency.

## Becoming a benchmark enterprise in health and green industries

### 1. Strengthen the promotion of health and green concept business

- ★ Evaluation of investment in health business targeting on senior citizens
- ★ Operate tourism and leisure travel
- ★ Implement safe agriculture
- ★ Implement energy conservation and circular economy
- ★ Develop green energy

### 2. Cooperate with the policy to develop new agriculture and circular economy

- ★ Expand the scale of eco-friendly farming
- ★ Strengthen the production and marketing management of sucrose and Phalaenopsis
- ★ Modern management of livestock breeding
- ★ Use of whole hogs (high-value utilization of by-products of hogs)
- ★ Reuse of oyster shell resources
- ★ Biogas energy and power generation
- ★ Smart green energy residence

### 3. Accelerate the activation of land and assets

- ★ Land development and utilization
- ★ Installment of solar PV system
- ★ Preservation and activation of cultural assets

### 4. Strengthen business management physique and improve improvement

- ★ Optimization of talents and organization
- ★ Management innovation

### 5. Continue to expand overseas investment and cooperation with our allies

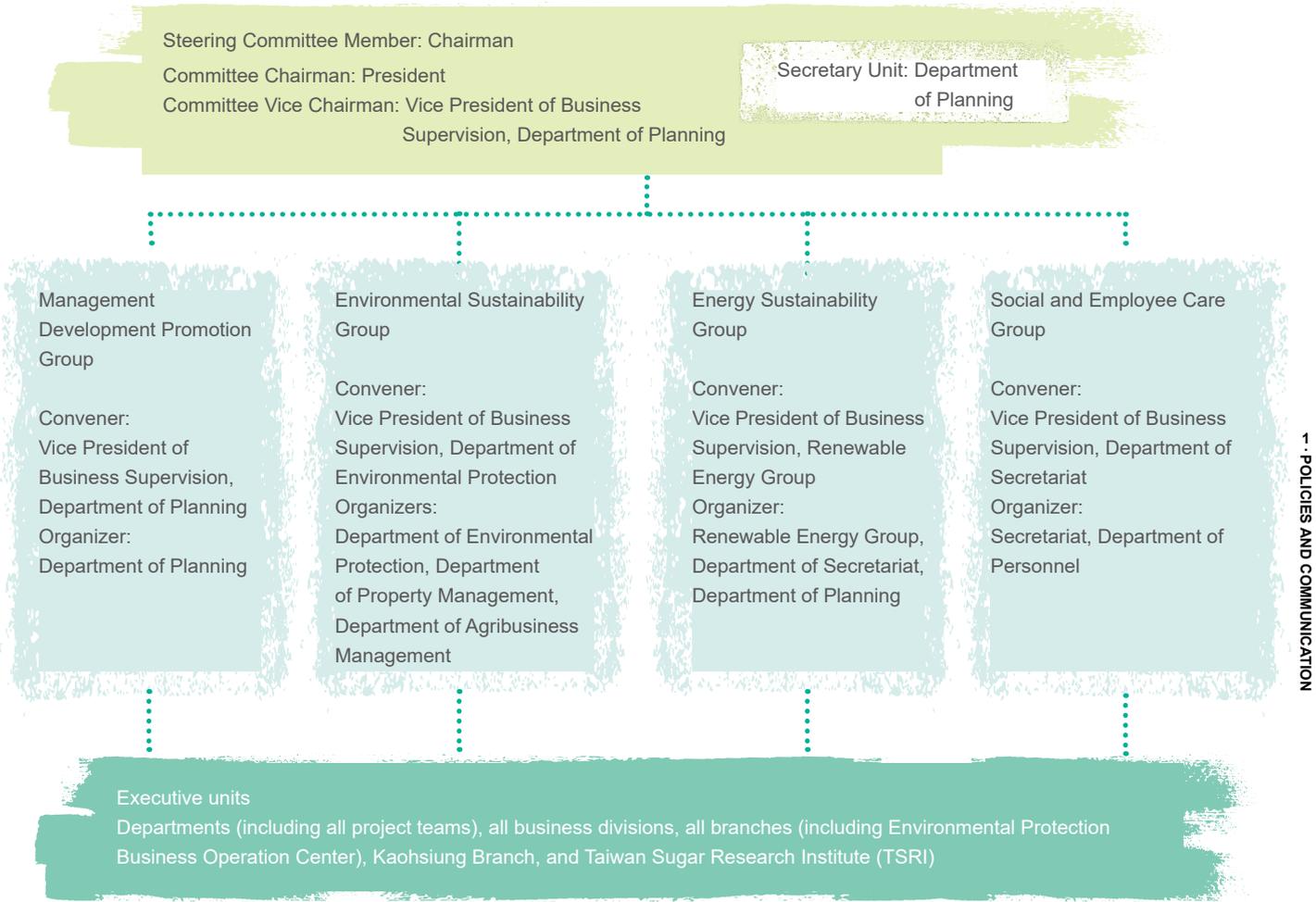
- ★ Strengthen the operation of the existing overseas bases
- ★ Cooperate with the foreign policy to promote cooperation with our allies
- ★ Evaluation of New Southbound Investment (Evaluation of investment in sugar industry in Indonesia)



The “TSC Corporate Sustainable Development Committee” was established to implement the sustainable development of the Company. Meanwhile, procedure documents of “TSC’s Regulations for the Organization of Corporate Sustainable Development Committee” and “Operation Guidelines for Corporate Sustainable Development Committee” were established, incorporating corporate sustainable development into the corporate operations and development directions and develop corporate sustainable development policy, system and relevant management approaches. The annual work plan and work execution report are prepared every year and are submitted to the Corporate Sustainable Development Committee for discussion, and will be implemented in the future upon approval, promoting the company’s sustainable development work in a more pragmatic manner. Economic, environmental and social issues arising from the operation activities are handled by the senior management authorized by the board of directors and then reported to the board



## Organizational Structure and Task Assignments of TSC's Corporate Sustainable Development Committee



1 - POLICIES AND COMMUNICATION



Please visit the Corporate Sustainable Development Page to download TSC Corporate Governance Regulations.

◀ Corporate sustainable development regulations





## 1.2 Identification of and Communication with Stakeholders

The identification of and communication with the stakeholders are the foundation for the implementation of corporate sustainable development. TSC maintains multiple communication channels with our stakeholders and carefully listens to the stakeholders' voice. The stakeholders' needs and expectations of TSC are taken as the reference for decision making. TSC hopes to create and share the maximum possible benefits with its stakeholders in the diversification of business activities.

### 1.2.1 Identification of Stakeholders

Corporate Sustainable Development Committee and executives in all departments held internal discussions and with the reference to stakeholder groups identified by the same trade, 21 categories of stakeholders were identified. Based on the criteria of AA1000 Stakeholder Engagement Standards (AA1000SES) for the scoring and prioritization of the stakeholders, seven categories of stakeholders were finally identified, including shareholders, employees, consumers/clients, raw material suppliers/contractors/agents, government agencies/elected representatives, media, and community residents. We regularly and irregularly make official communication and exchanges with the external world via TSC's official website, Annual Report, Taiwan Sugar Communication, and the CSR Report. We also make use of other channels to understand the stakeholders' issues of concern and provide relevant responses and description.



## 1.2.2 Communications with Stakeholders

TSC believes that for the sustainable development of a corporation, it is necessary to listen to the stakeholders' opinions as important reference for sustainable development. Internally, TSC takes the initiatives to communicate with our stakeholders through our official website, trade union, related meetings, Annual Report, TSC Communication, internal publications, CSR questionnaire, customer services and other channels to understand the stakeholders' issues of concern. In addition, through the coordination and communication among internal departments and units and based on our previous experience cooperating with our stakeholders, we set a SOP of PDCA (Plan-Do-Check-Act) to make prompt responses based on the sensitivity and level of impact of the nature of issues.

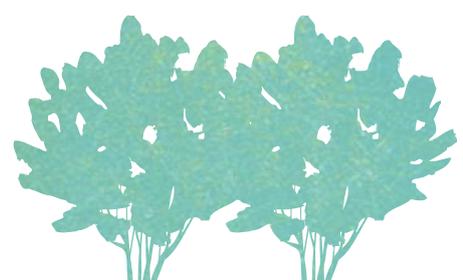
### TSC's Communication Channels with its Stakeholders

Stakeholders	Significance of Stakeholders	Issues of Concern	Communication Channels	Frequency	Communication Effectiveness in 2019
 <b>Shareholders</b>	<p>In the stakeholder structure, government agencies hold 96.51% of shares. They focus on TSC's operating performance, corporate governance and sustainable development.</p>	<p>Integrity Management</p> <p>Marketing and Labeling</p> <p>Providing land for urban planning</p> <p>Indirect Economic Impacts</p> <p>Anti-corruption</p> <p>Effluents and Waste</p>	<p>CSR questionnaire survey</p> <p>Shareholders' meeting</p> <p>Annual report/financial report</p> <p>Official document exchanges</p> <p>TSC official website</p> <p>External communication mailbox</p>	<p>Annually</p> <p>Annually</p> <p>Regularly</p> <p>Occasionally</p> <p>Instantly</p> <p>Instantly</p>	<p>One shareholders' meeting was held. The shareholders expressed their opinions fully in the meeting and these opinions were included in the meeting minutes. The remarks made by the shareholders regarding the provisional motion at the general shareholders' meeting were replied to the individual shareholders in letters.</p>
 <b>Employees</b>	<p>We regard our employees as the Company's most important assets and the cornerstone of our growth. Therefore, we value our employees' opinions and hope to create a workplace for them to enjoy work and life.</p>	<p>Labor/ Management Relations</p> <p>Socioeconomic Compliance</p> <p>Education and Training</p> <p>Occupational Health and Safety</p> <p>Customer Health and Safety</p>	<p>CSR questionnaire survey</p> <p>Taiwan Sugar Communication</p> <p>Official document exchanges</p> <p>TSC official website</p> <p>Opinion exchange platform</p> <p>Trade Union Confederation</p> <p>Congress</p> <p>Labor-Management Meeting</p> <p>Employee Welfare Association</p> <p>Employee satisfaction survey</p>	<p>Annually</p> <p>Monthly</p> <p>Occasionally</p> <p>Instantly</p> <p>Instantly</p> <p>Annually</p> <p>Quarterly</p> <p>Occasionally</p> <p>Annually</p>	<p>In order for smooth labor-management communication, all the units held a total of 86 labor-management meetings by 2019.</p> <p>Meetings of the Federation of Trade Union Confederation and the Employee Welfare Association are held annually to provide various welfare measures for the employees and their family dependents, and the labor-management relationship is harmonious.</p> <p>The satisfaction survey score was 74.2 points in 2019 employee satisfaction survey.</p>



Stakeholders	Significance of Stakeholders	Issues of Concern	Communication Channels	Frequency	Communication Effectiveness in 2019
 <b>Consumers/ clients</b>	As a state-owned enterprise, the products and services TSC provides should be the model and example for the domestic food industry, and we also play a leading role in food safety in particular. Therefore, the recognition and advice given by our consumers/clients are the driving force for our continuous efforts and growth.	<ul style="list-style-type: none"> <li>Customer Privacy</li> <li>Customer Health and Safety</li> <li>Marketing and Labeling</li> <li>Socioeconomic Compliance</li> <li>Effluents and Waste</li> </ul>	<ul style="list-style-type: none"> <li>CSR questionnaire survey</li> <li>Customer complaint mailbox</li> <li>Customer Service Hotline</li> <li>TSC official website</li> <li>FB TSC Fanpage</li> <li>Customer satisfaction survey</li> <li>Service desk at operation branches</li> <li>External communication mailbox</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> <li>Instantly</li> <li>Instantly</li> <li>Instantly</li> <li>Instantly</li> <li>Annually</li> <li>Instantly</li> <li>Instantly</li> </ul>	The Customer Complaint Mailbox is set up to handle customers' inquiries, suggestions and complaints. In 2019, a total of 439 inquiries and 4,899 phone calls were received. All the consumers' opinions were responded appropriately to solve the consumers' problems.
 <b>Raw material suppliers/ contractors/ agents</b>	We attach great importance to the quality of raw materials and labor services our distribution partners provide. We cooperate with our partners in an impartial, open and fair manner to achieve the goals of benefits sharing and sustainable development.	<ul style="list-style-type: none"> <li>Marketing and Labeling</li> <li>Customer Health and Safety</li> <li>Socioeconomic Compliance</li> <li>Supplier Environmental Assessment</li> <li>Environmental Compliance</li> </ul>	<ul style="list-style-type: none"> <li>CSR questionnaire survey</li> <li>Symposium/education and training</li> <li>Supplier Evaluation Questionnaire</li> <li>TSC official website</li> <li>External communication mailbox</li> <li>Agents meeting</li> <li>Face to face communication</li> <li>Purchase/ Distribution contract</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> <li>Occasionally</li> <li>Annually</li> <li>Instantly</li> <li>Instantly</li> <li>Quarterly</li> <li>Occasionally</li> <li>Contract period</li> </ul>	All the purchases were made in accordance with the Government Procurement Act, and there were no incidents of corruption. We conducted 18 irregular supplier audits and held 1 supplier symposium.
 <b>Government agencies/ elected representatives</b>	As a state-run business, opinions or inquiries expressed by the government agencies/elected representatives are the driving force for our continuous growth, and they are also the keys to our operating performance and sustainable development.	<ul style="list-style-type: none"> <li>Socioeconomic Compliance</li> <li>Environmental Compliance</li> <li>Effluents and Waste</li> <li>Customer Privacy</li> <li>Circular Economy</li> </ul>	<ul style="list-style-type: none"> <li>Corporate governance evaluation</li> <li>Field inspection of work performance</li> <li>CSR questionnaire survey</li> <li>TSC official website</li> <li>Official document exchanges</li> <li>Discussion meetings</li> <li>External communication mailbox</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> <li>Annually</li> <li>Annually</li> <li>Instantly</li> <li>Occasionally</li> <li>Occasionally</li> <li>Instantly</li> </ul>	The government agencies or elected representatives care about the major issues of TSC, and in 2019, there were 296 times of official document exchanges, 230 discussion meetings with relevant government agencies, and we responded to the elected representatives' opinions promptly.

Stakeholders	Significance of Stakeholders	Issues of Concern	Communication Channels	Frequency	Communication Effectiveness in 2019
 <b>Media</b>	<p>As a state-run business, we attach great importance to the interaction with the media. If there are important events related to the Company, we respond promptly to the media to maintain and enhance the Company's image.</p>	<ul style="list-style-type: none"> <li>Labor/ Management Relations</li> <li>Emissions</li> <li>Local Communities</li> <li>Employee Diversity and Equal Opportunity</li> <li>Economic Performance</li> </ul>	<ul style="list-style-type: none"> <li>CSR questionnaire survey</li> <li>TSC official website</li> <li>Press conferences</li> <li>External communication mailbox</li> <li>SMS notifications</li> <li>New product presentation</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> <li>Instantly</li> <li>Occasionally</li> <li>Instantly</li> <li>Occasionally</li> <li>Occasionally</li> </ul>	<p>All sectors of the society are concerned about major issues of TSC. We respond immediately to the media and hold press conferences for major issues. In 2019, we held press conferences and released press releases 71 times, with a total of 8,591 SMS notifications.</p>
 <b>Community residents</b>	<p>We are committed to maintaining community relations. Through communication and interaction with community residents, we can understand the residents' issues of concern and establish a harmonious relationship.</p>	<ul style="list-style-type: none"> <li>Effluents and Waste</li> <li>Customer Privacy</li> <li>Sustainable Food</li> <li>Socioeconomic Compliance</li> <li>Environmental Compliance</li> </ul>	<ul style="list-style-type: none"> <li>CSR questionnaire survey</li> <li>TSC official website</li> <li>External communication mailbox</li> <li>Visiting the neighborhood</li> <li>Reaction through elected representatives</li> <li>On-site communication of person in charge</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> <li>Instantly</li> <li>Instantly</li> <li>Occasionally</li> <li>Occasionally</li> <li>Occasionally</li> </ul>	<p>TSC maintains a harmonious relationship with its neighboring communities and maintains the community environment with its neighbors. In 2019, TSC held a total of 185 neighborly activities.</p>





## 1.3 Material Topics of Sustainable Development

### 1.3.1 Identification of Material Topics

To enable the information disclosed in the CSR Report to meet the needs of the stakeholders, the major topics of sustainability were decided through “identification of stakeholders”, “collection of sustainability topics”, “topic analysis”, “identification of materiality” and “review and discussion”.



Identification of Stakeholders

Through internal discussions with executives in each department and with the reference to stakeholder groups identified by the same trade, 21 stakeholders were identified. Then these stakeholders were rated and prioritized based on the five principles of AA1000 SES (Stakeholder Engagement Standards), including Dependency, Responsibility, Influence, Diverse Perspectives and Tension, for the identification of TSC’s stakeholders.

**7** major categories of stakeholders



Collection of Sustainability Topics

Collection of topics was based on GRI Standards, Food Processing Sector Supplement and more than 100 indicators for the SDGs for the collection of topics, and a total of 43 topics were summarized based on the relevance and the characteristics of the Company as the questionnaire design guidelines.

**43** topics



Survey of Issues of Concern and Level of Impact

TSC used questionnaire survey for the stakeholders’ level of concern (which affects stakeholders’ evaluation and decision making) and the impact on the Company’s sustainable management (significant impacts on economy, environment and society) as the reference for topic prioritization. A total of 611 copies of questionnaire were recovered, among them, 544 copies were Stakeholder Concern Questionnaire and 67 were Management Impact Questionnaire (distributed to company executives).

**611** copies of questionnaires recovered



Analysis and Identification of Materiality

Matrix analysis was made of the scores of the level of concern in all aspects and the scores of level of impact through questionnaire analysis. Topics scoring more than 3.5 points averagely were prioritized. After the discussion within the Corporate Sustainable Development Committee, 22 major topics were identified and the DMAs were also disclosed.

**22** material topics



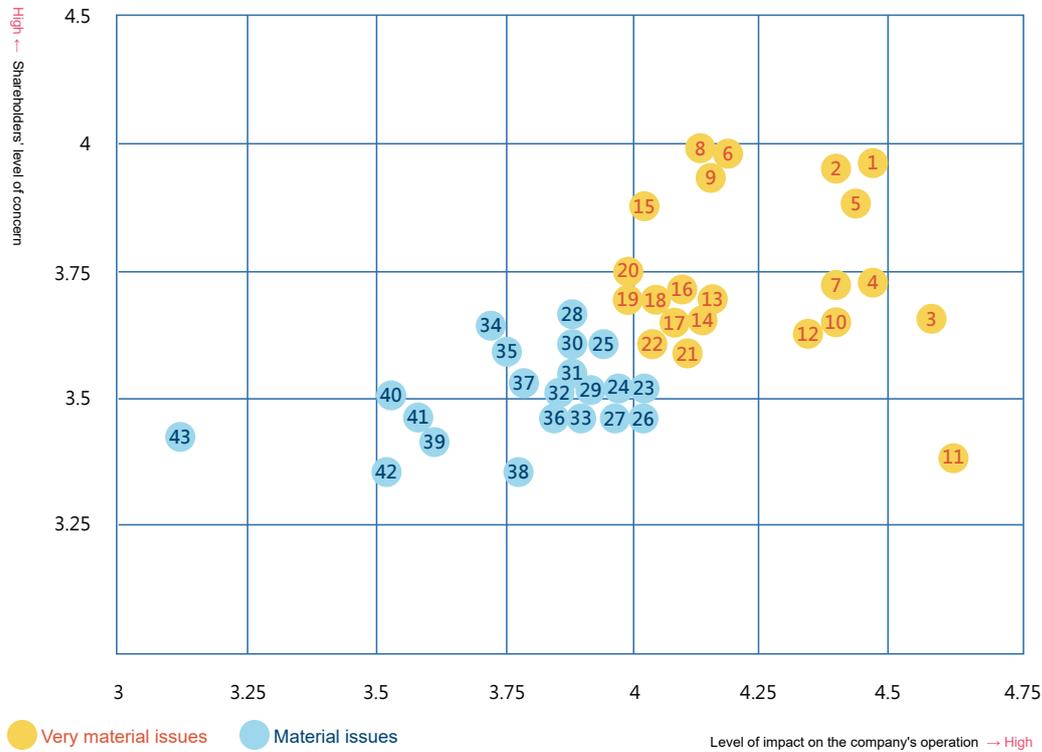
Review and Discussion

After analyzing the major topics, the value chain was used as the elements for the boundary analysis. TSC will continue to strengthen management, and relevant information will be disclosed in the CSR Report.

The **value chain** serves as the element of boundary analysis

## Identification of Material Topics

This year through the stakeholder questionnaire analysis and internal identification and discussions, a total of 22 material topics were identified. Compared with the CSR Report issued in the previous year, topics of Economic Performance, Animal Welfare, Education and Training, Biodiversity, Employment and Labor Relations, and Raw Materials have been revised as secondary topics while Labor/ Management Relations was added as the material topic. Explanation and disclosure would be made in the text of this Report.



1 - POLICIES AND COMMUNICATION

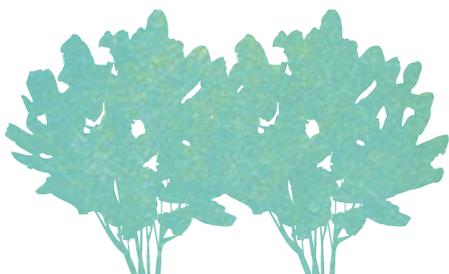
## Prioritization of Material Topics

1 Customer Health and Safety	10 Corporate Governance	19 Occupational Health and Safety (2018)	28 Employment and Labor Relations	37 Child Labor
2 Marketing and Labeling	11 Providing land for urban planning	20 Water (2018)	29 Non-discrimination	38 Freedom of Association and Collective Bargaining
3 Integrity Management	12 Local Communities	21 Energy	30 Anti-competitive Behavior	39 Human Rights Assessment
4 Sustainable Food	13 Healthy and Reasonably Priced Food	22 Circular Economy	31 Employee Diversity and Equal Opportunity	40 Procurement Practices
5 Effluents and Waste	14 Cultural Assets	23 Economic Performance	32 Raw Materials	41 Indigenous Rights
6 Socioeconomic Compliance	15 Emissions	24 Animal Welfare	33 Supplier Environmental Assessment	42 Security Practices
7 Innovative Research	16 Labor/ Management Relations	25 Anti-corruption	34 Forced and Compulsory Labor	43 Public Policy
8 Environmental Compliance	17 Indirect Economic Impacts	26 Education and Training	35 Market Presence	
9 Customer Privacy	18 Climate Action	27 Biodiversity	36 Supplier Social Assessment	



### 1.3.2 Goals of Material Topics

Aspect	Material Topics	Goals for 2019	Description of target achievement status in 2019	Goals for 2020
Economy	Corporate Governance	<ul style="list-style-type: none"> <li>❖ Hiring professional lawyers to attend the Board meeting to ensure the Company's relevant compliance</li> <li>❖ Implementation of the board self-evaluation system and the performance evaluation system</li> <li>❖ Directors continue to participate in corporate governance related training courses, with more than 8 hours of training averagely.</li> <li>❖ To continue the participation in corporate governance evaluations conducted by the State-owned Enterprise Commission, MOEA</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To continue the hiring of professional lawyers to attend the Board meeting to ensure the Company's relevant compliance</li> <li>❖ Implementation of the board self-evaluation system</li> <li>❖ Directors continue to participate in corporate governance related training courses, with more than 8 hours of training averagely.</li> <li>❖ To continue the participation in corporate governance evaluations conducted by the State-owned Enterprise Commission, MOEA</li> </ul>
	Integrity Management	<ul style="list-style-type: none"> <li>❖ To organize 20 sessions of promulgation and training of anti-corruption and disciplines</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To organize 25 sessions of promulgation and training of anti-corruption and disciplines.</li> </ul>
	Innovative Research	<ul style="list-style-type: none"> <li>❖ Invested NTD 68,000,000 in R&amp;D</li> <li>❖ Patent management</li> </ul>	<ul style="list-style-type: none"> <li>☒ To cooperate with the Legislative Yuan's retrenchment policy, this goal was not achieved.</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ Invested NTD 40,000,000 in R&amp;D</li> <li>❖ Patent management</li> </ul>
	Indirect Economic Impacts	<ul style="list-style-type: none"> <li>❖ To set up odor control measures in livestock farms</li> <li>❖ To continue to cooperate with the government's price stabilizing policy</li> <li>❖ To cooperate with the policy and reduce the rent</li> <li>❖ To maintain the lowest price of the large-packed salad oil in the market</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To set up odor control measures in livestock farms</li> <li>❖ To continue to cooperate with the government's price stabilizing policy</li> <li>❖ To cooperate with the policy and reduce the rent</li> <li>❖ To maintain the lowest price of the large-packed salad oil in the market</li> </ul>



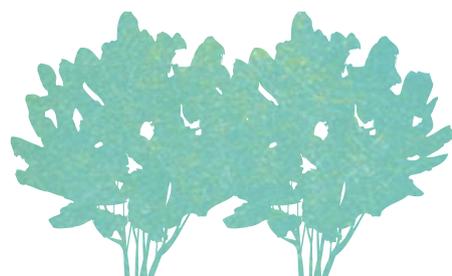
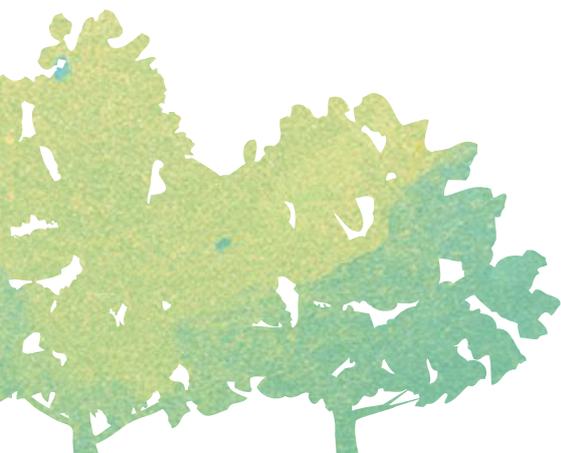
Aspect	Material Topics	Goals for 2019	Description of target achievement status in 2019	Goals for 2020
🌿 Environment	Energy	<ul style="list-style-type: none"> <li>❖ To add solar PV equipment</li> <li>❖ To continue the promotion of energy conservation movement and the development of renewable energy</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To add solar PV equipment</li> <li>❖ To continue the promotion of energy conservation movement and the development of renewable energy</li> </ul>
	Water	<ul style="list-style-type: none"> <li>❖ To continue water resources management</li> <li>❖ To reach the goal of the water recovery rate (R2) at 80%</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To continue water resources management</li> <li>❖ To reach the goal of the water recovery rate (R2) at 80%</li> </ul>
	Emissions	<ul style="list-style-type: none"> <li>❖ To conduct annual GHG inventory and verification in the Xiaogang Plant and the Waste Incineration Plant</li> <li>❖ To organize a total of 300 sessions of green meetings</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To conduct annual GHG inventory and verification in the Xiaogang Plant and the Waste Incineration Plant</li> <li>❖ To organize a total of 320 sessions of green meetings</li> </ul>
	Effluents and Waste	<ul style="list-style-type: none"> <li>❖ To actively promote circular economy to reduce wastewater and waste</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To actively promote circular economy to reduce wastewater and waste</li> </ul>
	Environmental Compliance	<ul style="list-style-type: none"> <li>❖ No major violation against laws and regulations</li> </ul>	<ul style="list-style-type: none"> <li>☒ Number of cases with the penalty exceeding NTD 1 million: One</li> </ul>	<ul style="list-style-type: none"> <li>❖ No major violation against laws and regulations</li> </ul>
	Circular Economy	<ul style="list-style-type: none"> <li>❖ Promotion of circular economy in agriculture</li> <li>❖ Promotion of circular economy in industries</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ Promotion of circular economy in agriculture</li> <li>❖ To organize Circular Economy Forum</li> </ul>
	Climate Action	<ul style="list-style-type: none"> <li>❖ Continuous development of renewable energy and promotion of energy conservation and carbon reduction campaign</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ Continuous development of renewable energy and promotion of energy conservation and carbon reduction campaign</li> </ul>

1 - POLICIES AND COMMUNICATION



Aspect	Material Topics	Goals for 2019	Description of target achievement status in 2019	Goals for 2020
♥ Society	Labor/ Management Relations	<ul style="list-style-type: none"> <li>❖ Implementation of welfare measures to take care of employees</li> <li>❖ To sign the collective agreement and set work rules</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ On-going</li> </ul>	<ul style="list-style-type: none"> <li>❖ Implementation of welfare measures to take care of employees</li> <li>❖ To sign the collective agreement and set work rules</li> </ul>
	Occupational Health and Safety	<ul style="list-style-type: none"> <li>❖ No cases of occupational diseases or death from major occupational accidents</li> <li>❖ To promote the industrial safety month and disaster preparedness &amp; emergency response training and exercise with the participation of all staff</li> <li>❖ To introduce the health check service plan</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ No cases of occupational diseases or death from major occupational accidents</li> <li>❖ To promote the industrial safety month and disaster preparedness &amp; emergency response training and exercise with the participation of all staff</li> <li>❖ To introduce the health check service plan</li> </ul>
	Local Communities	<ul style="list-style-type: none"> <li>❖ Budgeting for subsidies to support local groups to organize various activities</li> <li>❖ To organize 100 social welfare activities or other community related activities</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To budget NTD 10 million for subsidies to support local groups to organize various activities</li> <li>❖ To organize 110 social welfare activities or other community related activities</li> </ul>
	Customer Health and Safety	<ul style="list-style-type: none"> <li>❖ To continue the investment in food safety inspection related equipment in the laboratory</li> <li>❖ Implementation of greenfeed feeding</li> <li>❖ Implementation of no sulfa drugs, no clenbuterol, hormones and growth hormones</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ To continue the investment in food safety inspection related equipment in the laboratory</li> <li>❖ Implementation of greenfeed feeding</li> <li>❖ Implementation of no sulfa drugs, no clenbuterol, hormones and growth hormones</li> </ul>
	Marketing and Labelling	<ul style="list-style-type: none"> <li>❖ For our products to continue to pass international certifications</li> <li>❖ To continue the implementation of customer satisfaction policy</li> <li>❖ To strengthen product marketing, including advertising, promotions and so on</li> <li>❖ To promote coffee from the Republic of Honduras to assist small-scale coffee farmers with the marketing of their agricultural products</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ For our products to continue to pass international certifications</li> <li>❖ To continue the implementation of customer satisfaction policy</li> <li>❖ To strengthen product marketing, including advertising, promotions and so on</li> <li>❖ To promote coffee from the Republic of Honduras to assist small-scale coffee farmers with the marketing of their agricultural products</li> </ul>
	Customer Privacy	<ul style="list-style-type: none"> <li>❖ No cases of privacy invasion or data leakage</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>❖ No cases of privacy invasion or data leakage</li> </ul>

Aspect	Material Topics	Goals for 2019	Description of target achievement status in 2019	Goals for 2020
♥ Society	Socioeconomic Compliance	✿ No major violation of laws and regulations	✓ Achieved	✿ No major violation of laws and regulations
	Healthy and Reasonably priced food	<ul style="list-style-type: none"> <li>✿ To continue to organize health food promotion activities</li> <li>✿ Continuous R&amp;D of health food</li> <li>✿ Adjustment of retail prices to cooperate in line with the government's price stabilizing policy</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>✿ To continue to organize health food promotion activities</li> <li>✿ Continuous R&amp;D of health food</li> <li>✿ Adjustment of retail prices to cooperate in line with the government's price stabilizing policy</li> </ul>
	Sustainable Food	<ul style="list-style-type: none"> <li>✿ Zero occurrence of food-related incident of our own brand products</li> <li>✿ To complete the planning of the establishment of demonstration farms of organic fertilizer made from kitchen waste</li> <li>✿ To increase the area of planting on the organic farms</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	<ul style="list-style-type: none"> <li>✿ Zero occurrence of food-related incident of our own brand products</li> <li>✿ To increase the area of planting on the organic farms</li> </ul>
	Providing land for urban planning	✿ The target of land activation is set at 104.38 hectares	✓ Achieved	✿ The target of land activation is set at 106.09 hectares
	Cultural Assets	<ul style="list-style-type: none"> <li>✿ To plan a Training of Steam Train Drivers in 2019</li> <li>✿ To organize the Sugar Culture Festival activities in 2019 and strengthen cultural propaganda</li> </ul>	<ul style="list-style-type: none"> <li>✓ Achieved</li> <li>✓ Achieved</li> </ul>	✿ To organize the Sugar Culture Festival activities in 2020 and strengthen cultural propaganda



### 1.3.3 The Value Chain Boundary of Material Topics

After analysis, the material topics in the 2020 include “Sustainable Governance at Taiwan Sugar”, “Circular Economy”, “Meeting People’s Livelihood Demands and Social Needs”, and “Management Innovation”, and the value chain was used as the element for the boundary analysis. In the future, TSC will continue to strengthen management, and relevant information will be disclosed in the CSR Report.

1 - POLICIES AND COMMUNICATION

Sustainability Aspects (Corresponding Chapter and Section)	Corresponding GRI Standards	TSC Value Chain Impact Boundary	Page
 Sustainable Governance at Taiwan Sugar (Chapter 2)	Corporate Governance, Climate Action, Socioeconomic Compliance, Integrity Management, Customer Privacy	TSC (direct impact), consumers/clients (business behavior impact), raw material suppliers/contractors/agents (business behavior impact)	36
 Circular Economy (Chapter 3)	Circular Economy	TSC (direct impact), raw material suppliers/contractors/agents (business behavior impact)	62
 Resources and Environmental Protection (Chapter 4)	Energy, Water, Emissions, Effluents and Waste, Cultural Assets, Environmental Compliance	TSC (direct impact), community residents (direct impact)	74
 Meeting People’s Livelihood Demands and Social Needs (Chapter 5)	Indirect Economic Impact, Local Communities, Customer Health and Safety, Healthy and Reasonably Priced Food, Sustainable Food, Providing land for urban planning, Marketing and Labeling	TSC (direct impact), community residents (direct impact), consumers/clients (business behavior impact)	102
 Management Innovation (Chapter 6)	Labor/ Management Relations, Occupational Health and Safety, Innovative Research	TSC (direct impact), raw material suppliers/contractors/agents (contributing to impact)	120





# 1.4 Implementation of Sustainable Development Goals (SDGs)

To keep the operations of TSC in line with international trends, we refer to the Sustainable Development Goals (SDGs) as the basis for the planning and operations of the Company to enable TSC to have a comprehensive and sustainable business advantages in a rapidly changing environment.

## Circular Economy Corresponding SDGs



6.3 Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials.



7.a. Enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology.



9.4 Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes.



12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse.



13.2 Integrate climate change measures into national policies, strategies and plans.

### TSC's Practices

1. Green pig farms transform traditional pig farms into new green livestock housing that takes into account resource recycling and reuse as well as environmental protection, changing the negative impression of polluting animal husbandry industry into an "eco-friendly space, green pig farming and green energy industry". In addition, renewable energy power generation is construction, such as biogas and solar power generation.
2. Recycling of oyster shells - Converting the recovered oyster shells into valuable biological materials for the self-use of calcium carbonate in the Company's livestock farms and farms.

### Goals and performance

- The Dong-Hai-Feng stockyard was completed in 2019 and has been officially put into operation in 2020.
- The first livestock industry that passed BS8001 Circular Economy Certification in the world.
- The reconstruction of 15 modern livestock houses is scheduled to be completed in 2024.
- The oyster shell processing plant will be built. The oyster shells will be used in agricultural products, food, pharmaceuticals and industrial raw materials.
- In 2019, the total power generation from green energy and renewable energy amounted to 15.46 million kWh, reducing 824 metric tons of CO<sub>2</sub>e.
- The rooftop solar PV energy generation and biogas power generation in the TSC's livestock farms is scheduled to be completed in 2024.



## Developing New Agriculture Corresponding SDGs



1.4 Ensure that all men and women have equal rights to economic resources, as well as access to basic services, ownership, and control over land and other forms of property.



2.4 Ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, and that progressively improve land and soil quality.



3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination.



4.4 Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

1 - POLICIES AND COMMUNICATION

### TSC's Practices

1. Establishing the Academy of Agriculture and Animal Husbandry to cultivate talents in agriculture and livestock industries.
2. Expanding organic planting area and organic fertilizer business.
3. Expanding the scale of environmentally friendly farming, creating a cooperative agricultural value chain. With the concept of an agricultural satellite system, small-scale farmers engaging in organic cultivation will be integrated to form a special zone for cooperation with professional division of labor and complementation of resources to improve the production and marketing efficiency.

### Goals and performance

- A total of 495 hours of training courses have been completed in 2019.
- It is scheduled to build the "organic granary" with an area of 197 hectares on Maguang Farm in Huwei Town, Yunlin County to boost the local organic agriculture and attract young farmers to return to their hometown to prosper and activate rural regeneration, which will become the first circular agriculture demonstration in Taiwan.
- We also expect to cooperate with experts of cultivation industry from Council of Agriculture to establish a team of consultants with various training sessions.

## Accelerating the Activation of Land and Resources Corresponding SDGs



8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation.



9.1 Develop sustainable and resilient infrastructure to support economic development and human well-being, with a focus on affordable and equitable access for all.

### TSC's Practices

Land utilization in line with policies:

1. TSC spares no efforts to support the country's major economic construction, providing land for national major construction of the science parks, industrial zones, industrial parks, detention ponds, national universities, high speed railway, metropolitan parks and so on. We also cooperate with the government to organize public construction acquisitions and provide land for permanent housing to victims of Typhoon Morakot.
2. Land lease in accordance with policies for the investment of Taiwanese businesses.

### Goals and performance

- In 2019, TSC cooperated with the government's plan for industrial parks, responded to the waves of returning overseas Taiwanese and cooperated with the Ministry of Science and Technology to provide land for Southern Taiwan Science Park, with a total land area of 2,561.63 hectares.
- To cooperate with the government's agricultural policy to stabilize the balance of the production and marketing of domestic agricultural products, as of the end of December in 2019, the area of farmland leased in cooperation with the policy to balance production and sales was 2,761.04 hectares.



8.9 Devise and implement policies to promote sustainable tourism which creates jobs, promotes local culture and products.



11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.



17.16 Enhance the global partnership for sustainable development complemented by multi-stakeholder partnerships.

### TSC's Practices

Preservation and Added-value of the Culture of Sugar Industry:

1. Sugar Factory Transformation Project—Using technologies such as Augmented Reality (AR) and Virtual Reality (VR) to produce tourism factory documentary films, combining industrial characteristics and cultural creativity to turn old sugar factories into new tourist attractions.
2. We held a series of activities for 2019 Sugar Industry Culture Festival and cooperated with the National Archives Administration to hold the special exhibition of Taiwan sugar industry archives, short film competition with the theme of memory inheritance, deep cultivation of sugar industry culture, and publish books for the sugar industry and sugar fans.

### Goals and performance

- The transformation of the tourism factories is estimated to continue in 2020, which will regain the people's historical memory and impression of sugar cane manufacturing, create the tourism and commercial profits of the sugar factories and at the same time drive the development of tourism in the surrounding areas.
- In 2019, the steam locomotive drier training was conducted in Suan-Tou and Xihu Sugar Factories for the inheritance of driving techniques for sugar railway.
- To organize the Cultural Festival of Sugar Industry for 7 years in a row.



Meeting social needs and expectations Corresponding SDGs



1.3 Implement nationally appropriate social protection systems and measures for all, including floors.



11.7 Provide universal access to safe, inclusive and accessible, green and public spaces, particularly for women and children, older persons and persons with disabilities.

TSC's Practices

Community care and service: By working with social welfare groups, we take care of the disadvantaged and promote the warm neighborly plans in the range of TSC gas stations, rest stations, hypermarkets, Million Convenience Stores and agricultural management. We work with social welfare groups to provide diversified care and service for the disadvantaged groups.

TSC's Practices

Rent-to-Own Excellent Residence

1. Shalun Smart Green Energy Circular Residence
2. Lease and Investment Plan of Self-built Housing
3. Plan for Elderly Residence for Rent

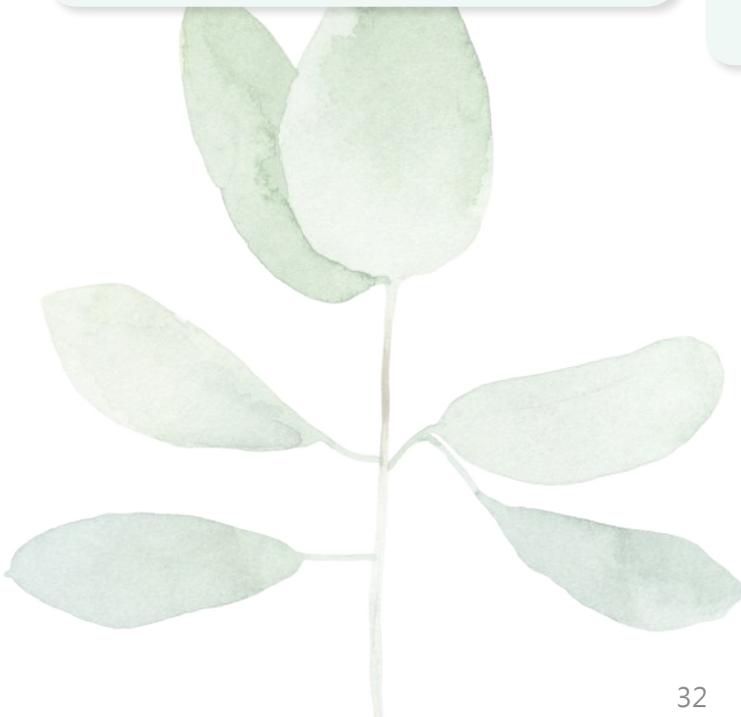
Goals and performance

- In 2019, TSC assisted various local groups where the operation bases are located with a total of 185 public welfare activities, including educational & cultural activities, sports activities, activities for the elderly and for people with disabilities, and other emergency assistance, with subsidies of approximately NTD 8.23 million.
- TSC's 5th Run for Charity was held in 2019, and a total of more than 3,116 participants joined this event. TSC donated materials equivalent of NTD 140,000.

Goals and performance

- The Smart Green Energy Circular Residence is expected to be completed for operation in early 2021.
- To implement living justice, creating a shared space and excellent quality of life. Construction is scheduled to be completed in 2021 and operation in 2022.
- To cooperate with the government policy, the planning and construction of residences for lease to the senior citizens is assessed in Tainan, with the base area of 3,700m<sup>2</sup>, providing them with convenient and comfortable care in life. The construction period is expected to be between 2020-2022, and operations will start in 2023.

POLICIES AND COMMUNICATION



## Cooperation with Allies and Overseas Investment Corresponding SDGs



1.a. Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to implement programmes and policies to end poverty in all its dimensions.



2.a. Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services and technology development to enhance agricultural productive capacity in developing countries, in particular in least developed countries.



4.a. Build and upgrade education facilities that are child, disability and gender sensitive and provide safe learning environments for all.



8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value-added and labor-intensive sectors.



17.16 Enhance the global partnership for sustainable development complemented by multi-stakeholder partnerships to support the achievement of sustainable development goals in all countries.

### TSC's Practices

1. Deepen the existing overseas investments
2. Overseas investment- New Southbound Policy and evaluation of the investment in sugar industry in Indonesia
3. Overseas trade-import of Honduran coffee from small-scale coffee farmers
4. Establishment of Hope Middle School in Honduras
5. Continuous deepening of the existing overseas market of orchid with the combination of Taiwanese culture, organization of characteristic orchid exhibitions and enhancement of the international competitiveness of the domestic orchid industry

### Goals and performance

- Currently TSC has invested in 16 other enterprises.
- TSC has actively engaged in negotiations about technical cooperation with state-owned sugar factories in Indonesian and also with private sectors which will increase Indonesia's supply of self-produced sugar, promote local economic development and provide local employment opportunities.
- Since 2018, TSC has been engaging in the purchase and marketing of Honduran coffee from small-scale coffee farmers. In addition, we also cooperated with IMPCT to assist with the construction of schools in remote areas locally. One middle school was established in 2018, 2 more in 2019, scheduled to be completed in 2020 to develop education in local communities.



Environmental and Ecological Maintenance Corresponding SDGs



6.3 Improve water quality by reducing pollution, halving the proportion of untreated wastewater.



7.2 Increase substantially the share of renewable energy in the global energy mix.



9.4 Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes.



12.5 Substantially reduce waste generation through prevention, reduction, recycling, and reuse.

1 - POLICIES AND COMMUNICATION

TSC's Practices

1. Promotion of circular fields- We set the three major axes of Living, Working and Agriculture and further combine the “circular architecture”, “new agriculture” and “redesign of existing business model” to reach the goal of continuous circulation of energy flow, water resources and food flow.
2. Water resources reuse Project in Xihu Sugar Factory
3. Obtained the environmental education field certification
4. Carbon and Water Footprint inventories and reduction for TSC meat products
5. Development of green energy and reduction of fossil energy pollution- installation of solar and biogas power generation.
6. Energy-saving measures are implemented for process improvement at TSC.

Goals and performance

- Assisting in the transformation of local industries and facilitate industrial symbiosis among industries as the major strategic alliance and reduce production costs while improving production efficiency through exchanges of resources and by -products and the sharing of infrastructure.
- Xihu Sugar Refinery, Jianshanpi Jiangnan Resort and Ciaotou Sugar Refinery have successively obtained the environmental education field certification. Currently,
- Hualien Tourism Sugar Factory is also applying for the certification.
- As of December in 2019, the total afforestation tending area totaled 12,014 hectares. Active investment in afforestation and greening is conducted, and currently the wild-life reserves and flat land forest parks are being planned.
- As of 2019, a total of 67 solar power generation facilities as well as biogas power generation facilities in 4 livestock farms were installed, and the overall power generation totaled 0.3321 MWh in 2019.
- The first Renewable Energy Certification (REC) for Biomass Energy in Taiwan was obtained in 2019.

## Environmental and Ecological Maintenance Corresponding SDGs



14.1 Prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution.



15.b. Mobilize significant resources from all sources and at all levels to finance sustainable forest management, including for conservation and reforestation.

### TSC's Practices

#### Maintenance of Natural Resources:

1. TSC adopts the Aogu Coastline in Chiayi and conducts beach cleaning activities.
2. Ecological Maintenance Project in MASADIFOREST in Hualien
3. We actively invest in afforestation and greening, promote afforestation for all, environmentally friendly forest roads and flatland landscape afforestation.

### Goals and performance

- During 2017-2019, a total of 2,325 people conducted 46 times of beach cleaning, and 9.41 tons of garbage has been cleared.
- As of December in 2019, the total afforestation tending area totaled 12,014 hectares.

## Management Innovation Corresponding SDGs



4.5 Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable.



5.1 End all forms of discrimination against all women and girls everywhere.



10.3 Ensure equal opportunity and reduce inequalities of outcome.



16.b. Promote and enforce non-discriminatory laws and policies for sustainable development

### TSC's Practices

1. Quality and quantity planning of manpower for the next 5 years, including selection of diverse talents, talent cultivation and employee health.
2. The proportion of employment of people with disabilities exceeds statutory requirement.
3. Regular human rights-related courses are held, including the implementation of gender mainstreaming, sexual harassment prevention and control, the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW).

### Goals and performance

- There were a total of 3,476 trainees in 2019, with the total of 181,790 training hours.
- Establishment of Employee Care Team
- TSC conducts employee health checks, ball games and hiking activities regularly and holds health related lectures to maintain physical and mental health of our employees.
- There were 2,101 participants in 2019. The total number of training hours was 3,796 hours, accounting for 60.4% of the total number of employees (3,476).



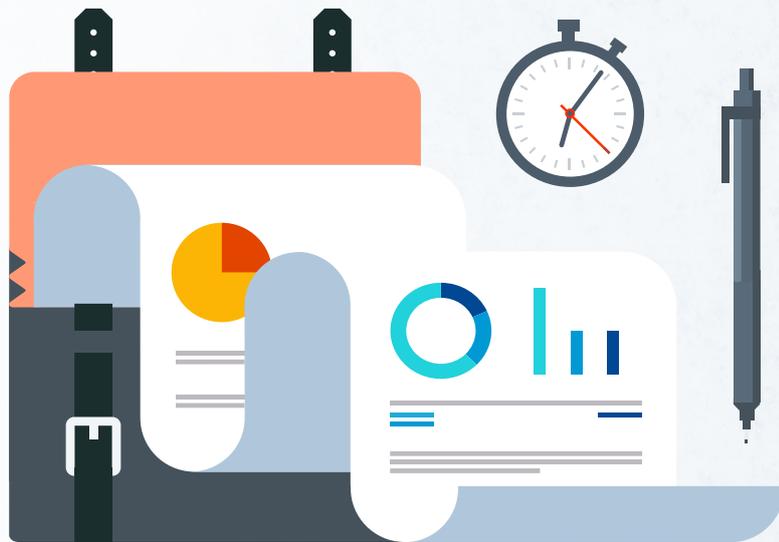
2.1 PROFILE OF TSC

2.2 CORPORATE GOVERNANCE

2.3 IMPLEMENTATION OF INTEGRITY MANAGEMENT

Special Column- Environmental Penalties and Review

2.4 IMPLEMENTATION OF SUSTAINABLE GOVERNANCE



2 SUSTAINABLE GOVERNANCE AT TAIWAN SUGAR

# 2

TSC's main operations are in sugar industry. However, in recent years, climate change has caused extreme weather conditions and affected TSC's operations and the supply of raw materials. Therefore, Taiwan Sugar actively engages in transformation, working toward reaching the goal of becoming a benchmark enterprise in health and green industries to maintain the capability of the organization to operate sustainably. In addition, as a state-owned enterprise, TSC upholds the principle of integrity management, complies with relevant rules and regulations and strengthens corporate governance to control potential risks that could have impact on operations.

# Sustainable Governance at Taiwan Sugar

## Management Approach of TSC's Sustainable Governance

Corresponding material topics	Corporate Governance, Climate Action, Socioeconomic Compliance, Integrity Management, Customer Privacy	Corresponding SDGs	 
Policy	<ul style="list-style-type: none"> <li>▶ Promoting circular economy (Climate Action)</li> <li>▶ Strengthening corporate governance (Corporate Governance, Integrity Management, Socioeconomic Compliance)</li> <li>▶ Performing comprehensive risk management (Customer Privacy)</li> </ul>		
Commitments and goals	<p>Short-term goals (within 3 years):</p> <ol style="list-style-type: none"> <li>1. To develop renewable energy and promote circular economy</li> <li>2. Continue to improve the corporate governance system and improve the transparency of financial performance information</li> <li>3. Compliance with various economic and social regulations</li> <li>4. No incidents of infringement of customer privacy rights and loss of customer data</li> </ol>	<p>Medium and long-term goals (3 to 7 years):</p> <ol style="list-style-type: none"> <li>1. Zero fines</li> <li>2. To become a benchmark enterprise in health and green industries</li> <li>3. To protect shareholders' rights, strengthen the functions of the board of directors, bring out the functions of a functional committee, respect the interests of stakeholders, and ensure sustainable development of the company with integrity management</li> <li>4. To complete the implementation of TSC's Future Business Strategies 2021~2024</li> </ol>	
Responsible units	<ul style="list-style-type: none"> <li style="width: 50%;">+ Business Development Promotion Group of the Corporate Sustainable Development Committee</li> <li style="width: 50%;">+ Legal Affairs</li> <li style="width: 50%;">+ Board of Directors</li> <li style="width: 50%;">+ Department of Information</li> <li style="width: 50%;">+ Department of Planning</li> <li style="width: 50%;">+ Renewable Energy Group</li> <li style="width: 50%;">+ Department of Secretariat</li> </ul>		
Input resources	<ul style="list-style-type: none"> <li>◆ A training course of sustainable development report was held with a total of 35 participants</li> <li>◆ Costs for holding training courses related to corporate governance for directors</li> <li>◆ Entrusted external units to conduct corporate governance evaluation</li> <li>◆ Continuous evaluation and expansion of solar PV and biogas power generation equipment</li> </ul>	Grievance mechanism	<p>Audit Committee Mailbox, the Corruption Report Channel of TSC's Department of Ethics, Customer Service Hotline, Customer Service Email Box, TSC Facebook Fan Page</p>
Management System and Action	<ul style="list-style-type: none"> <li>• Future Business Strategy, Responsibility Center System, Internal Control System, Practice Principles for Corporate Sustainable Development, Guidelines for Risk Assessment, Guidelines for Reinvestment Projects, Guidelines for Investment, Guidelines for Evaluation of Appointed Concurrent Directors and Supervisors (committee members) of Investment Business and Corporation, Guidelines for Endorsements</li> <li>• Code of Ethical Conduct, Guidelines for Risk Assessment, Code of Practice for Corporate Governance, Practice Principles for Corporate Sustainable Development, Audit Committee Charter, Guidelines for the Process of Preparing Financial Statements, Guidelines for Board of Directors Performance Evaluation, Study Plan for Directors, Principles of Risk Management and Crisis Management at TSC, Guidelines for TSC Personal Data Protection Management, and Personal Data Protection Operation Manual</li> </ul>		
Assessment management mechanism	<p>Internal Control System, TSC Performance Assessment System, Corporate Sustainable Development Committee Work Plan and Implementation Review Meeting, Guidelines for the Evaluation of the TSC's Board of Directors, Evaluation Index of Corporate Governance System of State-owned Enterprises</p>		





## 2.1 Profile of TSC

### 2.1.1 Company Overview

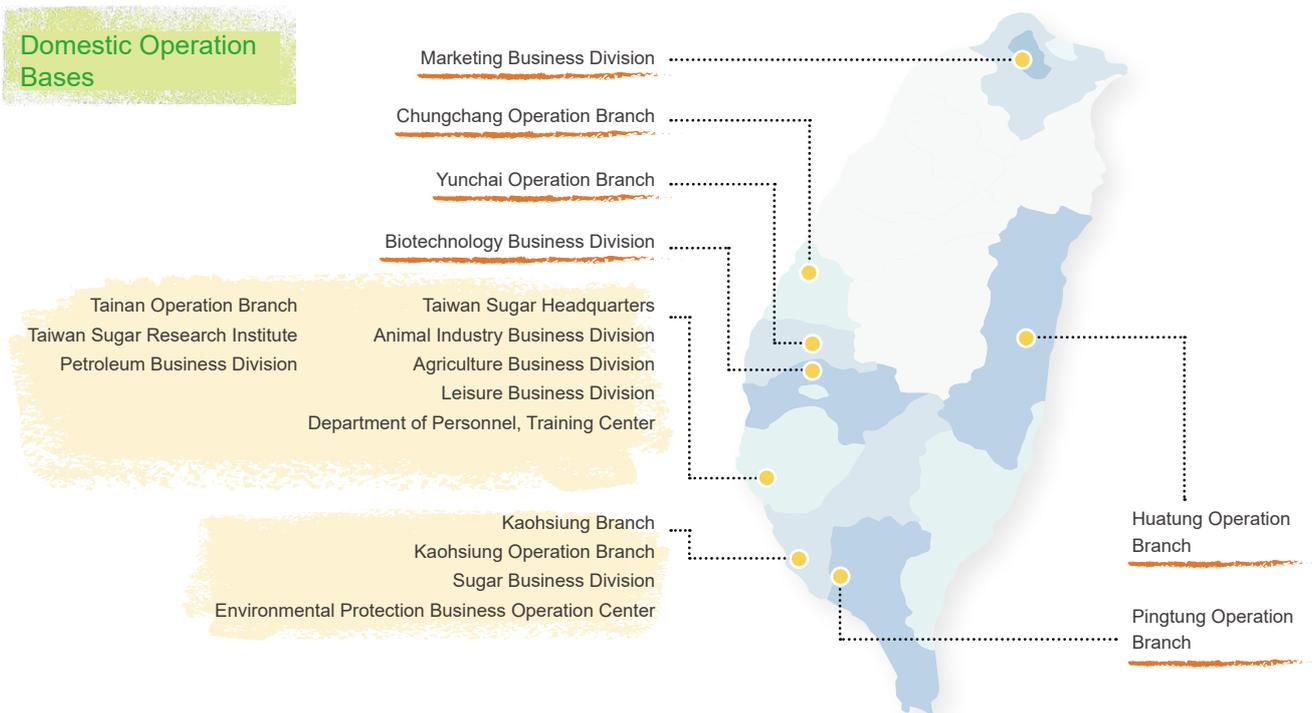
Taiwan Sugar Corporation has actively promoted diversification and transformation, and has established seven divisions including Sugar Business Division, Biotechnology Business Division, Agriculture Business Division, Petroleum Business Division, Animal Industry Business Division, Leisure Business Division and Marketing Business Division. We have gradually transformed from the traditional agriculture of pure sugar production and marketing into a diversified integrated business including agriculture, industry, commerce, and service industries, aiming at becoming a benchmark enterprise in health and green industries.

TSC has land resources and abundant experience in agricultural farming and processing. We have core technology and niches in sugar industry, pig farming and Phalaenopsis industry, and have expanded our business territory to the United States, Canada, Europe and Southeast Asia. Product sales and services are mainly in Taiwan, and only part of our pig farming and flower business are in the areas outside Taiwan.

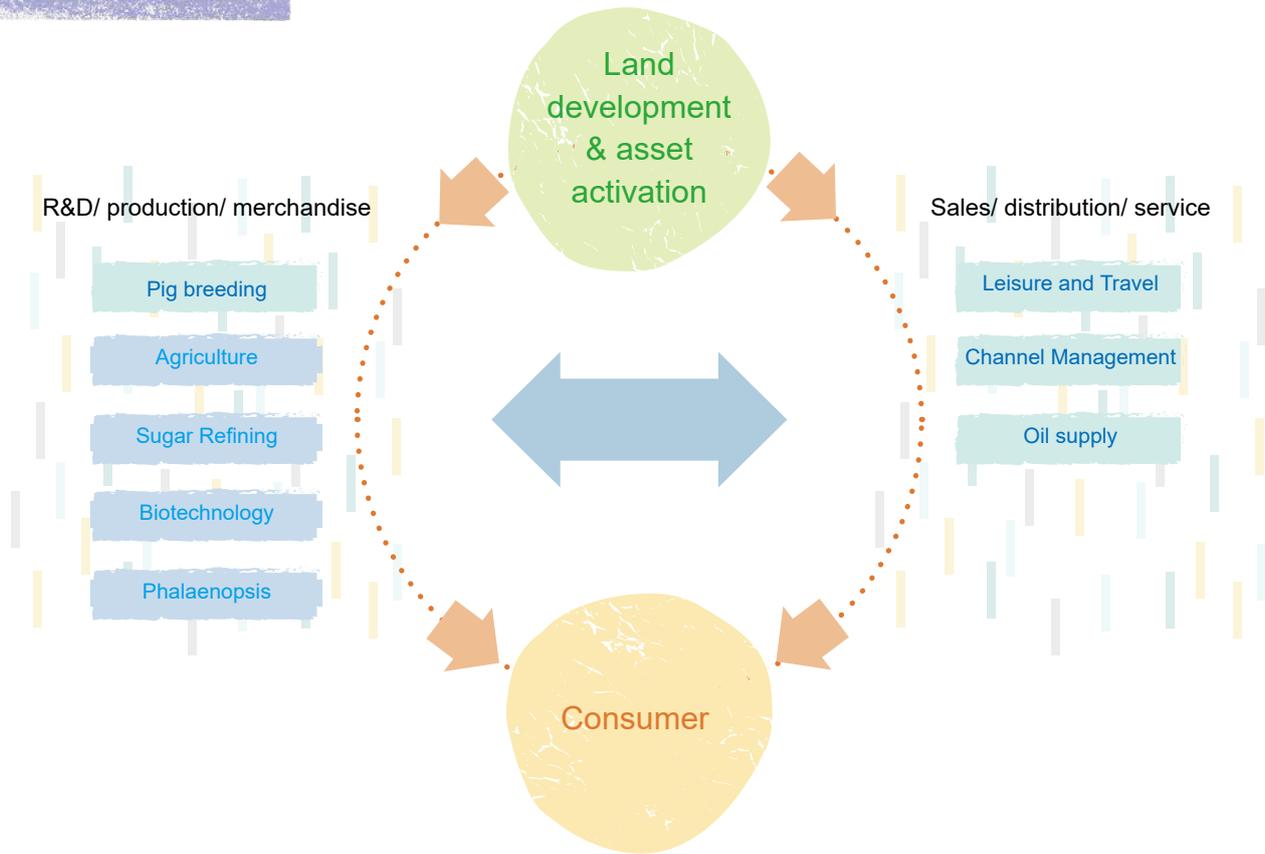
#### Profile of TSC

Company name	Taiwan Sugar Corporation
Equity status / market type	State-owned enterprise under the Ministry of Economic Affairs (The government holds 96.51% of shares, private 3.49%; for related shareholding structure, please refer to TSC's 2019 Annual Report)
Establishment date	May 1, 1946
Capital	NTD 56,367 million
Total assets	NTD 660,396 million (as of December 31, 2019)
Chairman	Chao-Yih Chen
President	Tao-I Kwan
Number of employees	3,451 (as of December 31, 2019)
TSC Headquarters	No. 68, Shengchan Road, East District, Tainan City

2 SUSTAINABLE GOVERNANCE AT TAIWAN SUGAR



Major business areas



2 · SUSTAINABLE GOVERNANCE AT TAIWAN SUGAR

Private brands

TSC Safety Pork



TSC NutriPlus Pork



Cosmetics Brand-Smooth



Cosmetics Brand-Stanlen



Taisuco Orchids



Taisugar Organic Products



Leisure Business Division



Please refer to TSC's official website for more details of the stories and spirits of TSC's private brands



### Key participation in organizations and associations

Name of association or professional organization	Title	The purpose of participating in the organization
Chinese National Federation of Industries-Employers' Committee	Committee member	To promote exchanges among employers' organizations, establish cooperative relationships, and increase operating efficiency
Kaohsiung Chamber of Industry	Director	
Taiwan-New Zealand Business Council, Chinese International Economic Cooperation Association	Committee chairman	To grasp international business conditions and to expand overseas investment opportunities
Taiwan Sugar Industry Resources and Circular Economy Technology Society	Managing director, executive director, executive supervisor, director, supervisor, convener of the finance committee	To improve sugar refinery techniques
Taiwan Sugar Association	Director, supervisor	To promote the upgrading and development of sugar industry and other related industries
TOSHMS Southern District Promotion Society	Planning and External Relations Committee Member	To promote exchanges between excellent occupational safety units and improve international occupational safety skills
Taiwan Biomass Energy Industry Association	Director, executive director, supervisor	To develop renewable energy
Tainan City Food Safety and Autonomous Management Union Association	Director	To establish a communication channel with local food companies
Taiwan Society for Circular Economy	Director	To promote the introduction of circular economy in the construction industry
The Chinese Society for Training and Development	Director, supervisor	Latest education and training trends, methods, technologies and experience
Taiwan Association of Logistics Management	Director	To enhance the Company's global logistics and logistics management knowledge and promote industrial cooperation.
The Global Logistics Council of Taiwan	Director	
Tainan City Tourism Association	Director	
Taiwan Amusement Park Association	Director	To promote tourism and leisure industry in the region and enhance services
Tainan Hotel Association	Director	
Hualien Leisure Travel Association	Executive Supervisor	
Taichung City Gasoline Stations Operators Association	Consultant	To participate in the business meeting of association of gasoline stations to master the trend of the industry

## 2.1.2 Financial Performance

TSC has actively invested in the R&D and application of sugar as its core technology and developed the concept of diversification operations. We use existing resources and advantages to develop new businesses, research and develop new products and provide new services. In addition, internal performance evaluation indicators are set in accordance with Regulations for Performance Evaluation of State-Run Enterprises and Guidelines for Performance Evaluation of State-Run Enterprises for corporate management and performance.

In 2019, with the joint efforts of all units and all employees, the total revenue reached NTD 30.478 billion, which was a 12.28% decrease compared with 2018; the total expenditure was NTD 27.735 billion, a 0.58% increase compared with 2018; the net profit was NTD 2.743 billion, a 61.74% decrease compared with 2018, mainly due to the decrease in profits from disposal of investment property.

For information about TSC's final report, annual report for shareholders' regular meetings and information on corporate governance, please refer to the public information section on TSC home page.



Financial information



## TSC's Condensed Income Statement in the Past Five Years

Unit: NT 1,000 dollars

Item/year	2015	2016	2017	2018	2019	The percentage of increase or decrease compared with the previous year (%)
<b>Income</b>						
Operating income	32,722,582	32,974,720	31,749,691	27,558,207	26,409,607	-4.17%
Other income	-	215,666	-	-	-	-
Non-operating income	11,715,845	3,932,384	4,954,318	7,184,838	4,068,084	-43.38%
Total revenue	44,438,427	37,122,770	36,704,009	34,743,045	30,477,691	-12.28%
<b>Expenses</b>						
Operating cost	24,462,393	24,172,798	24,096,334	21,378,386	20,954,605	-1.98%
Operating expenses	5,196,843	5,092,145	5,073,339	4,146,396	4,181,489	-0.85%
Other expenses	53,743		109,153	16,244	28,478	75.31%
Non-operating expenses	2,366,355	2,131,615	2,137,247	1,965,369	2,038,405	3.72%
Income tax expense (benefits)	-1,391,635	-61,880	-252,513	-274,243	-141,495	-48.41%
Loss (income) from discontinued operation				342,614	673,680	96.63%
Total expenses	30,687,699	31,334,678	31,163,560	27,574,766	27,735,162	0.58%
Net income	13,750,728	5,788,092	5,540,449	7,168,279	2,742,529	-61.74%
Dividend	15,219,225	6,200,425	5,636,750	10,146,150	3,382,050	-66.67%
Net profit margin (%)	42.02%	17.44%	17.45%	26.01%	10.38%	-15.63%
Earnings per share (dollar)	2.44	1.03	0.98	1.27	0.49	-61.42%

Note:

- The number in the reports was certified by CPA. The Hypermarket Business Division discontinued operations on June 17, 2019. In accordance with the International Financial Reporting Standards 5 (IFRS 5) Non-current Assets Held for Sale and Discontinued Operations, the revenue of NTD 1,125,823 thousand and the expenditure of NT 1,799,503 thousand dollars would be reclassified to NT 673,680 thousand dollars in "Loss (income) from discontinued operation".
- The 2019 annual income tax benefit was NT 141,495 thousand dollars mainly because the profit-seeking enterprise income tax was NT 1,717 thousand dollars and the benefit of land value increment tax was NT 143,212 thousand dollars.
- The final consolidated statement of profit and loss of the current period for 2019 is NT 1,624,307 thousand dollars, mainly because the re-measurements of the defined benefit plans (loss) was NT 9,135 thousand dollars. The re-measurements of the defined benefit plans (loss) of associates and joint ventures accounted for using equity method was NT 2,951 thousand dollars, the unrealized valuation gains and loss from equity investment instruments measured at fair value through other comprehensive income was NT 1,635,342 thousand dollars, and the exchange difference converted from financial statements of foreign operation was NT -4,851 thousand dollars.
- The total salary and benefits for employees in 2019 was NT 4,528,672 thousand dollars (excluding the employment cost of NT 155,435 thousand dollars due to the reclassification of Hypermarket Business Division to Loss (income) from discontinued operation.

TSC adheres to the principle of paying taxes honestly according to law, which contributes to the country's construction and development. In 2019, TSC paid a total of NT 4,235,097 thousand dollars in taxes and fees to local and central governments in Taiwan, a 3.81% decrease compared with the NT 4,403,011 thousand dollars in 2018. We will continue to focus on the steady development of the Company and create the maximum value for our shareholders.

### Details of taxes and fees

Unit: NT 1,000 dollars

Year	Central government	Local governments	Contribution to domestic governments	Foreign governments
2015	1,713,649	2,093,725	3,807,374	3,547
2016	1,697,955	2,807,920	4,505,875	22,847
2017	1,730,532	2,793,797	4,524,329	6,314
2018	1,643,210	2,759,801	4,403,011	6,897
2019	1,468,874	2,766,223	4,235,097	6,451

### Government financial subsidies accepted in 2019

Unit: NT/dollar

Government agency	Amount	Description
Council of Agriculture, Executive Yuan	211,368	Afforestation bonus.
Bureau of Cultural Heritage, Ministry of Culture	37,044	Subsidies for preservation and maintenance & management of cultural assets from Bureau of Cultural Heritage, Ministry of Culture, subsidies for Rejuvenation Plan for industrial cultural assets.
Council of Agriculture, Executive Yuan	10	We cooperated with the project subsidies of "Statistics of Husbandry Survey" of the Council of Agriculture, Executive Yuan.
Livestock Research Institute, COA, Executive Yuan	3,050	Reuse of the biogas residues in the new type bio-fermentation tank in the circulation area.





## 2.2 Corporate Governance

### 2.2.1 Board of Director Structure

The Board of Directors is the Company's highest governance body. The chairman is also the chairman of the shareholders' meeting and the board of directors and not a member of the management team. The president and the vice presidents assist the chairman. The chairman upholds the resolutions of the board of directors for the overall management of the company's business. The vice presidents assist the president according to the division of business. The concept of corporate governance at TSC is implemented from top to bottom. All the important business decisions are implemented based on the resolution of the board of directors.

#### Chairman

Taiwan Sugar Corporation is a state-owned enterprise affiliated to the Ministry of Economic Affairs (MOEA). MOEA reassigned Mr. Chao-Yih Chen to serve as the chairman of TSC from June 19, 2019. The 14th board meeting of the 33rd session of board of directors was convened for the election of chairman and Mr. Chao-Yih Chen was elected the chairman of TSC.

#### Public directors (including labor directors)

According to the "Company Act" and the "Guidelines for the Nomination on the Directors and Supervisors and Managing Directors in All State-owned Enterprises under the Executive Yuan", representatives of public companies are appointed by the Ministry of Economic Affairs. In addition, in accordance with the Article 35 of "Administrative Law of State-Owned Enterprise", labor directors who are representatives of trade unions appointed by the Ministry of Economic Affairs are all elected at the shareholders' meeting.

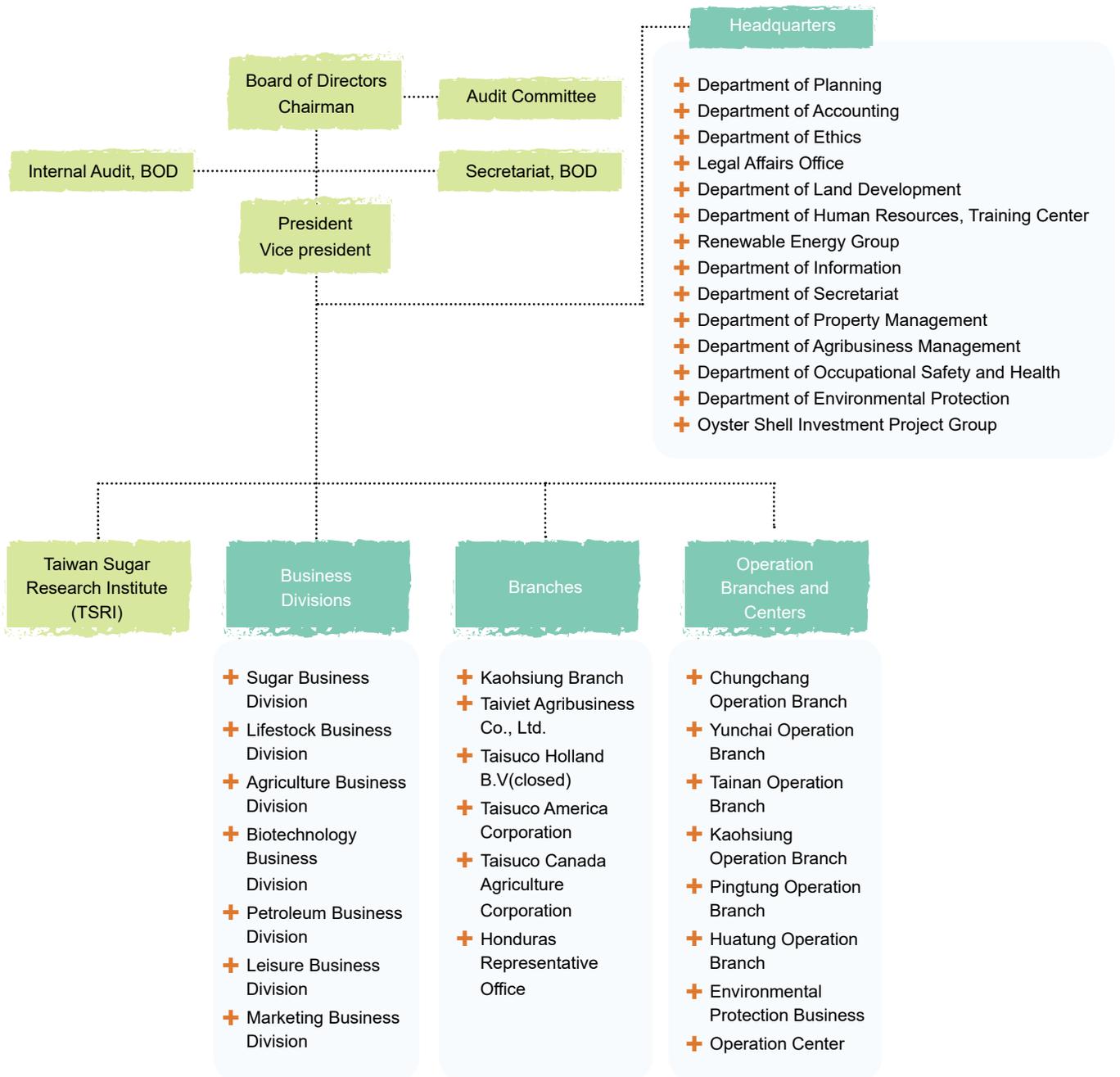
#### Independent directors

The qualification and election of independent directors are conducted in accordance with the "Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies" and TSC's "Rules Governing the Scope of Powers of Independent Directors", who are nominated by the Ministry of Economic Affairs and elected at the shareholders' meeting.

#### Private directors

Private directors other than public directors are elected at the shareholders' meeting.

## Organizational Structure of TSC



The board of directors has 15 directors elected by the shareholders' meeting according to the law. 3 independent directors are set up among the directors, adopting a nomination system for candidates. The independent directors are elected by the shareholders' meeting from the list of candidates. The term of office of directors is 2 years according to the Articles of Incorporation. There are 1 female and 14 male directors in the 33rd session of BOD whose term was from June 14, 2018 to June 13, 2020. In order to implement the concept of gender equality, 1 female director was elected, and the female independent director(s) shall account for 1/3 of the seats or above in the Audit Committee. New directors are required to sign the "Consent to Act as Director" and abide by Article 23 of the Company Act and shall have the loyalty and shall exercise the due care of a good administrator in conducting the business operation of the company.

### Basic information of the BOD members (33rd session) in 2019

Date of information: December 31, 2019

SUSTAINABLE GOVERNANCE AT TAIWAN SUGAR

Title	Name	Current Position	Education	Experience	Attendance rate in 2019 (13 BOD meetings)
Chairman	Chao-Yih Chen	Chairman of Taiwan Sugar Corporation	Ph.D. in Agricultural Chemistry, National Taiwan University	Chairman of Automotive Research & Testing Center	100% Assumed the post on 2019.06.19
				Honorary Chair Professor, China University of Science and Technology	
				Chairman of Taiwan Sugar Corporation	
				CEO of Sinotech Engineering Consultants, Inc.	
				Vice Chairperson of State-owned Enterprise Commission	
				Director of Industrial Development Bureau, MOEA	
				Executive Secretary of Energy Commission	
				Director General of Department of Industrial Technology	
Director	Tao-I Kwan	President of Taiwan Sugar Corporation	Master's degree from the Transportation Institute, National Chiao Tung University	Vice President for Taiwan Sugar Corporation	92% Assumed the post on 2016.10.13  Renewed post on 2018.06.14
		Director of Foundation of Taiwan Sugar Association		Director of the Department of Planning	
		Director of United Biomedical, Inc., Asia		CEO of the Hypermarket Business Division for Taiwan Sugar Corporation	

Title	Name	Current Position	Education	Experience	Attendance rate in 2019 (13 BOD meetings)
Independent Director	Wen-Liang Lee	Assistant Professor of National Kaohsiung University of Science and Technology	PhD, Institute of the Law of the Sea, National Taiwan Ocean University	Assistant Professor of College of Ocean and Policy, National Taiwan Ocean University	92% Assumed the post on 2016.11.06  Renewed post on 2018.06.14
				Assistant Professor of National Kaohsiung Marine University	
				Chairman of Feng Gang Funeral Business	
				Part-time Assistant Professor of Graduate Institute of Maine Affairs, NSYSU	
				Councilman of the 7th Session, Kaohsiung City Council	
				Chairman of Taiwan Water Corporation	
				Director of Construction of Bureau of Kaohsiung City Government	
				Director of Construction of Bureau of Yilan County Government	
Independent Director	Suen-Zone Lee	Chair Professor of CNU	PhD in Environmental Engineering, University of Delaware, USA	Chief of Labor Affairs Bureau of Taipei County Government (section chief)	92% Assumed the post on 2016.11.06  Renewed post on 2018.06.14
				Council of Labor Affairs, Executive Yuan Taiwan (specialist)	
				President of Chia Nan University of Pharmacy & Science	
Independent Director	Ching-Wen Tseng	Managing Attorney of Youwin Law Firm	Master's Degree from Department of Law, NCKU	Vice president of CNC (Dean of School of Environment) (Chief, Taiwan Hot Spring Research Center) (Professor) (Associate Professor)	92% Assumed the post on 2016.11.06  Renewed post on 2018.06.14
				Family mediation committee of Tainan District Court	
				Legal aid attorney and review committee member of Legal Aid Foundation	
				Legal aid consultant of Citizen Service Center of Tainan City Government	
				Professional Medical Dispute Mediation Committee of Tainan District Court	
				Legal advisor of NCKU	
				Director of National Alliance of Taiwan Women's Association	
				President of Zonta International Tainan Club	
				President of Junior Chamber International City	
				Executive director of TGEPA	
Director of Tainan Association for the Promotion of Women's Rights					
Adjunct Lecturer of CJCUC					



Title	Name	Current Position	Education	Experience	Attendance rate in 2019 (13 BOD meetings)
Director	Guang-Hui Lee	Adviser of Central Bank of the Republic of China (Taiwan)	Master's Degree from Department of Economics, NTU	Researcher of Dept. of Economic Research, Central Bank	100% Assumed the post on 2017.01.01  Renewed post on 2018.06.14
				Assistant manager of Dept. of Foreign Exchange, Central Bank	
				Member of Labor Pension Fund Supervisory Committee	
				Director of Mega Bills	
				Supervisor of Taiwan Academy of Banking and Finance	
				Director of Bank of Taiwan	
			Director of the Taiwan Payments Clearing System Development Foundation		
Director	Junne-Jih Chen	Deputy Minister, Council of Agriculture, Executive Yuan	Ph.D. in Department of Agronomy, National Chung Hsing University	Associate Researcher and Head, Researcher and Head and Researcher and Deputy Director of Taiwan Seed Improvement and Propagation Station, Council of Agriculture	80% Assumed the post on 2019.04.12
				Researcher, Deputy Director and Director of Taiwan Agricultural Research Institute, Council of Agriculture, Executive Yuan	
Director	Mao-Xiang Su	Deputy Director of Agriculture and Food Agency, COA, Executive Yuan	Master's degree of Agricultural Economics Research Institute, National Chung Hsing University	Technical Specialist and Chief of Dept. of Agriculture and Forestry, Taiwan Provincial Government, Section Chief, Deputy Head, Head, Director of the East Branch and Director Secretary of Agriculture and Food Agency, COA, Executive Yuan	92% Assumed the post on 2017.06.09  Renewed post on 2018.06.14
Director	Hsien-Wei Lee	Deputy Secretary General of Tainan City Government	Master's degree of Department of Safety, Health and Environmental Engineering, National Kaohsiung First University of Science and Technology	Deputy Director and Director of Environmental Protection Bureau of Tainan City Government	92% Assumed the post on 2019.01.15
				Executive Officer, Section Chief, Senior Executive Officer, Deputy Director, Director of Southern Taiwan Science Park Bureau, MOST	
				Executive Officer, Tainan Science Park Provisional Office	
				Senior Technical Specialist and Head of Environmental Protection Administration, Executive Yuan	

Title	Name	Current Position	Education	Experience	Attendance rate in 2019 (13 BOD meetings)
Director	Yi-The Lee	Director, Department of Urban and Rural Development of Pingtung County Government	PhD in Architecture, Urban Design and Spatial Planning in University of Leuven	Director of Economic Development Bureau, Kaohsiung City Government	90% Assumed the post on 2019.04.08
				Director of Urban Development Bureau, Kaohsiung City Government	
				Chief Secretary of Urban Development Bureau, Kaohsiung City Government	
Director (Civilian Shareholder)	He-Ling Lin	Director of TSC	Dept. of Business Administration, Ritsumeikan University	Person in charge of Hong Yu Development Construction Co. Ltd.	100% Assumed the post on 2018.06.14
Labor Director (Appointed representative on behalf of the trade union)	Yu-Fa Lin	Planning specialist of TSC's Huatung Operation Branch	Department of Accounting, Open College Affiliated with National Taipei University of Business	Labor Director and President of TSC Trade Union Confederation	92% Assumed the post on 2017.03.17
		President of TSC's Taitung Labor Union			Renewed post on 2018.06.14
Labor Director	Xian-Tang Tian	Property Officer of TSC's Chungchang Operation Branch	Shu-Te Institute of Technology	Labor Director, Executive Director, Director, Supervisor of TSC Trade Union Confederation	100% Assumed the post on 2017.03.17
		President of TSC's Changhua Labor Union			Renewed post on 2018.06.14
Labor Director	Jin-Zhou Lin	Property Officer of Rende Assets Division of TSC's Tainan Operation Branch	National Yujing Senior Vocational School of Technology and Commerce	Executive Director of TSC Trade Union Confederation	100% Assumed the post on 2017.03.17  Renewed post on 2018.06.14

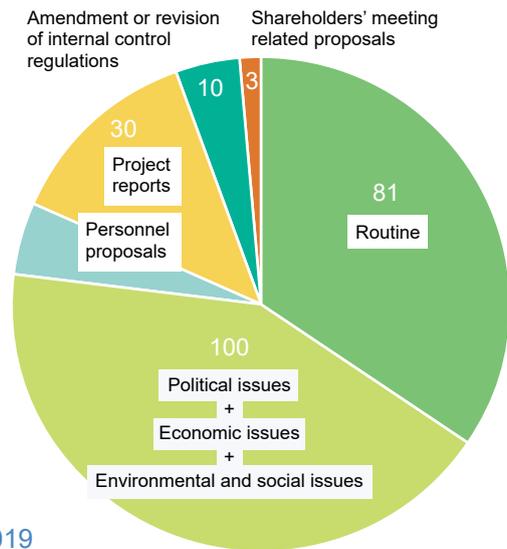


Note: Please refer to 2020 Annual Report to General Meeting (data of the year 2019) for relevant personnel changes of the board of directors.



## 2.2.2 Review of Motions

The Company's board of directors convenes a monthly meeting to review matters reported by management department to the board. In 2019, a total of 13 board meetings were held (the average attendance of directors was 94%). The management department attends the board meeting for consultation according to the content of the motions to enable sufficient time and opportunities for explanation and communication with the board. The Board of Directors reviewed a total of 235 cases, included 100 cases concerning political, economic, environmental and social issues.



### Types of the 235 proposals reviewed in TSC board meetings in 2019

Economic, environmental and social issues generated from the operating activities are handled by the senior management authorized by the board of directors. When necessary, the handling situation will be reported to the board of directors. For the resolutions of the board meetings, the monthly follow-up report is reported in accordance with the "Directions for the Operation and Management of Board Meetings" and for those cases that are not closed, quarterly follow-up reports will be made and reported to the board meeting. In addition, the progress of major events and the difficulties and obstacles encountered will be reported by the Business Investment Committee on a quarterly basis.

### Avoidance of Conflict of Interest

The Article 7.4.15 of "Directions for the Operation and Management of Board Meetings" stipulates that "For any proposal in which a Director or the legal person he or she represents is an interested party, the Director shall explain the important aspects of his/her interest at the Board meeting. When his/her interest is likely to compromise the interest of the Company, the Director shall not participate in the discussion and voting on the proposal and the Director shall abstain himself or herself from discussion and voting on the proposal and cannot exercise the voting right for and on behalf of another Director". The notices of Board and committee meetings are all added with matters of avoidance of conflict of interest.

When members of TSC deal with suppliers, investors, creditors, competitors and accountants, a supervision mechanism for the implementation of integrity and ethical values has been established. The Company has an internal control system of "Management of related party transactions" as the supervision mechanism to control the behavior of related parties. Transactions with related parties are all handled in accordance with the main points of the provisions and matters of major transactions are disclosed in the notes in the financial statements.



## Directors' Training

In addition to having solid and rich experience in related matters, the directors choose to participate in the training related to corporate governance topics such as finance, risk management, business, commerce, accounting, law or corporate social responsibility as for the scope outside the directors' professional capabilities. The number of training hours were arranged in accordance with the "Directions for the Implementation of Continuing Education for Directors and Supervisors of TWSE Listed and TPEX Listed Companies". The "Continuing Education Plan for Directors of TSC" was developed in April 2016. New directors in the year of the appointment should accept the training for 12 hours. It is advisable for those who are reappointed to accept the training for 6 hours in compliance with the regulations. In 2019, 14 directors of the company participated in the related courses for sustainable management (one director resigned in 2019, so the number of participants in the education and training was 14). The number of training hours totaled 168 hours and the average number of training hours per person was 12 hours.

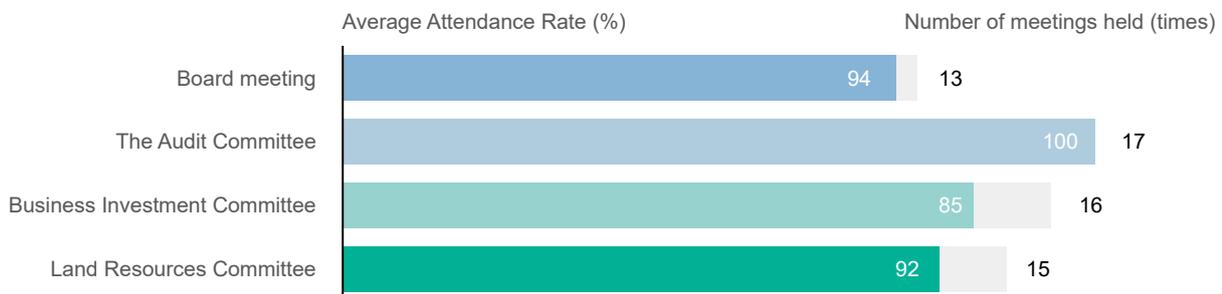
In order to enable each director to understand and improve the professional knowledge related to the company's various industrial environments, the managerial department is arranged to report to the board of directors the changes of each industrial environment.

## Functional Committees

Secretariat, BOD, handles such matters as shareholders' meeting, board of directors, corporate governance and company change registration, assists in strengthening the functions of the board of directors and enhances the efficiency of the proceedings. Under the Board of Directors, there are three functional committees, the Audit Committee, the Business Investment Committee and the Land Resources Committee. In 2019, the results of the self-assessment of the performance appraisal of the Board of Directors (Functional Committees) showed that among the 52 items of assessment, 52 were rated as "excellent", with the overall rating of "excellent".

- The Audit Committee is set up and consists of three independent directors in charge of the reviewing of matters prescribed in Article 14-5 of the Securities and Exchange Act.
- Business Investment Committee: the convener of the committee shall be a director serving the post concurrently or appointed by the chairman. The Business Investment Committee is responsible for the review of proposals concerning investment, business plans, future business strategies and annual operating budgets.
- Land Resources Committee: The convener of the committee shall be a director serving the post concurrently or appointed by the chairman. Land Resources Committee is responsible for the review of proposals concerning land resources utilization, development or asset transactions.

## Average Attendance Rate of Directors of Functional Committees



Please refer to the Corporate Governance section for minutes of board meetings. Refer to the "Corporate Sustainable Development" section for the authority of each board committee to learn about the responsibilities of the functional committees.



Minutes of board meeting



TSC Sustainability website



## 2.2.3 Performance Evaluation and Information Disclosure

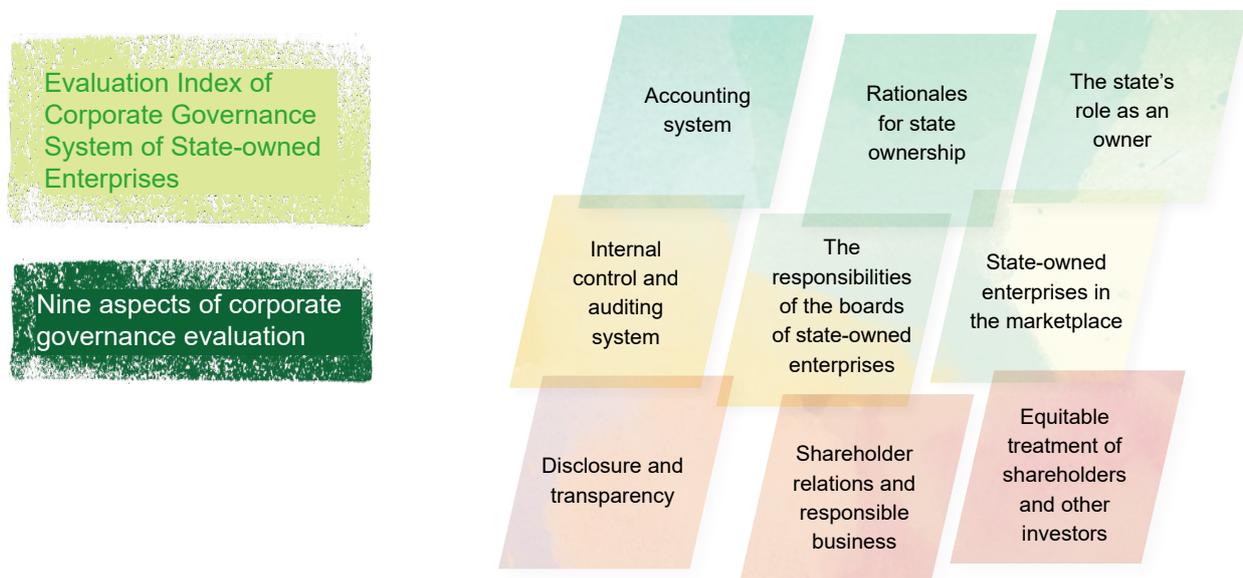
### Directors' Remuneration

TSC is a state-owned enterprise. The remuneration of the directors is paid according to Paragraph 2, Article 15 of the Articles of Incorporation, "Standards for Remuneration of Directors and Managers Determined by the Competent Authority." Therefore, the "Remuneration Committee" is not set up. In addition to the independent director's monthly payment of concurrent serving of NT 30,000 dollars, the remainders are all paid in accordance with the "List of Monthly Payment of the Directors and Supervisors of the Ministry of Economic Affairs". The full-time monthly subsistence allowance is NT 14,400 dollars, monthly payment of Part-time expenses is NT 10,400 dollars and the monthly payment of concurrent serving for the part-time job is NT 10,400 dollars. There are no other additional remuneration or bonuses. The salary and bonuses of the chairman, president and vice presidents are paid according to the "Guidelines for the Management of Employment Expenses of the Business Units Affiliated with the MOEA", and there are no other additional remuneration or bonuses. In summary, the remuneration of independent directors, directors (including private directors and labor directors), chairman and president in 2019 was NT 18,695,635 dollars, which was fixed and handled according to the regulations of the Ministry of Economic Affairs, accounting for 0.57% of the income before tax. Its risk associated with the future corporate management is low.

### Board Assessment

TSC is a state-owned enterprise rather than a listed company. Therefore, the corporate governance performance evaluation does not apply to the corporate governance evaluation indicators announced by the Securities and Exchange Commission. In recent years, however, MOEA has selected external impartial units to evaluate the effectiveness of the corporate governance of the Business Units Affiliated with the MOEA. The State-owned Enterprise Commission, MOEA entrusted National Taipei University of Technology with the evaluation of the corporate governance system of Business Units Affiliated with the MOEA in 2019. The "Evaluation Index of Corporate Governance System of State-owned Enterprises" was based on the OECD Guidelines on Corporate Governance of State-owned Enterprises and the evaluation was conducted in 9 aspects. The evaluation was made up of written document review accounting for 60% and other field interviews accounting for 40%. Suggestions in the report serve as reference for corporate governance system and operational performance evaluation.

Annual assessment is carried out for the chairman and president according to the "Regulations for Performance Evaluation of State-Run Enterprises". The assessment of directors and supervisors of business units affiliated with the Ministry of Economic Affairs is carried out for the remaining independent directors, directors and supervisors according to the "Guidelines for Appointment of Directors and Supervisors and Other Important Duties by Ministry of Economic Affairs and its Affiliates ". In addition, the "Guidelines for the Evaluation of the TSC's Board of Directors" was added in June 2016. The results of self-assessment and evaluation of the board members are submitted to the Board of Directors at the beginning of each year to enhance the effectiveness and efficiency of the Board.



## Stakeholder Participation

Information disclosure is an important responsibility of a company's operations. We do comply with the obligation of information disclosure. In order to quickly transfer the major information of TSC to the general public and internal organizations of the Company, an efficient communication system has been set up. The Company has set the "Directions for Online Filing" on the public information, with designated personnel responsible for the collection and disclosure of TSC corporate governance Information and disclose such information on MOPS and TSC's official website. There are also response measures for emergencies, such as the setting of "Disasters Emergency Response Guidelines" and "Guidelines for the Operations of Fast Report Procedures for Various Disasters and Emergency Events". When news is required to be released for major disasters and emergencies, it will be signed by the unit and approved by the president, and the information will be emailed to all directors. The designated spokesperson shall make uniform external explanations and replies or take the initiative to convene a press conference to ensure timely disclosure of information of decisions that may affect shareholders and stakeholders. In addition, the information including finance, business, corporate governance, public welfare activities and publications is disclosed on TSC's official website for the reference of shareholders and stakeholders and is constantly updated.

In order to enhance the transparency of TSC's business information and strengthen two-way communication with stakeholders, a number of measures are implemented.



Regular shareholders meeting

In order to ensure the power of participation and decision of shareholders, a regular shareholders' meeting is held once a year. In addition to reporting on the operating results of the previous year and future strategies, matters for ratification and discussing major proposals are also reported, and timely answers to shareholder's questions are given. The shareholders' meeting was held on June 18, 2019.



Minutes of shareholder's meeting

The minutes of the shareholders' meeting were recorded in accordance with the provisions. The relevant information was uploaded to the MOPs and TSC's official website for shareholders' reference.



Labor Director

Labor Director: Representatives assigned by trade unions appointed by the Ministry of Economic Affairs act as labor directors and participate in corporate governance.



Employee participation

Employee participation: Labor-management conferences (a total of 86 conferences were held in 2019), the Welfare Committee and the Labor Safety and Health Committee and meetings of the "Employees' Retirement Funds Management Committee" and "Labor Retirement Reserve Supervisory Committee" are regularly convened.



Symposiums

Symposiums: The chairman of the board of directors invites representatives from various units to convene symposiums and listens to their opinions on management.





## 2.3 Implementation of Integrity Management

### 2.3.1 Integrity and Eradication of Fouls

All TSC employees abide by the “Ministry of Economics Employee Integrity and Ethics Rules” to facilitate integrity governance. We have developed “Codes of Ethical Conduct of TSC”, which applies to TSC personnel, including directors (including independent directors) and managers (including the president, vice presidents and directors of various units). In addition, “Employees Normal-Time and Project Evaluation Guidelines”, “Working Rules for Practitioners”, “Service Guidelines for Practitioner” and “Practice Guidelines for Corporate Governance” are stipulated. We allow practitioners to understand the company's code of conduct by the internal network, posting propaganda of laws and announcements and implementing education and training.

The Company regularly reviews anti-corruption risks to promote what is beneficial and abolish what is harmful. The Administration Office and various units under it held a total of 15 integrity reports. In addition, an ethics unit was established in accordance with the “Act of the Establishment and Management of the Government Employee Ethics Units and Officers” while various reporting channels, such as fax, a dedicated mail box for reporting and reporting hotline were also established for the public to report or make grievance, and the above information will be disclosed in the bidding notice and the official website of Taiwan Sugar Corporation.

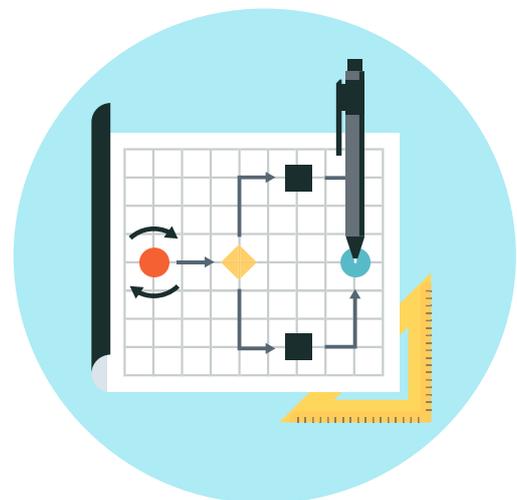
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Reporting mailbox: Mailbox No. 20-210, Datong Rd.  
Post Office, Tainan 70263  
Reporting hotline: 06-3378682  
Reporting fax number: 06-3378519

External donations or sponsorships are handled in accordance with relevant laws and regulations and internal regulations to prevent the incident of offering of accepting a bribe and illegal political contributions. In 2019, TSC did not engage in any public policy lobbying or political donation and was not involved in any legal actions related to anti-competitive behavior, anti-trust and monopolistic conduct.

### Internal Control Management

In order to strengthen corporate governance and promote the Company's sound operations, TSC has developed “The Internal Control System of TSC”, the document regarding “the Responsibility of the Board of Directors and Managers” as well as complete documents regarding internal control system, which can be followed by all units. In 2019, 29 internal control documents were revised and 4 internal control documents were abolished. The implementation of the internal control system is also included in the annual performance assessment to promote the self-management and implement self-monitoring mechanism by all units.

In accordance with the "Regulations Governing Establishment of Internal Control Systems by Public Companies" revised and promulgated by the Financial Supervisory Commission of the Executive Yuan, we formulated the “Guidelines for Internal Audit Practices” to specify the professional ethics, responsibilities and operating procedures for the internal audit staff. The Internal Audit, BOD completed the in-field audit on 28 units. In addition to notifying the audited unit in written form for improvement, the report was delivered to independent directors for further audit in accordance with the laws and regulations. At the same time, the Inspector General attended the board meetings and reported auditing affairs.



## Anti-corruption Risk Assessment and Education

In 2019, Department of Ethics conducted a corruption-related risk assessment for 18 units under it, which accounted for 100% of the Company's total number of business locations. According to the risk report, there were no major corruption-risk cases in 2019. In order to publicize anti-corruption policies and related procedures, the Department of Ethics and Ethics Offices of all units involved enabled the Company's employees to understand relevant anti-corruption regulations and make anti-corruption efforts by multi-advocacy methods such as organizing the relevant anti-corruption education and training, holding a workshop of manufacturers, inviting experts and scholars to give special lectures, issuing and disseminating documents and using electronic information equipment for the internet advocacy and questionnaire surveys.

The Department of Ethics and its 18 Ethics Offices organized a total of 30 sessions of anti-corruption training and advocacy exercises in 2019. The number of employees participated totaled 1,394 employees. In addition, the anti-corruption policy advocacy and training was carried out for employees of the Company and its subordinate units through text, e-mail, and videos to make sure that 100% of employees participated in training classes. In 2019, TSC Anti-corruption Cultural Relics Exhibition was held in Ciaotou Sugar Refinery in Kaohsiung, and this country-first theme was so innovative and interesting that it attracted more than 10,000 visitors during the 19-day exhibition. The curatorial process was recorded in the DVD entitled Full Record of TSC Anti-corruption Cultural Relics Exhibition and also uploaded on YOUTUBE.

The Department of Ethics and its affiliated Ethics Offices also handled one "Enterprise Integrity Forums" for business partners in 2019, inviting representatives from various partner manufacturers to listen to relevant anti-corruption policies. In addition, when handling various types of procurement tenders, the anti-corruption policies and reporting channels are also described in the contractual bidding instructions for the bidders to know. We have fully notified all our business partners of anti-corruption policies.



Government advocacy

## Information Transparency

On TSC webpage, special sections of Corporate Governance and Corporate Sustainability Development were set up to provide relevant information in a timely manner. Information disclosure is also strengthened in accordance with the Principles of Unified Handling of Proceedings of Board of Directors for Business Units Affiliated with the MOEA and the company's Directions for Online Filing and Main Points of Press Release and Public Opinion Report. In addition, the operation of the board of directors and the Audit Committee and information concerning the remuneration, environmental protection, social services, public welfare and good neighborliness, safety and health, customer services and other information on the implementation of social responsibility as well as information concerning interest rates, exchange rate changes, inflation and so on are all disclosed in the annual report.



### Credit Rating

TSC was affirmed long-term "twAA-" short-term "twA-1+" ratings by Taiwan Ratings, outlook stable. As for the risk assessment, the rating among global debtors in financial constitution is rated as "extremely robust" and its rating among Taiwanese debtors in operational status is "satisfactory".



## 2.3.2 Compliance

TSC products must comply with local regulations and customer requirements, including Act Governing Food Safety and Sanitation, Health Food Control Act, Pharmaceutical Affairs Act, Food Administration Act, Organic Agricultural Product and Organic Agricultural Processed Product Certification Management Regulations. In 2019, there were no violations of product health and safety, service information and labeling, marketing communications and voluntary codes.

However, on May 20, 2019, raw wastewater in In TSC's Annei Livestock Farm in Yizhu Township, Chiayi County the original soil was overflowed to discharge ditches outside due to heavy rain and a fine of NT 1,031,250 dollars was imposed by the Environmental Protection Bureau. After review, relevant equipment in Annei Livestock Farm was improved. Please refer to "Column- Environmental Penalties and Review" for details.



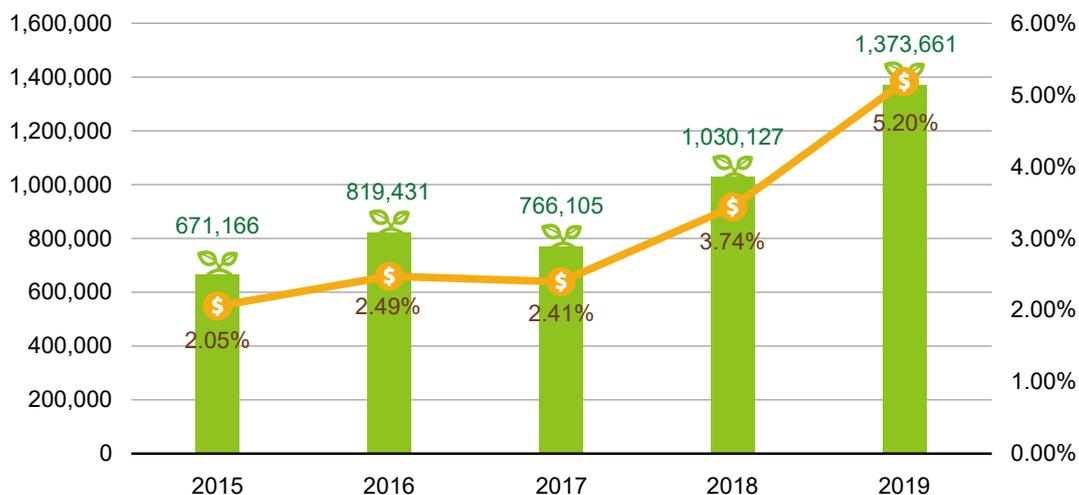
Note: Significant fines related to the operation of the company: Information is disclosed in accordance with what was prescribed in Item 3 of Subparagraph 26 under Paragraph 1 in Article 4 in Chapter 2 (Material Information) in Taiwan Stock Exchange Corporation Procedures for Verification and Disclosure of Material Information of Companies with Listed Securities amended on January 3, 2020 that " where the administrative fines for one single event have accumulated to NT\$1 million or more.

To fulfill our social responsibility for the environment, TSC has invested funds for environmental protection related work. In 2019, the environmental protection expenses amounted to NTD 1,373,661 thousand, a 33% increase from 2018.

### Environmental protection expenditures over the years

Unit: NTD: thousand

Item/ Year	2015	2016	2017	2018	2019
Total environmental expenditure	671,166	819,431	766,105	1,030,127	1,373,661
Ratio of environmental expenses to operating income (%)	2.05%	2.49%	2.41%	3.74%	5.20%



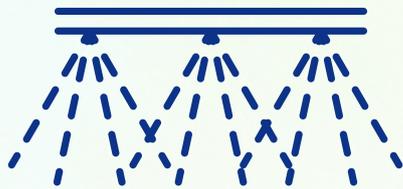


## Special Column

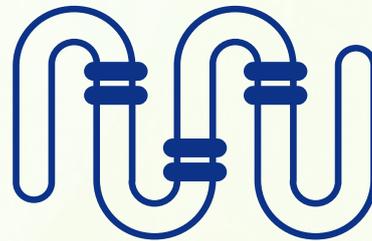
### Environmental Penalties and Review



Due to heavy rain (daily rainfall of 93 mm) on May 20, 2019, large amount of rainwater could not be discharged in time and overflowed to the original wastewater ditches, leading to a fine of NT 1,031,250 dollars imposed by the Environmental Protection Bureau of Chiayi County Government. On the day of the incident, we immediately followed the instruction from the Environmental Protection Bureau of Chiayi County Government and hired workers to fill up the soil overflowed to the discharge ditches outside, and other improvement measures instructed by the Environmental Protection Bureau were also completed. Due to the fact that this was not deliberate discharge from the livestock farm, this case was filed for appeal in accordance with Administrative Appeal Act.



1. Completion of the deodorizing spray facilities.



2. New establishment of closed culvert pipe connection to prevent heavy rainfall

from entering the wastewater system. In addition, the original wastewater ditch was changed to a rain ditch to achieve the effect of diversion of rain and sewage to avoid the overload of the wastewater system that may lead to overflow.

The above improvement work was completed and re-inspected by Chiayi County Environmental Protection Bureau on September 23, 2019. In addition, recycling and reuse of wastewater for plant irrigation was actively promoted. The maximum annual irrigation volume of recycled wastewater is estimated to reach 200,000 tons, which is estimated to save approximately NT400,000 dollars on water pollution fees, reaching the three winning targets of reuse of water resources, circular economy and pollution reduction. Furthermore, to effectively improve water and air pollution problems, NT 10.74 billion dollars was budgeted in 2019 to reconstruct the 15 livestock farms into modern livestock houses in two stages. In 2018, TSC Agriculture and Livestock Academy was established to provide domestic farmers with relevant technologies. TSC will play a leading role in modern pig farming and effectively upgrade the livestock industry.





## 2.4 Implementation of Sustainable Governance

### 2.4.1 Risk Management

#### Risk Management Policy

The "Guidelines for Risk Assessment" has been developed, followed by the identification, analysis, assessment and handling of every short-, medium- and long-term risks. First, we identify the risk factors and assess potential losses, followed by the selection of management methods and the implementation of regular and irregular monitoring, auditing, and tracking of risk management.

#### The Policy of Risk Management



Improve risk management capabilities and reduce the threats of business risk



Develop relevant crisis response measures for residual risks higher than allowable levels



Perform comprehensive risk management and operational procedures



Reduce operational risk management to achieve sustainable development of the Company

#### Operation Flow Chart of Risk Management and Crisis Handling



Note: When all units initiate the crisis event management mechanism, they shall comply with the relevant internal control systems and work practices.



Risk management

Identification, assessment, control and monitor of possible risks are conducted based on the principles of risk management and crisis management to ensure the effective operation of the risk management system. When a risk event occurs, necessary response measures should be taken to prevent disasters from expanding and recovery work should be performed and the handling of crisis events will be reviewed. Risk control methods and crisis management operations are available under the Corporate Governance Risk Management on TSC's webpage of Corporate Sustainable Development.

## Risk Management Organization

The "TSC Risk Management Promotion Committee" was established to be responsible for the assessment of various risks, the development of preventive measures, the internal control system and the implementation of related businesses. The chairman of the Company serves as the steering committee member, the president as the committee chairman and the vice president of Business Supervision, Department of Planning as the committee vice chairman. The vice presidents and the first-level supervisors of all divisions (excluding the Internal Audit, BOD) and all unit are committee members.

## Responsible Business Units of Crisis Management

Scope of risk crisis	Units in charge
 Natural disasters, occupational safety and health disasters, environmental impact matters, major epidemic (infectious) diseases	Department of Occupational Safety and Health/ Occupational Safety and Health Committee/ Department of Environmental Protection/ Environmental Protection Committee
 Product quality	Department of Planning/ Quality Management Committee
 Labor disputes	Department of Human Resources
 Customer service, media issues	Department of Secretariat
 Information security	Department of Information / Information Security Committee
 Integrity	Department of Ethics/ Integrity Report
 Others	Business units and departments and divisions responsible for the business at TSC Headquarters



## Customer Privacy

The "Personal Data Protection Executive Team" was established and the "Guidelines for TSC Personal Data Protection Management" was formulated. The "Personal Data Protection Operation Manual" was compiled based on the "Personal Information Protection Act", "Enforcement Rules of the Personal Information Protection Act" and "Guidelines for TSC Personal Data Protection Management". In 2019, there were no incidents of infringement of customer privacy rights and loss of customer data.



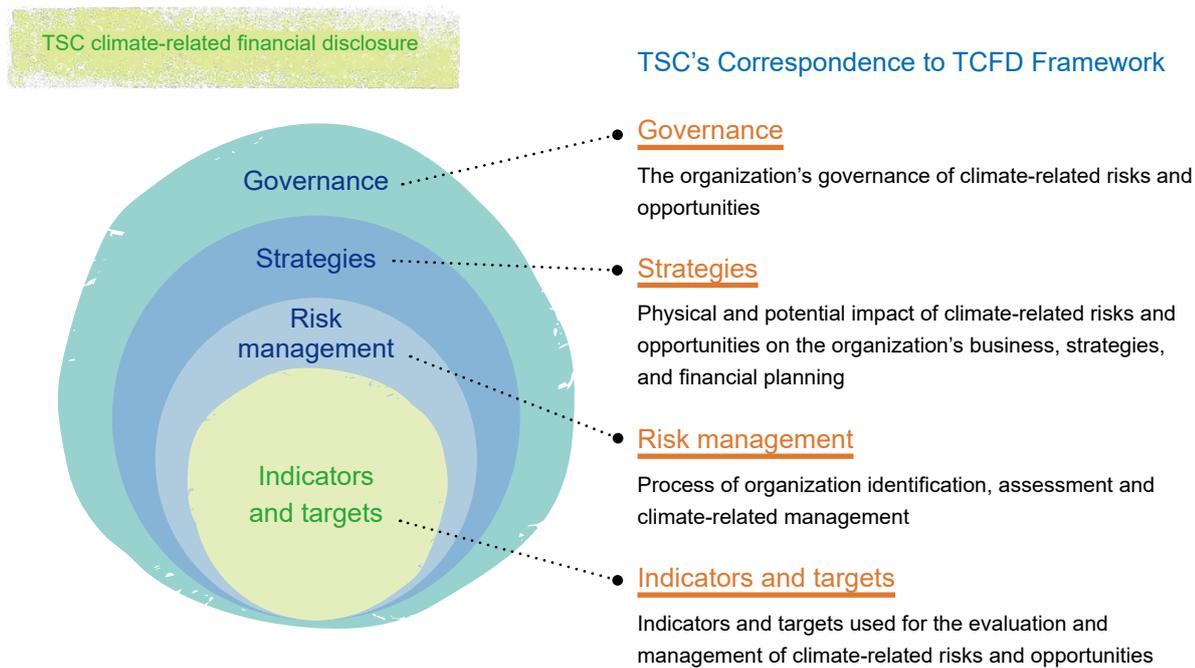
## 2.4.2 Responses to Climate Change Risks

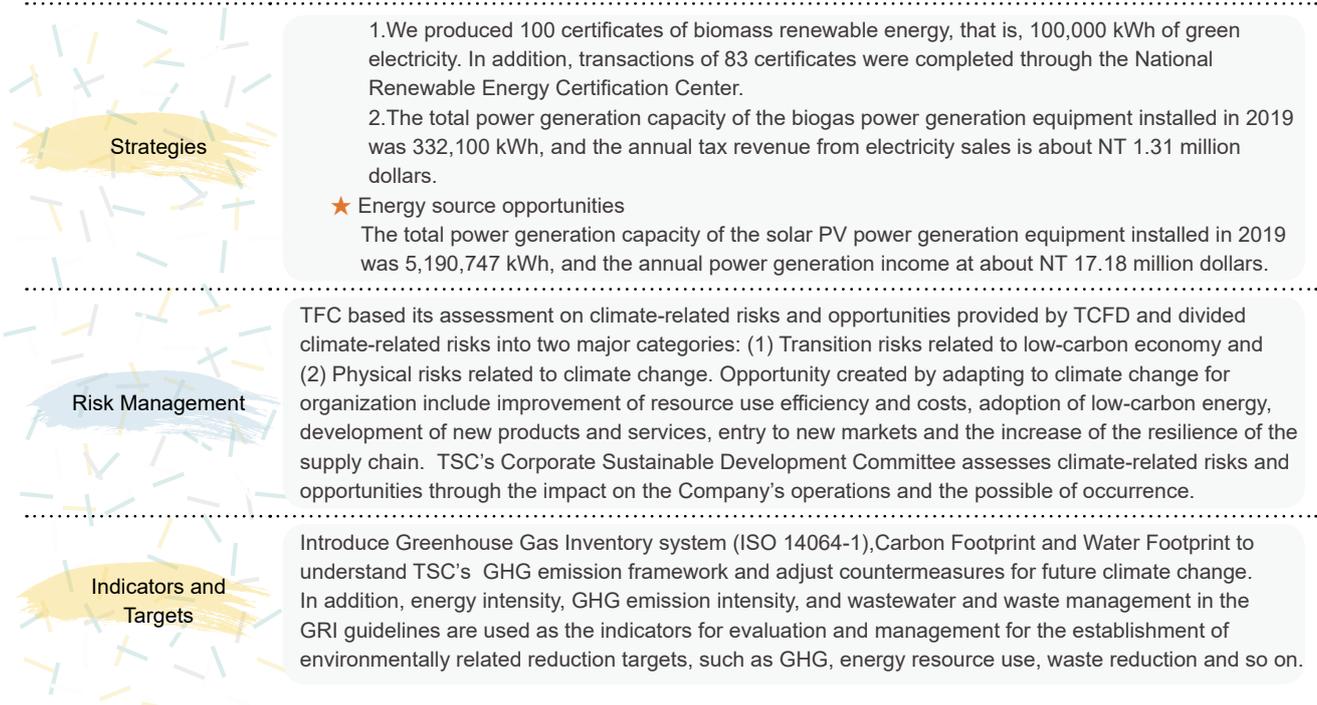
### Climate Change Risk

Global climate change not only has caused extreme weather but may also trigger a food crisis. Therefore, all the countries have actively invested in the development of new and alternative energy resources and promoted relevant verification of carbon footprint and environmental performance. The issue of energy conservation and carbon reduction is closely linked with the products and services provided by the companies, which directly or indirectly affect the companies' operation and the consumers' spending behavior. Agricultural production and processing are very important businesses for TSC. Therefore, the stability of climate will affect the operation of Taiwan Sugar Corporation and the supply of raw materials. Meanwhile, in the face of the pressure of carbon reduction, disaster prevention and energy shortages, the costs invested in technological improvements, equipment improvements and environmental protection have also increased year by year, impacting the competitiveness of TSC. In the face of predictable impacts, in addition to promoting energy-saving and carbon reduction campaigns and upgrading equipment for the improvement of energy efficiency, a special team for energy saving and carbon reduction was also set up to actively promote green marketing, develop green manufacturing processes and R&D of green products. Moreover, the use of the land resources and the core capabilities in agriculture are assessed for the cooperation of the policy to plant energy-related crops, develop renewable energy to turn crisis into opportunities.

TSC refers to the framework of Task Force on Climate-related Financial Disclosures (TCFD) to take actions in response to climate change, demonstrating TSC's responsibility and vision on climate issues in order to further allocate capitals more efficiently and move toward the sustainable development of a low-carbon economy.

SUSTAINABLE GOVERNANCE AT TAIWAN SUGAR





Other strategies to cope with climate change:

Policy	Description
Promote circular economy	Through the integration of agricultural integration, reuse of pig manure, biogas residues, and sugarcane bagasse and water recycling, a recycling network is created to reduce waste of resources and the use of fossil energy.
Carefully choose the timing of raw materials procurement	Internally, TSC set up a Bulk Cereal Procurement Team and a Bulk Sugar Reserve Price Setting Team. As required by the internal control system, the team members have to collect information of bulk materials such as soybeans, corn and sugar, the supply and demand situation and climate change situations at any time, and carefully select a procurement timing based on the production and inventory conditions.
Promote Four Savings Project and strengthen the promotion and training of energy conservation	(1) In accordance with the "Four Savings Project for government agencies and schools", TSC Implemented the promotion of oil conservation, power conservation, water conservation, and paper conservation to reach the effectiveness of energy conservation. (2) Green energy conservation and environmental protection related training are organized to promote the concept of energy conservation of all employees.
Promote green energy	To work in line with the government's green energy policy, solar PV power generation equipment is installed on self-owned roofs and unfavorable farming land to reduce pollution and carbon emission. To implement the carbon reduction policy, TSC's affiliated livestock farms continue the collection of biogas for power generation, which is in line with the development of the green energy industry. As of 2019, a total of 67 solar power generation facilities as well as biogas power generation facilities in 4 livestock farms were installed, and the overall power generation totaled 0.3321 MWh in 2019.
Promote green afforestation	Afforest on sugarcane land for economic benefits such as the increase of air quality, conservation of water resources and for carbon sequestration. In 2019, the area of afforestation in the plain area was 10,817 hectares.
Promote green procurement policies	To work in line with the Green Purchasing promotion program approved by the Executive Yuan, TSC makes purchase of eco-friendly and green products. In 2019, the green procurement ratio was 99.86%.



### 3.1 GREEN ENERGY

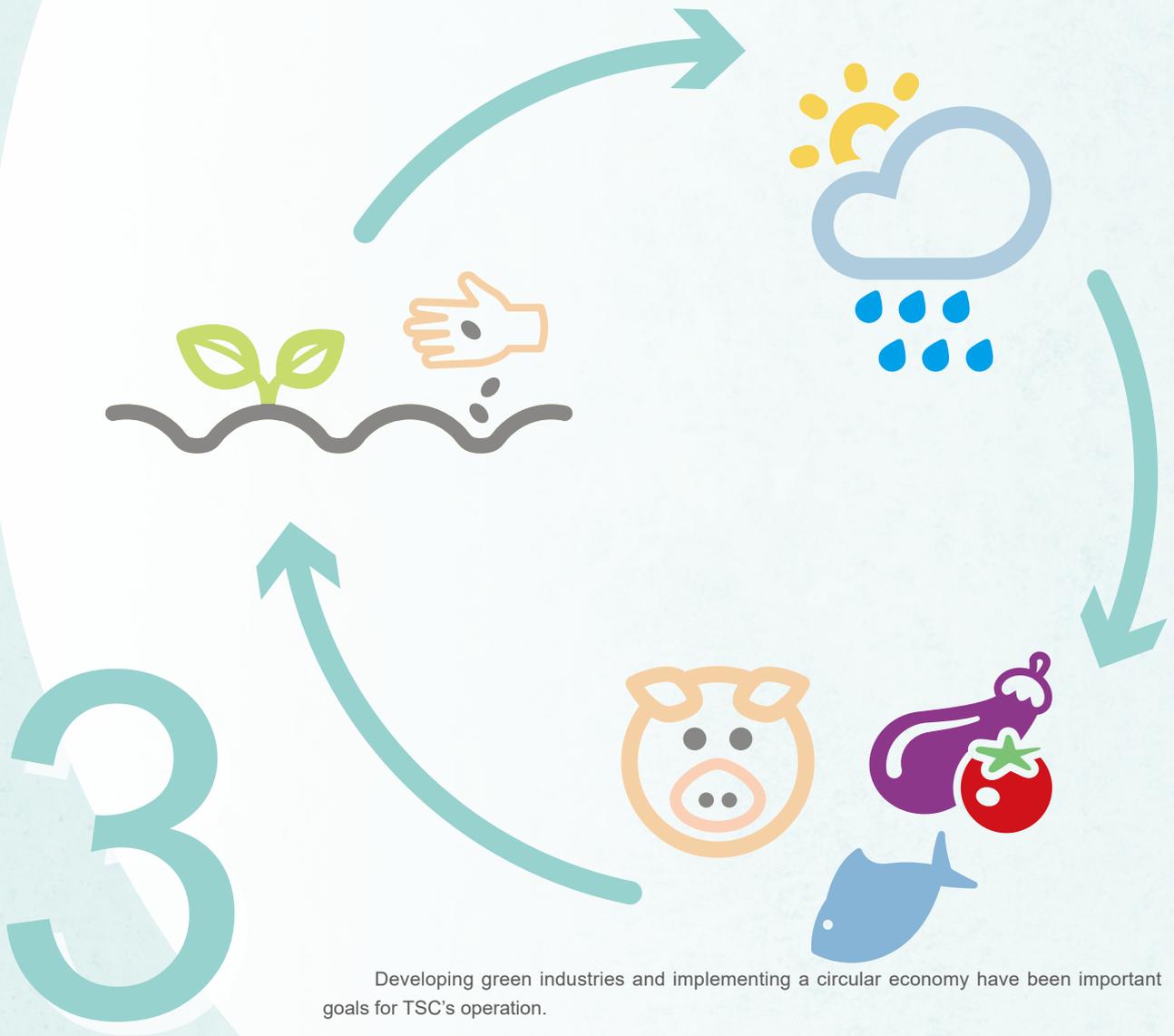
Special Column- Agrivoltaic Farm Taking into Account the Development of Agriculture and Green Energy for the Creation of a Better Carbon Reduction Effect

### 3.2 HIGH-VALUE RECYCLING OF WASTE

### 3.3 CIRCULAR AGRICULTURE AND ANIMAL HUSBANDRY

Special Column-World's First Livestock Industry Passing BS 8001 Circular Economy Certification

3 - CIRCULAR ECONOMY



# Sustainable Governance at Taiwan Sugar

## Management Approach of Circular Economy

<p>Corresponding material topics</p> <p>Circular Economy</p>	<p>Corresponding SDGs</p> 		
<p>Policy</p>	<ol style="list-style-type: none"> <li>1. To actively promote green energy</li> <li>2. To construct a value chain of the green circular economy</li> </ol>		
<p>Commitments and goals</p>	<table border="0"> <tr> <td> <p>Short-term goals (within 3 years):</p> <ol style="list-style-type: none"> <li>1. To continue the installment of solar power and biomass power generation systems</li> <li>2. To complete the reconstruction of circular agricultural pig farms</li> <li>3. To develop waste materials into high-value products and extend the value of resources so as to promote circular economy</li> </ol> </td> <td> <p>Medium and long-term goals (3 to 7 years):</p> <ol style="list-style-type: none"> <li>1. To establish a regional energy biogas center to assist in the treatment of livestock manure, food waste and agricultural wastes in the vicinity</li> <li>2. To build a green circular park for pig breeding to implement the concept of circular economy</li> <li>3. To complete the construction of a circular field</li> </ol> </td> </tr> </table>	<p>Short-term goals (within 3 years):</p> <ol style="list-style-type: none"> <li>1. To continue the installment of solar power and biomass power generation systems</li> <li>2. To complete the reconstruction of circular agricultural pig farms</li> <li>3. To develop waste materials into high-value products and extend the value of resources so as to promote circular economy</li> </ol>	<p>Medium and long-term goals (3 to 7 years):</p> <ol style="list-style-type: none"> <li>1. To establish a regional energy biogas center to assist in the treatment of livestock manure, food waste and agricultural wastes in the vicinity</li> <li>2. To build a green circular park for pig breeding to implement the concept of circular economy</li> <li>3. To complete the construction of a circular field</li> </ol>
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<p>Input resources</p>	<ul style="list-style-type: none"> <li>◆ Construction of a green pig farm with negative pressure ventilation and water curtain, biogas power generation and solar power generation in Dong-Hai-Feng pig farm, with total expenditure of NTD 688 million.</li> <li>◆ A total of NTD 10.74 billion was invested in 2019 for a 2-stage reconstruction of 15 livestock farms into modern livestock houses, and the reconstruction is scheduled to be completed in 2024.</li> <li>◆ To construct Yuemei Tourism Sugar Factory, Xihu Sugar Refinery, Shanhua Sugar Refinery, Ciaotou Sugar Refinery, Chinshang Pastoral Farm Resort into circular fields.</li> </ul>		
<p>Grievance mechanism</p>	<p>Customer Complaints Handling Guidelines, Customer Service Hotline, Customer Service Email box, TSC Facebook Fan Page</p>		
<p>Management System and Action</p>	<p>BS 8001 Framework for Implementing Circular Economy Principles, Renewable Energy Certificate (REC)</p>		
<p>Assessment management mechanism</p>	<p>Internal Control System, TSC Performance Assessment System, Corporate Sustainable Development Committee Work Plan and Implementation Review Meeting.</p>		





## 3.1 Green Energy

### 3.1 Development of Renewable Energy

TSC uses bagasse and animal waste from animal husbandry and agricultural waste materials with biomass potential for biogas power generation and adds solar power generation equipment to support the green energy policy of the government. In 2019, the total power generation from green energy and renewable energy amounted to 15.46 million kWh, reducing 824 metric tons of CO<sub>2</sub>e.

#### Long-term Goal



Independent  
supply of  
green energy

#### Project Content

Installation of solar PV and biogas power generation equipment

#### Schedule

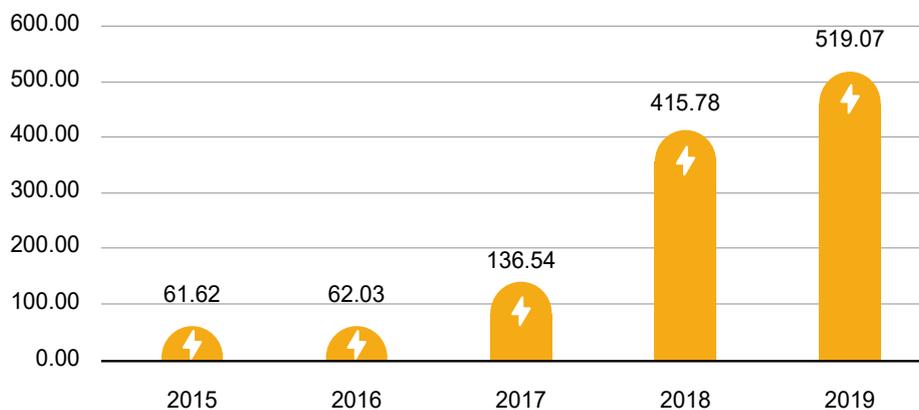
- In the forms of providing land, cooperative construction or lease for the royalties, the company is expected to complete the installation of equipment with the capacity of 123 MW by 2023 and will increase the installation year by year.
- It is expected to complete roof-type solar PV and biogas power generation in TSC's livestock farms.

#### Solar Power Generation Plan

We make use of the roofs and land of our business bases and cooperate with manufacturers for the installation of solar power generation equipment. In addition to making good use of the space, fossil fuel consumption and environmental pollution can thus be reduced. The effectiveness of the annual power generation is as follows.

#### Effectiveness of solar power generation

	Total equipment capacity (KW)	Total power generation (kWh)	Increase or decrease rate
2015	457.62	61.62	76.65%
2016	557.62	62.03	0.67%
2017	2,893.83	136.54	120.12%
2018	3,893.03	415.78	204.50%
2019	4,860.25	519.07	24.84%



## Agricultural Waste Resources for Power Generation

To develop renewable energy and implement circular economy, TSC applies agricultural waste resources in power generation. The total capacity of the green electricity from agricultural waste resources amounted to 10.27 million kWh.



Utilization of remaining sugarcane bagasse for cogeneration

Huwei and Shanhua Refineries of the Sugar Business Division make use of the remaining bagasse for power generation for their own use, generating 9.933 million kWh of electricity in 2019.



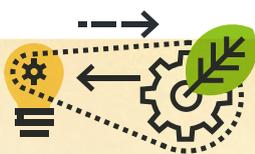
Use of pig manure and urine for biogas power generation

In the four livestock farms of the Livestock Business Division, pig manure and urine are used for biogas power generation through the anaerobic digestion process. In 2019, 332.1 thousand kWh of electricity was produced, and among all, 111.6 thousand kWh was for self-use, while the remaining 220.5 thousand kWh was sold to Taiwan Power Company.

## Supply Chain of the REC Market of Green Electricity, Biogas Power Generation from Pig Farming

Bureau of Standards, Metrology and Inspection of MOEA promoted the Renewable Energy Certificate (REC) in 2017, and every REC certificate represents 1,000 kWh of green electricity, which is divided into different categories, including solar PV power, wind power, run-of-the-river hydraulic power, geothermal heat, and biomass energy.

TSC has applied for the REC supplier of the biogas power generation on its livestock farms. In December 2018, our First Livestock Farm in Da Xiang Yin, Pingtung, passed the examination and review process, becoming the first domestic REC certified pig farm with biomass power generation. On January 11, 2019, it successfully obtained the first Renewable Energy Certificate (REC) of biomass energy generation in Taiwan. Since then, it has produced 100 certificates of biomass renewable energy, that is, a total of 100,000 kWh of green electricity. In addition, transactions of 83 certificates were completed through the National Renewable Energy Certification Center. Currently, TSC remains the one and only domestic supplier of renewable energy certificates in the category of biomass energy.



### Special Column- Agrivoltaic Farm Taking into Account the Development of Agriculture and Green Energy for the Creation of a Better Carbon Reduction Effect

After the reduction of sugarcane planting in early days, TSC started the planting of commercial forest on the farmlands where sugarcane used to be planted in response to the government's flatland afforestation policy. Now the 20-year period for commercial forest is about to expire. After excluding the environmentally sensitive areas, some land will be planned to be used as a special area for agriculture combined with green energy facilities. While reusing the farmland for agricultural use, the photoelectric facilities are also added, taking into account the development of agriculture and green energy for the creation of better carbon reduction effects. The following principles are followed for the establishment of a green energy park with the win-win-win results in agriculture, green energy and local development.

1. Agricultural land is returned to agricultural use, with agriculture as the core for promotion while green energy is utilized as a method for supplementary value adding.
2. The scope of the planned special area will exclude environmentally sensitive areas so that local landscape and ecology will not be destroyed.
3. The planning is conducted in accordance with the Regulations for Examining the Application of Structuring Farming Facilities on Agricultural Land and related regulations, and careful assessment and plans are made with reference to suggestions from various sectors.





## 3.2 High-value Recycling of Waste

### 3.2.1 Oyster Shell Biomass Material Plant

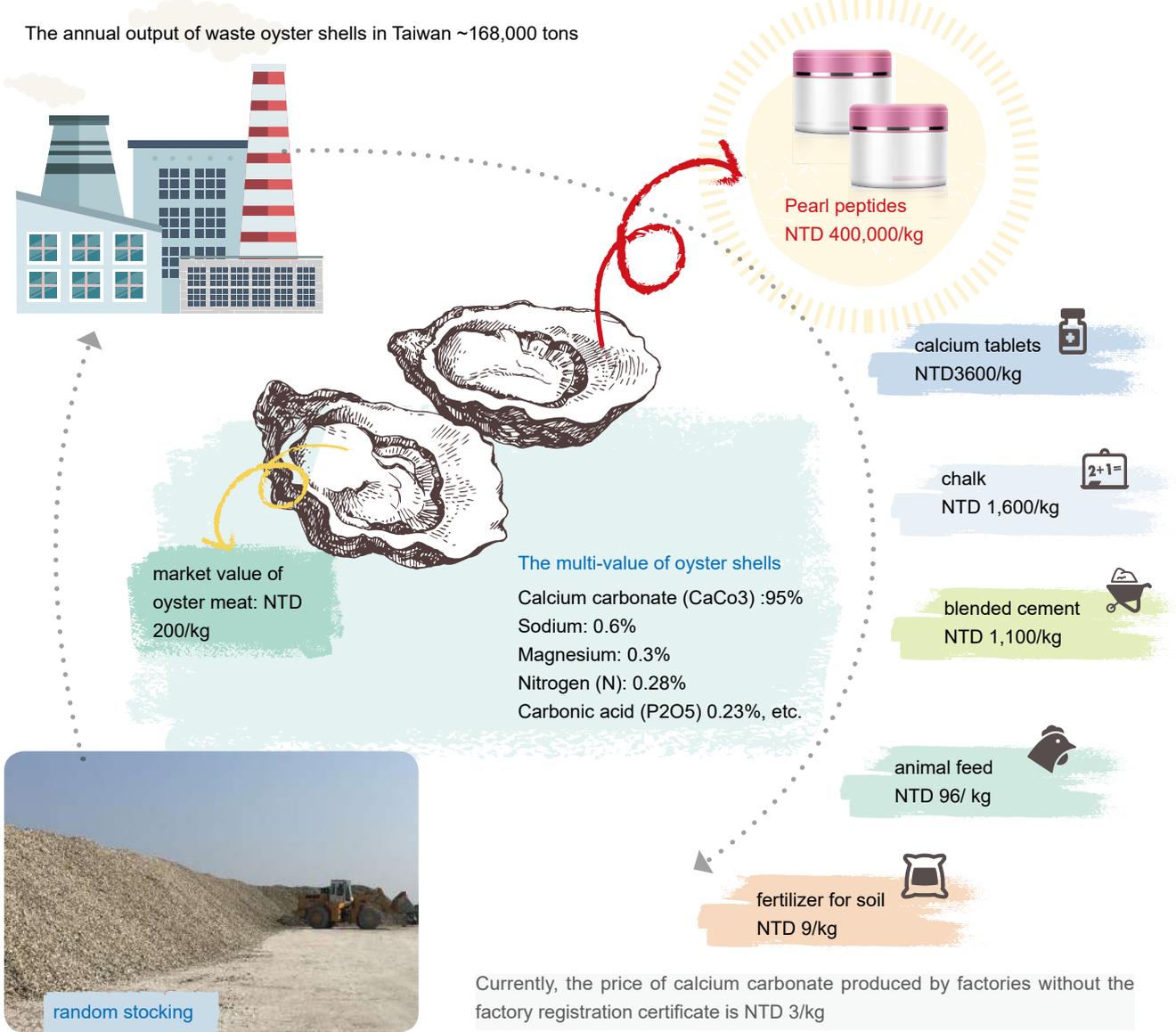
To implement the industrial policy of a circular economy country, it is planned to build a biological material plant that recycles oyster shells for manufacturing. The recycled oyster shells are calcined into calcium carbonate raw material or milled into powder to convert the shells into valuable biomass materials that supply the calcium carbonate for self-use in our livestock farms and farms and to serve as the calcium carbonate sources for domestic feed and fertilizer manufacturing to replace the use of imported raw materials. Currently it is able to process about 49,500 tons of oyster shells annually (producing 40,000 tons of calcium carbonate raw materials).



Oyster shells in circular economy

#### The multiple values of oyster shells (resource efficiency, waste recycling)

The annual output of waste oyster shells in Taiwan ~168,000 tons



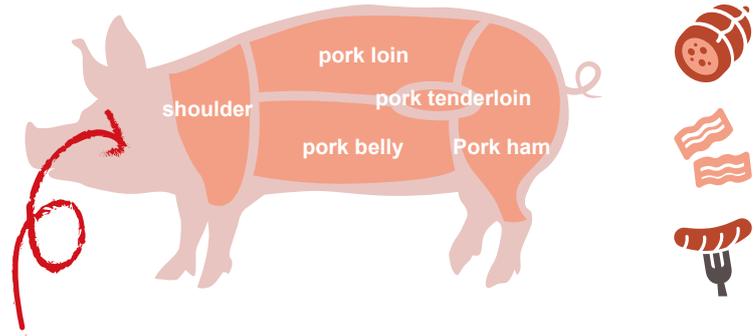
## 3.2.2 Whole Pig Sugar Cane

### Whole Pig Utilization

The Whole Pig Utilization Project is a 12-year project, starting from January 2017 to December in 2028. The whole project includes Whole Pig Utilization 1.0 which focuses on hog carcass grading, processing of remaining parts, recycling waste such as excreta and non-edible parts; Whole Pig Utilization 2.0 focuses on the refinement of port, the high price of pork, and development of products for medical use will start; Whole Pig Utilization 3.0 aims at passing the SPF certification and applying the tissues and organs to the development of biochemical materials.

The actual performance of the Whole Pig Utilization 1.0:

- ★ revenue: NTD 10,795/per pig
- ★ gross profit: NTD1,079 /per pig
- ★ gross profit margin: 9.96%



Food application

Fine-cutting of the carcass, and processing is made of the remaining parts.

#### Whole Pig Utilization 1.0

Animal farming use

The pigs'intestinal beneficial bacterial are used to control pig diseases, the pig blood extracts replace the iron and protein in the feed, while the lard extracted is used to supply the farming of pigs.

Biotechnology use

Pig placenta and pigskin extracts are used in cosmetics, liver essence extracted from pig livers is used for health food, pig galls are used in shampoo.

High-valued featured brand pigs

Developed the breed of Sun-joy Pig, and the price is 2.5 to 3 times that of the Safety Pork.

Subdivide high-quality port chop

Make small packages of refrigerated (frozen) pork, such as pork Trapezius, clod/blade, half meat and half tendon and so on, with the estimated gross profit margin of 40%.

#### Whole Pig Utilization 2.0

Develop western-style leg processed products

Such as the dried ham, semi-cooked ham, salami, German sausage, etc., with the estimated gross profit margin of 45%.

Make evaluation of the development of BMP products with bone mud, and the estimated gross profit margin is at 60%; the extract of heparin from small intestines of pigs is used to make medical anticoagulant, with the estimated gross profit margin of 60%.

#### Goal of Whole Pig Utilization 2.0

The whole pig production value can reach NT 15,000 dollars/per pig in 2023.

#### Whole Pig Utilization 3.0

It is planned to pass the Specific Pathogen Free (SPF) certification of pigs in 2026, and in 2028, pigs'organs are to be applied in the development of biomedical materials, such as artificial heart valves, insulin, plasma proteins, etc.

#### Goal of Whole Pig Utilization 3.0

The whole pig production value can reach NT 20,000 dollars/per pig in 2028.



### Whole Pig Utilization 1.0- Value-added use of pig blood

The company outsources the slaughter of about 90,000 hogs annually, producing about 270,000 kilograms of pig blood. Currently, the technology of extracting heme iron from pig blood cells has been developed, and the iron content is 4 times more than that in the market, making it an excellent source of iron supplement. The plasma remained after heme iron is taken is planned to be made into plasma protein powder in the future that can be used as raw material for food or feed.

### Whole Sugar Cane Utilization

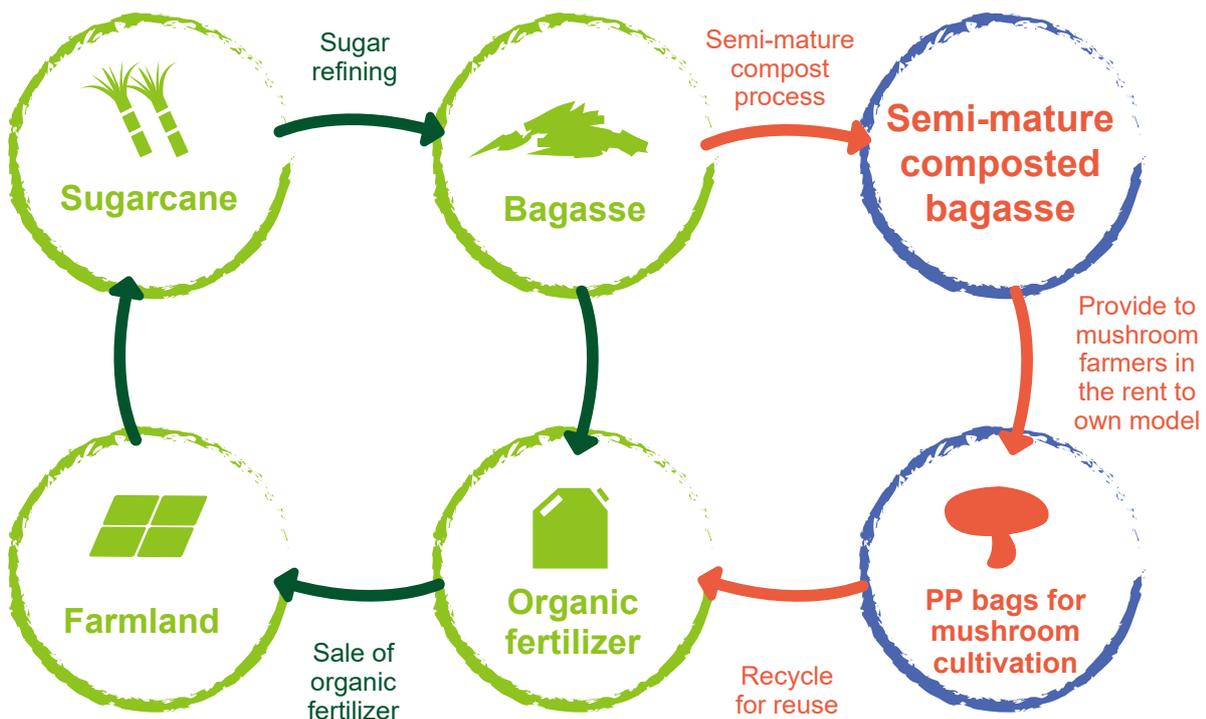
Through the redesign of products and process, value is added to the by-product of sugar refining, sugarcane bagasse, for the reuse of it, seeking new value of the sugarcane industry and opportunities for the development of green industries.

#### Sugarcane bagasse and biogas residues for the cultivation of high-priced mushrooms

TSC has worked with Taiwan Agricultural Research Institute, and it has been proved that semi-mature composted bagasse with good quality along with the formula from Taiwan Agricultural Research Institute could replace 50% of the pleurotus eryngii mushroom waste sawdusts, and the mushroom harvest weight is 20~30% more than PP bags of pure sawdust. Therefore, it is planned to provide bagasse to mushroom farmers after semi-mature compost to make PP bags to reduce the economic pressure on the mushroom farmers while increasing the harvest of mushrooms. Moreover, we also try to make use of the biogas residues produced in the livestock farms with our unique agricultural waste (bagasse) and rice straw, and after the composting process, the combined materials are used in the mass production of high-priced Portobello mushrooms.



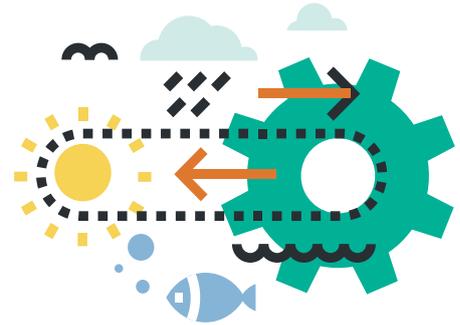
3 - CIRCULAR ECONOMY





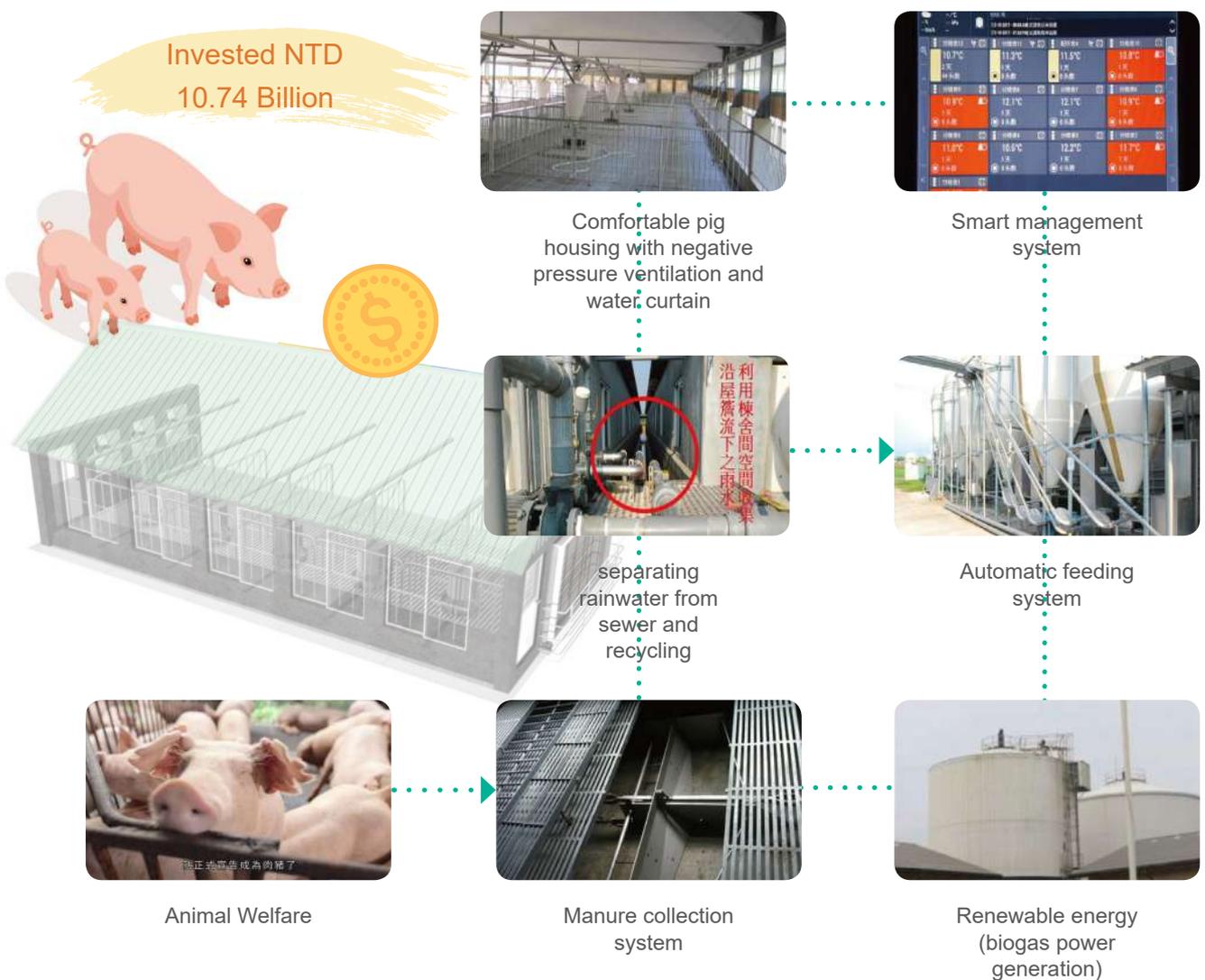
### 3.3 Circular Agriculture and Animal Husbandry

TSC started the promotion of circular economy with its pig raising, biogas, green energy, organic fertilizers and bio-refining techniques to reduce the reliance on raw materials and increase the economic benefits.



#### 3.3.1 Overall Renovation Plan of a Modern Livestock Housing

TSC invested NTD 10.74 billion to remodel 15 livestock farms into modern livestock housing, transforming traditional pig farms into new green livestock housing that takes into account resource recycling and reuse as well as environmental protection, changing the negative impression of polluting animal husbandry industry into an “eco-friendly space, green pig farming and green energy industry”. The features of the modern livestock housing include the followings.



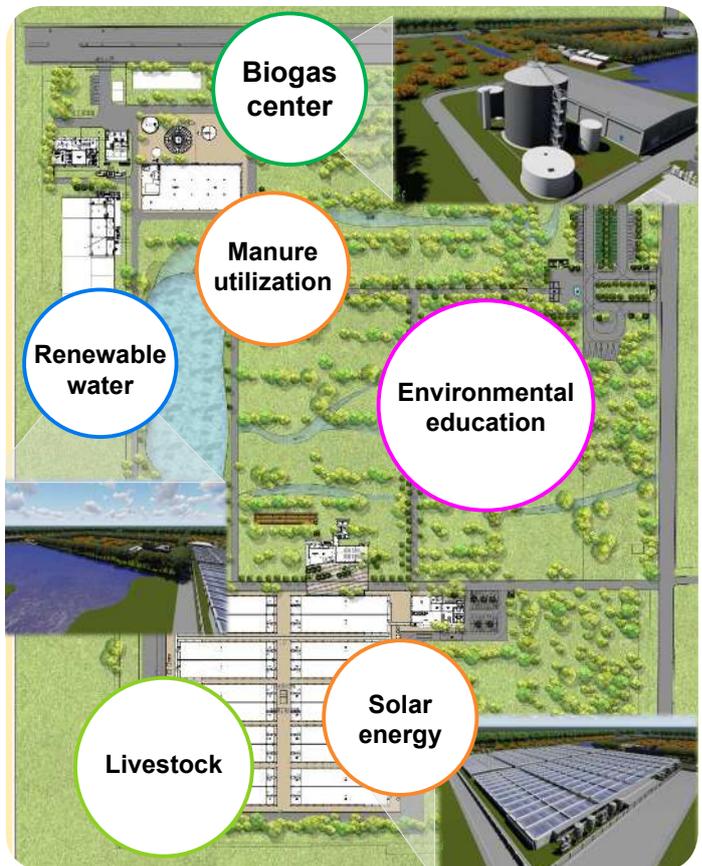
- Comfortable pig housing with negative pressure ventilation and water curtain can effectively reduce the consumption of water resources, improve ventilation and reduce odor, keeping the environmental clean.
- Separating rainwater from sewer and recycling: The new livestock farms adopt the system to separate rainwater from sewer to fully recycle and reuse water resources.
- Smart management system: RFID ear tag positioning and transferring management system, 3D image monitor system.
- Automatic feeding system: All the pigs bred by TSC are fed with "green feed" (with no antibiotics). The feed formulation is improved and adjusted or new feed formula is developed. In addition, breeding selection is conducted for production of hogs with low-use drugs, no pollution and no drug residues. The traceability system is also introduced to implement food safety compliance.
- Animal welfare: Good animal welfare is closely related to food safety and epidemic risks. Feeding management is carried out based on "Guidelines for Production Management in Pig Farms" of the internal control system and the "Animal Industry Act" promulgated by the Council of Agriculture, Executive Yuan is also complied with. In 2019, the slaughterhouses complied with transportation, handling and slaughter regulations for animals and aquatic animals. There were no violations of laws and regulations and the voluntary standards were followed.
- Manure and urine collection system + renewable energy: Biogas is produced through the eco-digestion of the mixture of pig manure and urine as well as other agricultural waste. Fermented biogas residues and slurry can be used as fertilizer of the farmland, and the corn, soybeans and other farm produces on the farmland can be made into pig feed, enabling the circular utilization of resources available in the livestock farm. It is expected to set up 10 vertical pig manure and urine resource recovery facilities (the biogas energy center and compost huts) to reduce GHG emissions and generate biogas power, with the target power generation of 11.27 GWh/year.

### Dong Hai Feng Livestock Farm- Pig Housing with Green Energy & Water Resources Sharing

Dong Hai Feng Livestock Farm is TSC's first green pig demonstration farm, combining negative pressure ventilation and water curtain, biogas power generation and solar photovoltaics, with the goal of biogas power generation of 2.3 million kWh/year and 1.5 million kWh/year. The landscape greening of the whole farm is expected to be completed, and environmental education combined with the attractions and local specialty and characteristics introduction and tourism planning.

Dong Hai Feng Livestock Farm will introduce modern systems, including systems for ventilation and odor reduction, automatic feeding and water regulator, pig manure and urine collection system and public facilities of power supply system, water supply system, reclaimed water system, rainwater recovery system, sewer collection system and drainage system. The production cost can therefore be effectively reduced while the production capacity greatly increased by 20% and more, reaching 42,370 pigs/year, and the total water consumption can be reduced by 83%. This farm is scheduled to reach full production in 2020.

Moreover, Dong-Hai-Feng Circular Park designed separate sewer systems for excreta and rainwater, and the recovered rainwater is introduced to the pig housing to replenish water for water curtain and pig housing cleaning. In addition, the establishment of the biogas energy center and sewage treatment facilities can help with treatment of pig manure and urine inside



and outside the farm, wastewater and agricultural waste in the neighborhood can also be disposed. It is planned to treat 200 tons of pig manure and urine inside and outside the farm as well as external agricultural waste, and 200 CMD of domestic sewage and treated biogas slurry in the biogas center. After pig manure and urine are collected, the anaerobic fermentation treatment method is used for wastewater. Solid-liquid separation is carried out, and the separated pig manure is dried or fermented before reuse. Part of the liquid is provided for biogas power generation through anaerobic fermentation, and the biogas slurry is used as the fertilizer in the farmland. On the other hand, some part of treated sewage meeting the water discharge standards is used for irrigation within the circular park, aiming at reaching the goal of zero discharge of wastewater.

Traditional Pig Farming	Dong-Hai-Feng Green Energy Pig Housing		
N/A	Rooftop solar panels in livestock housing		1.5 million kWh/year
Equivalent to outside temperature	Type of livestock housing		Closed negative pressure water curtain
30 liters	Temperature of livestock housing		24-28°C
Pig manure on the farm	Water consumption (head/daily/day)		5 liters (reduced by more than 80%)
N/A	Biogas Center		Treatment of the pig farm and assisting with the disposal of surrounding agricultural waste
Entrusted cleaning	Biogas power generation		2.3 million kWh/ year
Manual	Organic fertilizer		2,000 tons/year, for self-reuse
Groundwater pumping	Management mode		IOT- Automatic management
N/A	Water resources management		Rainwater, wastewater recovery, reduction of groundwater pumping
N/A	Carbon reduction		2,000 tons/year
N/A	Environmental education		Cooperate with the promotion of government policies



### 3.3.2 Ecologically Sustainable Farms

A sustainable farm is to be established in Chinshang Pastoral Farm Resort with a vast of area of rich grassland resources and animals like cattle, sheep and chicken. Currently the hardware and process of the rotation grazing, aquaponics, compost production, black soldier fly breeding, the deep litter have been initially set up, and the process optimization is continued. The application of extracting essence of Mosquito Wormwood has achieved initial results, and DIY activity for Mosquito Wormwood essence oil will be designed to make circular use of weeds as usable resources. We actively contact local NGO groups or young farmers for the discussion of feasible and mutually beneficial cooperation models and for organizing seasonal themed events such as the farmers' market or food and farming experience. The Circular Agriculture Workshop was held on December 17-19; extension course of circular agriculture and Farmers' Market event were held on November 15-17, 2019.



3 - CIRCULAR ECONOMY

#### Sustainable farm

##### Rotational grazing on the farm

Narrow the scope of herd activity, and the cattle dung is stepped and dispersed by the cattle, increasing the fertility of the pasture grass and the amount of grass eaten by the cattle, and this not only increases the weight of the cattle but also reduces the costs of supplementary feed.



##### Crop Symbiosis

A compost site is set up next to the chicken house in the resort, the litter material, kitchen waste, fallen leaves, fallen branches and weeds are used as materials, and the compost is then used for pasture, vegetables, melons, and landscape trees.



##### Vegetable Garden with Eco-friendly Farming

Sheet mulching made of sawdust, cow dung, homemade compost and haystack is used in the vegetable garden, with the plantation of repellent crops and irrigation of fish pond water containing fish excrement, nitrogen and ammonia while no chemical fertilizer is applied.





## Special Column

# World's First Livestock Industry Passing BS 8001 Circular Economy Certification



3 · CIRCULAR ECONOMY

Based on the practical experience in pig farming, Dong Hai Feng Agriculture Circular Park combines "introduction of automated equipment to reduce manpower demands and innovative cooperation models with young farmers", "biogas center", "biogas utilization and rainwater reclamation for reuse" and "introduction of new technology and equipment" as well as other innovative approaches that lead to the "secondary raw material recycling/ by-products" business model, aiming at the goal of three zeros (zero waste, zero emissions, and zero pollution). After the verification by British Standards Institution (BSI), the model complies with the BS 8001:2017: Framework for implementing the six principles of the circular economy, making it the very first livestock farmer in Taiwan and even in the world to obtain a standard verification statement, and the overall cycle maturity reaches the highest level- the optimization of the business model, showing that the resources in Dong Hai Feng Agriculture Circular Park achieve the highest efficiency of recycling, and comprehensive considerations have been made in economic, environmental and social aspects.




### 符合性查核聲明

BS 8001: 2017 循環經濟實施原則

<b>查核對象</b>	台灣糖業股份有限公司 70176 臺灣台南市東區生產路 68 號
<b>查核目的</b>	台灣糖業股份有限公司依「BS 8001:2017」，於組織內部規劃並建立循環經濟模式，本次查核係依據台灣糖業股份有限公司之「東海豐農業循環園區」進行符合性查核，以確認其營運模式遵循「BS 8001:2017」4.2.1-4.2.6 之六項原則。
<b>查核結果</b>	台灣糖業股份有限公司已依照 BS 8001:2017 標準要求規劃並建置循環經濟模式，其選擇之商業模式「東海豐農業循環園區」整體成熟度為 <b>Optimizing</b> 等級。



Managing Director BSI Taiwan, Peter Pu

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4.1 CULTURAL PRESERVATION AND ADDED VALUE

4.2 MAINTENANCE OF NATURAL RESOURCES

Special Column- Environmental Education Field Certification

Special Column- Beach Cleanup and Protection

4.3 GREEN PRODUCTION



# 4

TSC devotes itself in green production and has independently established an environmental management system (EMS). The concepts of natural resources maintenance, resources recycling, pollution prevention and ecological conservation are focused during the production process to reach “production without pollution and growth without destruction” to constantly improve the environmental performance to achieve the goal of sustainable management.

# Resources and Environmental Protection

## Management Approach- Resources and Environmental Protection

Corresponding material topics	Energy, Water, Emissions, Effluents and Waste, Cultural Assets, Environmental Compliance	Corresponding SDGs	    		
Policy	<ul style="list-style-type: none"> <li>▶ In cooperation with the Ministry of Culture's promotion of "Industrial Cultural Asset Regeneration Project", TSC promotes the utilization and development of the area of sugar refineries, shaping them into fields for cultural education and tourism to market the culture of sugar industry</li> <li>▶ Be devoted to the source management, waste reduction in the process and pollution prevention (Energy, Water, Emissions, Effluents and Waste, Environmental Compliance)</li> <li>▶ Maintenance of natural ecological preservation and reduction of environmental damage and impact</li> </ul>				
Commitments and goals	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px; vertical-align: top;"> <p>Short-term goals (within 3 years):</p> <ol style="list-style-type: none"> <li>1. To combine with local government resources, interpret the cultural value, transformation and linking resources of the sugar refinery area, and develop a cultural and educational sightseeing area for sustainable management</li> <li>2. Wastewater recovery rate (R2) at 88%</li> <li>3. Implementation of ISO 14001 Environmental Management Standards to improve environmental management performance</li> <li>4. For frozen meat products in large and small packs to reach 3% of carbon reduction</li> <li>5. To increase the use of renewable energy</li> </ol> </td> <td style="width: 50%; padding: 5px; vertical-align: top;"> <p>Medium and long-term goals (3 to 7 years):</p> <ol style="list-style-type: none"> <li>1. To integrate cultural assets, transform sugar refinery space into a cultural and creative base, providing employment opportunities and developing cultural and business opportunities with the local communities</li> <li>2. The activation period and target for 2015-2021 have been set. The activation operation is actively carried out and promoted in a diversified and flexible manner</li> <li>3. To assist relevant units in forest biological monitoring and maintenance</li> <li>4. To comply with relevant environmental laws and regulations</li> <li>5. To reduce 20% GHG emissions by 2030, and the long-term goal is to reach carbon neutral at all operating bases by 2050</li> <li>6. To ensure "production without pollution and growth without destruction"</li> </ol> </td> </tr> </table>			<p>Short-term goals (within 3 years):</p> <ol style="list-style-type: none"> <li>1. To combine with local government resources, interpret the cultural value, transformation and linking resources of the sugar refinery area, and develop a cultural and educational sightseeing area for sustainable management</li> <li>2. Wastewater recovery rate (R2) at 88%</li> <li>3. Implementation of ISO 14001 Environmental Management Standards to improve environmental management performance</li> <li>4. For frozen meat products in large and small packs to reach 3% of carbon reduction</li> <li>5. To increase the use of renewable energy</li> </ol>	<p>Medium and long-term goals (3 to 7 years):</p> <ol style="list-style-type: none"> <li>1. To integrate cultural assets, transform sugar refinery space into a cultural and creative base, providing employment opportunities and developing cultural and business opportunities with the local communities</li> <li>2. The activation period and target for 2015-2021 have been set. The activation operation is actively carried out and promoted in a diversified and flexible manner</li> <li>3. To assist relevant units in forest biological monitoring and maintenance</li> <li>4. To comply with relevant environmental laws and regulations</li> <li>5. To reduce 20% GHG emissions by 2030, and the long-term goal is to reach carbon neutral at all operating bases by 2050</li> <li>6. To ensure "production without pollution and growth without destruction"</li> </ol>
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Input resources	<ul style="list-style-type: none"> <li>✦ Invested NTD 3,030 thousand in the improvement projects of the bag-type dust removal equipment and blowers in Huwei and Shanhua Sugar Refineries</li> <li>✦ Invested NTD 1,150 thousand on the addition of diesel particulate filter (DPF) on the traction machines in Shanhua Sugar Refinery</li> <li>✦ Xiaogang Plant invested NTD 323 thousand on the conversion to natural gas of once-through boilers</li> <li>✦ All the livestock farms invested NTD 224,573 thousand in the equipment improvement projects for pollution prevention and control</li> <li>✦ Environmental protection expenditure of NTD 1,373,661 thousand (capital expenditure of NTD 788,949 thousand, operating expenditure of NTD 584,712, thousand)</li> <li>✦ Employed 17 full-time staff for cultural assets</li> <li>✦ Allocated a budget of NTD 180,147 thousand for cultural asset management and maintenance in 2019</li> <li>✦ Continuous maintenance and management of fields such as Aogu Wetland and Forest Park, Danongdafa Forest Park in Hualien, Linhousilin Forest Park in Pingtung and Guantian Pheasant-tailed Jacana Ecological Education Park</li> </ul>				



<p>Grievance mechanism</p>	<p>Customer Complaints Handling Guidelines, Customer Service Hotline, Customer Service Email box, TSC Facebook Fan Page</p>
<p>Management System and Action</p>	<ul style="list-style-type: none"> <li>• Guidelines for Cultural Asset Management, Guidelines for Forest Tending for Green Forest Park Avenue and Guidelines for Flatland and National Afforestation Program</li> <li>• Guidelines for Environmental Management, Guidelines for Online Declaration and Follow-up Management of Business Wastes, Guidelines for Taiwan Sugar Corporation Checking and Accepting Land Pollution Prevention, Guidelines for Land Patrol, Guidelines for Providing Land as General Waste Disposal Sites for Local Governments, Environmental Accounting System, Environmental Management Standard (ISO 14001), Greenhouse Gas Inventory (ISO 14064), Carbon Footprint (PAS2050, ISO 14067), Water Footprint (WFN), and BS 8001 Circular Economy Standards</li> </ul>
<p>Assessment management mechanism</p>	<p>Internal Control System, TSC Performance Assessment System, Corporate Sustainable Development Committee Work Plan and Implementation Review Meeting</p>



## 4.1 Cultural Preservation and Added Value

In cooperation with the Ministry of Culture’s promotion of “Industrial Cultural Asset Regeneration Project” and “Guidelines for Subsidies for Preservation and Maintenance & Management of Cultural Assets from Bureau of Cultural Heritage, Ministry of Culture”, TSC’s units, including Yamay Sugar Refinery, Xihu Sugar Refinery, Douliu Sugar Refinery, Beigang Sugar Refinery, Huwei Sugar Refinery, Suantou Sugar Refinery, Xingying Sugar Refinery, Cishan Sugar Refinery, Ciaotou Sugar Refinery and Wushulin Sugar Refinery as well as Department of Land Development applied and obtained a grant of NTD 37.044 million from the Ministry of Culture to accelerate the development and utilization of the idled cultural assets in the area of sugar refineries, activate the utilization to enhance the cultural added value of the sugar industry culture, achieving sustainable development of industrial heritage.

### Diversification of the Tourism Sugar Factory

Huwei Sugar Refinery is expected to be transformed into a tourism sugar factory. The marketing of sugar industry culture will increase business benefits and drive the development of the surrounding areas. In addition, the interaction and navigation of mobile devices through augmented reality (AR) and virtual reality (VR) can attract young and parent-child groups, and the promotion of the ecological circular economy model can be promoted to deepen the concept of environmental education while at the same time enhancing the brand value and the image of the Company.



## Renovation Plan of Huwei Sugar Refinery

### Tourism Sugar Factory

- ❖ Creating a candy paradise from sugar for both the parents and the children.
- ❖ A Tourism Sugar Factory, like a museum, enables the coexistence of creativity and memories.
- ❖ Adding fun to the tour through technological display techniques.
- ❖ Create Huwei Sugar Refinery through artistic creativity.
- ❖ Living materials for circular economy ecology.
- ❖ Combined with surrounding attractions, the APP helps make a complete travel plan in Yunlin.

### A Shopping Street for Japanese Creative Products

- ❖ The market for creative products and accommodation experience area are planned. With the image of Japanese-style shopping street and the layout of open space, the sugar industry cultural experience can be more complete.

### Sugar Train for Tourism

- ❖ The first phase of restarting the engine of sugar train for tourism (Huwei Sugar Refinery-THSR Yunlin Station) is scheduled to begin in 2021. In the short-term, the landscaping in the open space within the area will be arranged, and a biking-on-the-tracks experience is also planned. In the medium and long term, Huwei Station is planned to serve as an important base with the operation of the sugar train to provide services to tourists.

### Exploration of an Unexplored Region

- ❖ We plan a Fantasy Castle Adventure Area here. With the rich color and line design, visitors feel like they are stepping into a world of fairy tales.

## Heritage Preservation and Activation of Sugar Railways

Sugar Train Culture has been regarded as an important cultural asset by the government. It witnessed the live history of the development of local industries and is also a resource for future tourism development. Therefore, there is a need to repair it for good preservation. We also cooperate with the Ministry of Culture and organized steam locomotive driver training. Between May and November 2019, the steam locomotive driver training was carried out with the SL650 and SL346 steam locomotives in Suantou and Xihu Sugar Refineries for the heritage of Sugar Train Culture. Relevant plans are now being promoted.



Project	Project Content	Execution Status
	In the period of 2018-2020, investments would be made in “Reconstruction Plan and Project of Wufen Station of Suantau Sugar Refinery”.	The planning and design of the Reconstruction Plan and Project of Wufen Station of Suantau Sugar Refinery was completed in 2019, and the reconstruction project will be carried out.
Repair and Maintenance of Sugar Train with Historical Value	The Wushulin Sugar Train Culture Redevelopment Project was organized in 2018-2019, and “Reappearance of Sugar Train Culture & the Display Planning of the Overall Train Station Space” and “Exhibition Planning and Construction of the Overall Space of the Railway Workers Depot and its Surrounding Space” were carried out.	For the Wushulin Sugar Train Culture Redevelopment Project, the Display Planning of the Overall Wushulin Train Station Space and the “Exhibition Planning and Construction of the Overall Space of the Railway Workers Depot and its Surrounding Space” were completed in 2018 and 2019 respectively.
Inventory and Major repair of Steam and Diesel Locomotives	<ul style="list-style-type: none"> <li>In the period of 2018-2020, the Administration Office organized the “Appearance Restoration Project for Highlighted Machines and Tools in the Sugar Industry” and handled the repair of steam trains and alcohol fuel traction machine.</li> <li>Repair No. 152 Petrol Train.</li> </ul>	<ul style="list-style-type: none"> <li>For the Administration Office’s “Appearance Restoration Project for Highlighted Machines and Tools in the Sugar Industry”, the outside appearance of the machine tools has been painted and refurbished, and the subsidy from Bureau of Cultural Heritage has been applied for.</li> <li>In 2019, the dynamic repair of No. 152 petrol car was completed in Xihu Sugar Refinery and was displayed at the Cultural Festival of Sugar Train Culture.</li> </ul>
Training for Driving and Maintenance Techniques for Internal Combustion and Steam Locomotives	In 2019, we organized “training for driving and maintenance techniques for steam locomotive”.	<ul style="list-style-type: none"> <li>In 2018, related training courses of driving internal combustion engine train were completed.</li> <li>In 2019, staffs from related units were invited for training, and the training was completed at the end of November.</li> </ul>
Cooperating with the Policy to Conduct the Survey of North-South Line of the Sugar Railway	Inventory of cultural routes.	<ul style="list-style-type: none"> <li>TSC has participated in the Symposium on “Survey of South-North Preparation Line” and relevant forums in 2018.</li> <li>Participated in the International Forum on the Challenge and Realization of Industrial Heritage Route on March 8, 2019.</li> <li>In 2019, 11 routes were surveyed for the cultural routes for sugar train culture.</li> </ul>
Promoting the Project of Reappearance of the Sugar Railway Story in the Sugar Refinery	The project of Reappearance of the Sugar Railway Story in Xihu Sugary Refinery.	Reappearance of the Sugar Railway Story in Xihu Sugary Refinery Project (The construction from Wufeng Station to the area of banyan trees was completed), and the Scheme of Digitalization and Utilization Plan of Industrial Technology Data was completed in 2019.

## Repair of Japanese Style Houses

During the Japanese Colonial Period, wooden structures and the industrial facilities in sugar factories had their own styles. These structures not only witnessed the process and transformation of the sugar industry but are also unique historical landscape and a symbol of memories. After restoration, these precious cultural assets are open for accommodation experience, cultural relics exhibitions, film shooting activities and other activities. They have become cultural elements in the cultural and creative industry and enhanced the value of cultural assets of the sugar industry.



In the period of 2017-2020, TSC cooperates with cultural units of the government for the application of “Regeneration Project of Industrial Cultural Assets” and “Management and Maintenance Subsidy Plan for Cultural Assets Preservation” to plan repair and reutilization. Currently the ongoing projects include:

- ◇ Restoration and Reutilization of Yamay Sugar Refinery
- ◇ Restoration and Reutilization of Huwei Sugar Refinery (including Factory Director’s Dormitory, Japanese Styled Guest House, Dormitory Group, Old Clinics and Barbershops)
- ◇ Detailed Planning Design of the Industrial and Cultural Assets in Douliu Sugar Refinery
- ◇ Repair and Reuse of the Beigang Sugar Refinery and the Garage of Steam Locomotive
- ◇ Restoration and Reutilization of the city monument, the headquarters office of Ensuiiko Sugar Refining Co., Ltd. and historical building of Employee Dormitory in Xingying Sugar Refinery
- ◇ Restoration and Reutilization of the Security Unit in Ciaotou Sugar Refinery



## Promotion and Marketing of Sugar Industry

To “preserve” and “maintain” tangible and intangible cultural assets of the sugar industry and to combine creativity to continue cultural updates and accumulation, we will continue to add values and industrialize culture through assets inventory, introduction of technology, professional maintenance and government subsidies, making the brand of TSC one with unique cultural connotation value. The cultural promotion items of the sugar industry in 2019 are as follows.

### 2019 Sugar Culture Festival and Series of Activities

The theme of 2019 Sugar Culture Festival was “Sugarcane Field Farm”, and the Ground-Breaking Ceremony was held on December 24. Public and students were invited to witness the ceremony of throwing sugarcane together in the Commencement Ceremony. Later, the “Pulse of Sugarcane Field” activity was held at Zengwen Farm, where there were sugarcane harvesting exhibition, sugarcane planting experience, dining in the sugarcane field and kiln cooking. Other series activities included the Huwei Sugar Refinery Commencement Ceremony, Xihu Railway Culture Festival, Wushulin Sugar Train Culture Festival-Take a Day- Tour to Sugar Train, Wandan Sugarcane Season, a tour to Ciaotou historical sites, experience of Sugar Train in Xinying and Suantou Sugar Refineries, etc.



### International Cultural Exchanges



#### British Dougal Locomotive in Taiwan

In October 2018, Welshpool & Llanfair Light Railway (W&LLR) transported the Dougal Locomotive to Suantou Sugar Refinery for the International Forum on Sugar Railways and Locomotives and a series of activities such as forming a new sister railway relationship with TSC. During the Lunar New Year in 2019, Dougal was planned to arrive in Jiayi to embrace the coming of the Year of Pig, and the railway enthusiasts were also invited to make fire dragon lanterns that would be given as a token of appreciation to W&LLR upon the time when Dougal Locomotive was returned to them.



#### Exchanges to the Outside World

On July 2, 2019, TSC participated in the Second Forum on Asian Industrial Heritage Conservation organized by Bureau of Cultural Heritage, Ministry of Culture and Forestry Bureau.

On October 21, 2019, the “Railway Talents Learning Project” held by the Preparatory Office of National Railway Museum came to Suantou Sugar Refinery for the recommissioning of 650 steam locomotive and exchanges of driver training.

## Granted the Bronze Award in the Arts and Business Award

TSC's Sugar Culture Festival activities were granted the 14th Arts and Business Award in 2019. This is an affirmation of the efforts we have made to cultural activities which made the outside world more aware of the culture of sugar industry.



## Sweet Memories-Taiwan Sugar Activities Exhibition

In 2019, TSC and the National Archives Administration, National Development Council co-organized the Sweet Memories-Taiwan Sugar Activities Exhibition, which started on October 23, 2019 and will be relocated to Ciaotou Sugar Refinery in July 2020. In addition, the book entitled "Grains Engraved in History-Memories of the History of Taiwan's Sugar Industry" was also co-published.

## Deep-rooted Culture Education of Sugar Industry

On August 30, 2019, the Secretary General of TSC's sister railway-Welshpool & Llanfair Light Railway (W&LLR), Mr. Michael Reilly, visited Yongkang Elementary School in Tainan City and held an exchange forum. Yongkang Elementary School owns one 946 Brookville Locomotive which has been long used for the teaching of the characteristics of sugar train, and it has also become the development characteristics of the school.

Fuxing Elementary School in Pingtung City set the theme of Sugar Industry and through the cooperation with Taiwan Sugar Corporation and with the help of Pingtung District Office, precious materials such as cultural documents and cultural relics were introduced and explained so that Fuxing Elementary School could participate in the 2019 Taiwan Schools Cyberfair and Fuxing was even granted the Gold Medal in the Elementary Group. Students thus can have an in-depth understanding of the culture of sugar industry.





## 4.2 Maintenance of Natural Resources

To cooperate with the government's "Healthy Taiwan" policy, TSC actively engages in the afforestation and greening of Taiwan. We promote nationwide afforestation, the Green Linyuan Avenue and flatland afforestation to protect the environment and maintain biodiversity so as to enable the public to enjoy the social progress and economic balance. As of 2019, the afforestation tending area in Taichung, Changhua, Yunlin, Chiayi, Tainan, Kaohsiung, Pingtung, Hualien and Taitung totaled 12,014 hectares, equivalent to the area of about 475 Taipei Daan Forest Park, including 420 hectares of afforestation by the public, 388 hectares of eco-friendly parks, 389 hectares of afforestation at the planters' expense and 10,817 hectares of afforestation on the flatland. According to the calculation method proposed by the UN Intergovernmental Panel on Climate Change (IPCC), the average annual carbon dioxide sequestration per hectare of forest land per year is about 14.9 tons, and afforestation can facilitate 179,009 tons of carbon dioxide sequestration annually. Currently, TSC's afforestation land includes Aogu Wetland, the largest flatland forest park in Taiwan. The planning of the wild animal reserves and flatland forest park are being planned.



### Ecological Maintenance Project in MASADIFOREST, Hualien



It has been 10 years since the establishment of the flatland forest in MASADIFOREST. The native trees planted have become a forest crossing the East Rift Valley, connecting the Coastal Mountains and the Central Mountain Range. The park was officially open on May 21, 2011, making it the first successfully recovered flatland forest and the most accessible forest in Taiwan. The development of the park is divided into two cultures (sugar culture and aboriginal culture) and two ecological systems (low-carbon ecotourism and ecological conservation). After one-year survey conducted by Taiwan Forestry Research Institute, in addition to the afforestation sites that can provide habitats for animals, the existing pools, paddy fields, river courses, ditches and the areas after fallow are also important animal habitats, making MASADIFOREST a park with true biodiversity.



## Aogu Wetland in Dongshi Township, Chiayi

There are a large number of migratory birds and aquatic birds in Aogu Wetland. Besides, it is near tourist attractions like Gangko Temple of Bungang Port and Dongshi Fishing Harbor, rich in environmental educational significance. Aogu Wetland is planned to be developed into a wetland park and the affiliated Dongshi Farm was planned to serve as a wildlife reserve. Among it, 1,462 hectares of land was planned as a flatland forest park by the Forestry Bureau (including 664 hectares of land proclaimed by COA as a habitat for wildlife and 512.1 hectares of national important wetland proclaimed by Ministry of Interior).

Currently, Aogu Wetland is the largest flatland forest park in Taiwan. It has a variety of ecological environment and habitat patterns including wetland, sandbars, fish farms, afforestation areas and agricultural areas, and is also an important wintering area for migratory birds. There are as many as 259 species of birds (including 96 species of migratory birds and 46 species of birds in conservation), amphibians and reptiles, creatures of the night, benthods and other wild animals that inhabit and breed here, making it a place rich in environmental educational significance. The Forestry Bureau cooperated with Chiayi University to carry out bird monitoring and establish the monitoring system in Aogu Wetland Forest Park.

### Coexistence of Livestock Farms and Wetland

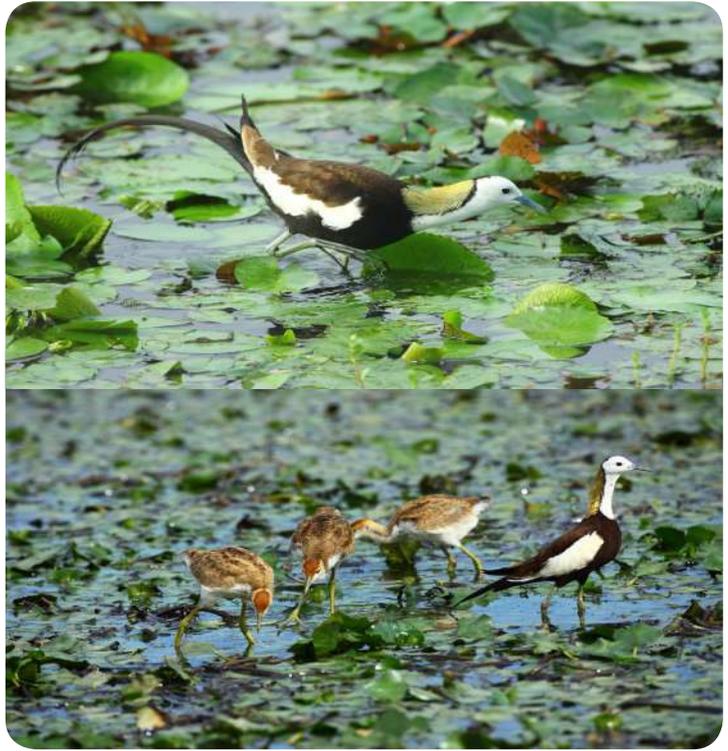
Haipu Livestock Farm is located in the Aogu Wetland Forest Park, with an area of 17.815 hectares. It is a legal pig farm approved by Chiayi County government. The water discharged from this site has long provided bio-nutrients to Aogu Wetland, and it is also an important factor for this region to maintain diversified biological phase and ecological balance.



### Jacana Ecological Education Park in Guantien

*Hydrophasianus chirurgus* is also named pheasant-tailed jacana. In the 90's, its population gradually decreased due to the changes in its habitat. The breeding population used to drop to below 50 and the species faced a crisis of extinction. They could only be found in the water chestnut fields in the plain area between the Bajhang River and Zengwen River in Tainan Area.

In 1980, due to the development of Taiwan's high-speed railway, the route planned happened to pass through this important habitat of pheasant-tailed jacana, Hulupi in Guantian Township. After coordination, Tainan City Government rented TSC's property at Fanzitian Section No. 767 and others with a total of eight pieces of land, with the area of approximately 15 hectares to establish the Jacana Ecological Education Park in Guantian for the implementation of the breeding plan, creating a pond-based breeding area for pheasant-tailed jacana. As of 2019, the number of adult birds was 112, the number of nests was 153, that of eggs was 487, that of the hatched was 135, and that of fledglings is 79. So far, the number of pheasant-tailed jacana in the Great Tainan Area has reached 1,741, and among them, 1,466 are in Guantian alone, hitting a record high.



(Provided from minawata ecological education park)

### Haifeng Wetland



Haifeng Wetland is located near the Chonglan Jiuzhen (canal) in Haifeng Area. Pingtung County Government rented the 13.74-hectare land from TSC and planned a primary sedimentation tank, natural purification channels and a 6-hectare ecological pond as the means of purifying the water quality of Chonglan Jiuzhen (canal), injecting water into the old waters. Haifeng Wetland is rich in ecological species. A variety of water birds and insects coexist in this symbiotic relationship. In addition to the aquatic plants that purify water quality, willow trees are also planted by the ecological pond. The bright and open natural scenery is like a land without pollution. Take a deep breath and close your eyes, this place is undoubtedly an ecological paradise to all.



## Special Column- Environmental Education Field Certification

In recent years, the quality of people in Taiwan has improved. Everyone generally has the awareness of environmental protection and is attaching more importance to environmental protection. The government has also invested many resources in environmental education, and local organizations and private sectors also actively participate in the Environmental Education Field Certification. Taiwan is the sixth country in the world to implement the Environmental Education Act. Currently, more than 150 locations in Taiwan have obtained the Environmental Education Field Certification. TSC's efforts in and emphasis on environmental education is obvious to all. Our affiliated Environmental Education Centers not only contribute to the domestic environmental education, but also actively work on the planning of a diversified curriculum. Among them, Xihu Sugar Refinery, Jianshanpi Jiangnan Resort and Ciaotou Sugar Refinery have successively obtained the Environmental Education Field Certification. Currently, Hualien Tourism Sugar Factory is actively applying for the certification. Our Hualien Factory in Huadong District and Jianshanpi Jiangnan Resort were awarded the 7th National Environmental Education Award – Distinguished Winner in Agency (Institution) Group in the Local Preliminary Examination in October and November in 2019 respectively, while the Ciaotou Sugar Refinery was awarded the 7th National Environmental Education Award –Agency (Institution) Group Excellence Award in the Local Preliminary Examination in September, 2019. It is hoped that through the power of education, all the people on this land can have a new understanding of the environment we are living in.



## Special Column- Beach Cleanup and Protection

Over the past decade or more, the situation of the ocean drifts surrounding Taiwan has become more and more serious. According to the data of International Coastal Cleanup (ICC) released by the Society of Wilderness, around 70% of the marine debris was related to food and drink. The top four drifting objects found in the beaching cleanup activities in Taiwan include plastic bags, straws, takeaway cups and disposable tableware. In 2019, there were 322 beach cleanup activities in Taiwan in total, with 18,318 people participating, cleaning 37,157 kilograms of marine debris from a total length of 72.73 kilometers.

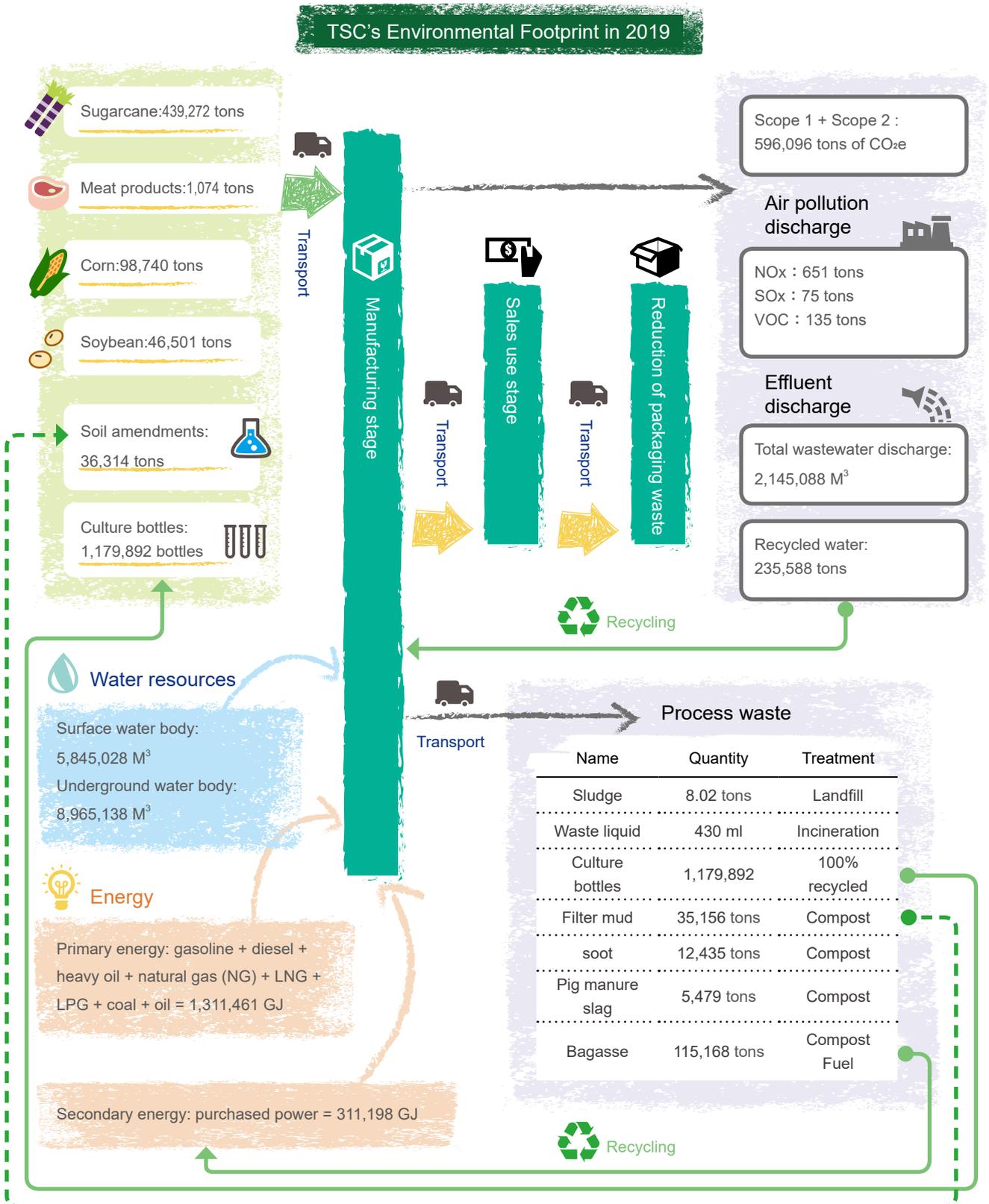
TSC initiated the “Beach Cleanup to Guard Taiwan” and adopted the Aogu Coastline in Chiayi and the Coastline along Wangung Fishing Port in Changhua for a 2-year beach cleanup in 2017 and 2019 respectively. During these periods, the rotating units were mobilized for the beach cleanup every month to maintain the cleanliness of the environment. As of 2019, TSC had organized 46 beach cleanup activities, mobilized 2,325 people to pick up the trash along the coast and cleared 9.41 tons of waste in total. TSC will continue the beach cleanup activity to set an example for others to follow, aiming at evoking the corporate social responsibility to invite other enterprises to jointly protect the marine ecology and further to promote the sustainable development of the environment.





## 4.3 Green Production

Based on the consideration of cherishing natural resources and reducing the environmental impact, TSC actively promotes a green value chain so that the stages of birth, growth, decline and abandonment of a product can be completed under the conditions of consuming the least resources possible in the most eco-friendly way.



## 4.3.1 Energy Resource Management

### Statistics of Energy Consumption

In 2019, the energy consumption within the organization was 7,296,449.214 GJ, and the energy intensity was 0.28 GJ/NTD 1,000. The energy intensity in 2019 was an increase of 7.69% compared with 2018, which was mainly because that the overall revenue reduced, leading to the increased energy intensity.

Table of annual energy consumption within the organization

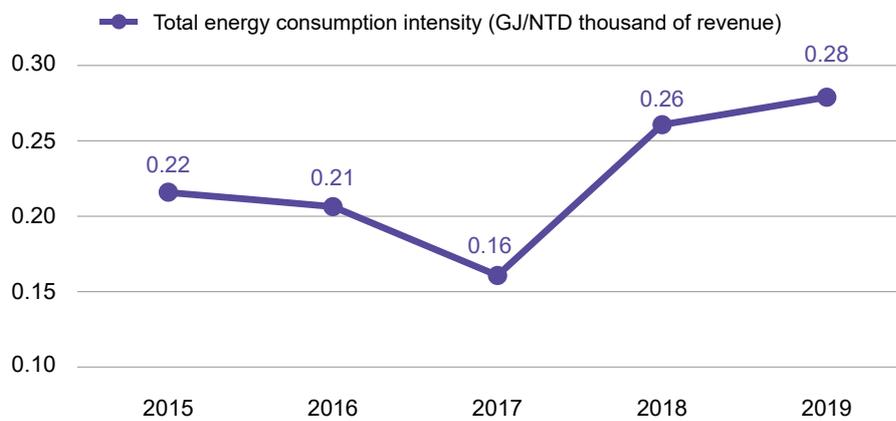
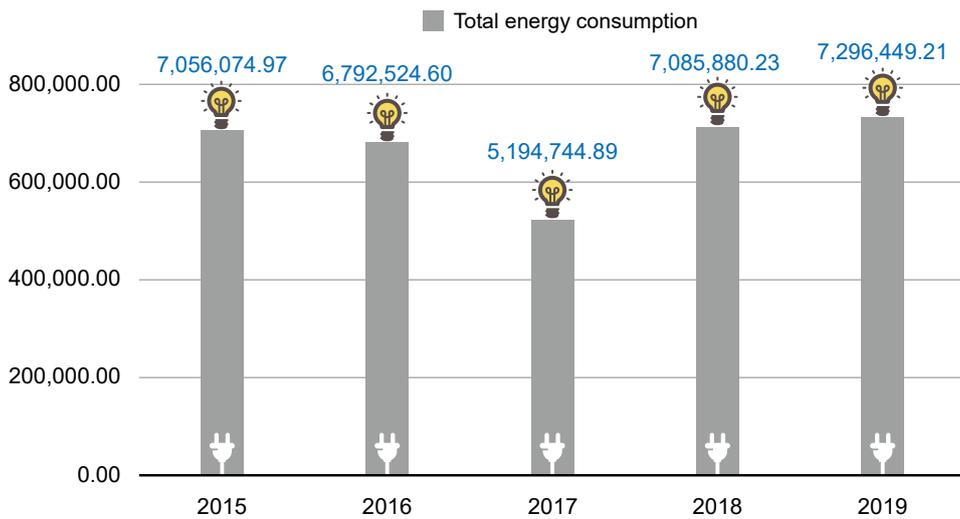
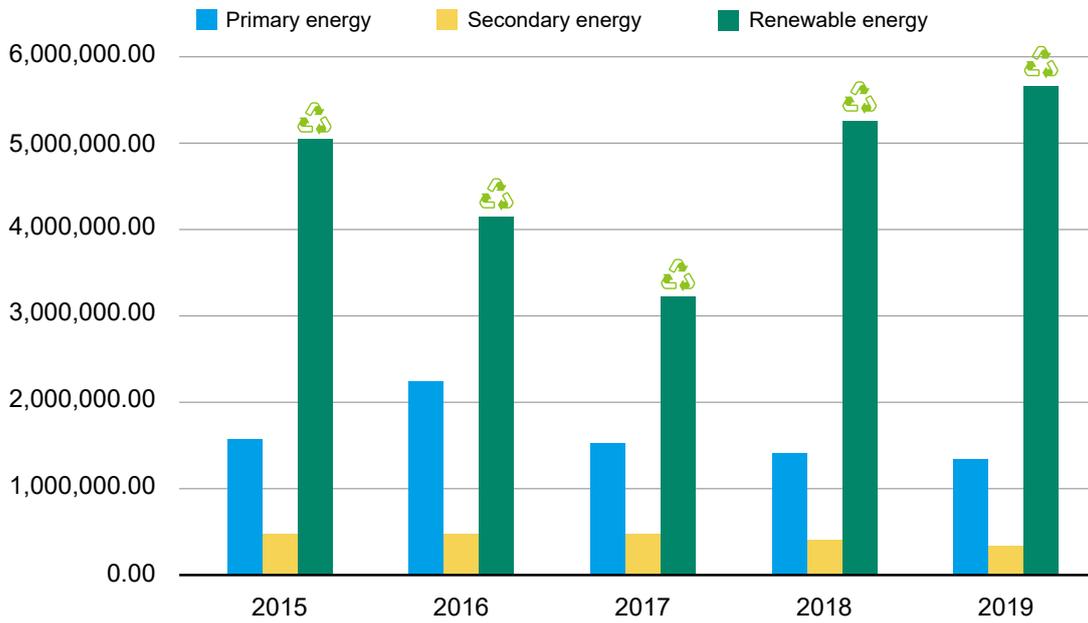
Energy category	2015		2016		2017	
	Consumption	%	Consumption	%	Consumption	%
Primary energy (GJ)	1,561,631.42	22%	2,206,368.23	32%	1,531,054.29	29%
Secondary energy (GJ)	464,481.57	7%	439,340.93	6%	446,102.18	9%
Renewable energy and waste-to-energy (GJ)	5,029,961.98	71%	4,146,815.44	61%	3,217,588.42	62%
Total energy consumption (GJ)	7,056,074.97	100%	6,792,524.60	100%	5,194,744.89	100%
NTD thousand of revenue	32,722,582		32,974,720		31,749,691	
Total energy consumption intensity (GJ/ NTD thousand of revenue)	0.22		0.21		0.16	

Energy category	2018		2019	
	Consumption	%	Consumption	%
Primary energy (GJ)	1,409,096.04	20%	1,331,461.36	18%
Secondary energy (GJ)	402,058.29	6%	311,198.35	4%
Renewable energy and waste-to-energy (GJ)	5,274,725.89	74%	5,653,789.49	78%
Total energy consumption (GJ)	7,085,880.23	100%	7,296,449.21	100%
NTD thousand of revenue	27,558,207		26,409,607	
Total energy consumption intensity (GJ/ NTD thousand of revenue)	0.26		0.28	

Note:

1. Primary energy includes gasoline, diesel, heavy oil, natural gas (NG), liquefied natural gas (LNG), liquefied petroleum gas (LPG), coal and motor oil.
2. Secondary energy is purchased electricity.
3. Renewable energy refers to the use of biomass power generation from bagasse cogeneration; waste-to energy refers to the power generation by the use of solid waste and cogeneration.
4. All the energy consumption was actual measured values.
5. The energy conversion coefficient refers to the calorific value coefficient of various energy sources in

### Energy consumption



## Water Resources Management

In order to properly use water resources, TSC is committed to the enhancement of water management and wastewater recycling. In addition to introducing new technologies that have been successfully applied at home and abroad, TSC also actively promotes the recycling and reuse of wastewater to reduce the impact of wastewater discharged on the environment, and we also continue to improve the effectiveness of water conservation to reduce the consumption of water resources. According to the Aqueduct Water Risk Atlas of the World Resources Institute, all areas in Taiwan belong to Low – Medium (1-2). All the TSC operating bases are not set up in national or international protection areas, and the water intake is from the legal water resources authorized by the government, having no significant influence on water resources. The used water from TSC is legally discharged to the sewage system or approved water body. The quality of discharged water meets the effluent standards required for various industries by law.

In 2019, the amount of water intake was 14,810.17 million liters, a 2.66% decrease compared with 2018, and the water intensity increased by 9.80% compared with the previous year mainly because the rainfall in Yunlin, Chiayi and Tainan areas increased by 177.5 mm, leading to the decrease in the use of surface water bodies and groundwater body for irrigation. The water intensity increased due to the 11.41 % decrease in the revenue. Water consumption in 2019 was 12,665.08 million liters.

### Water consumption and water intensity

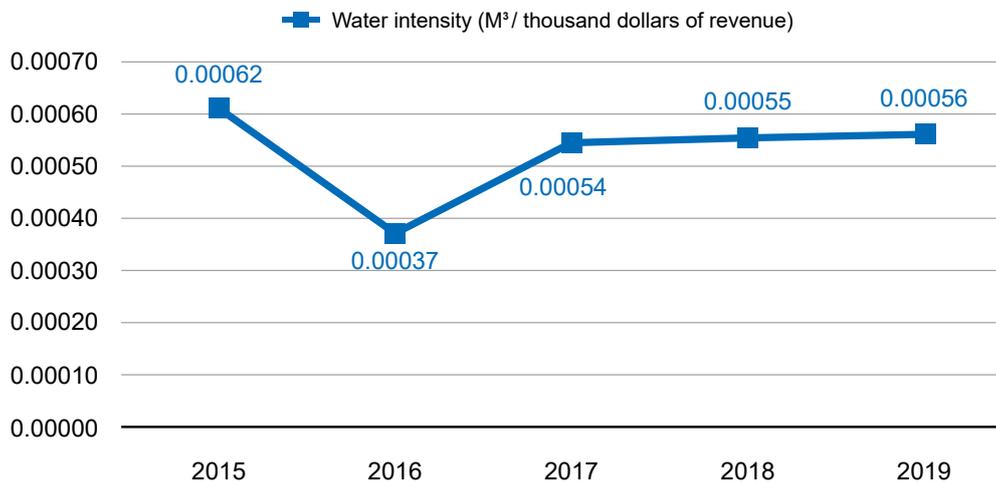
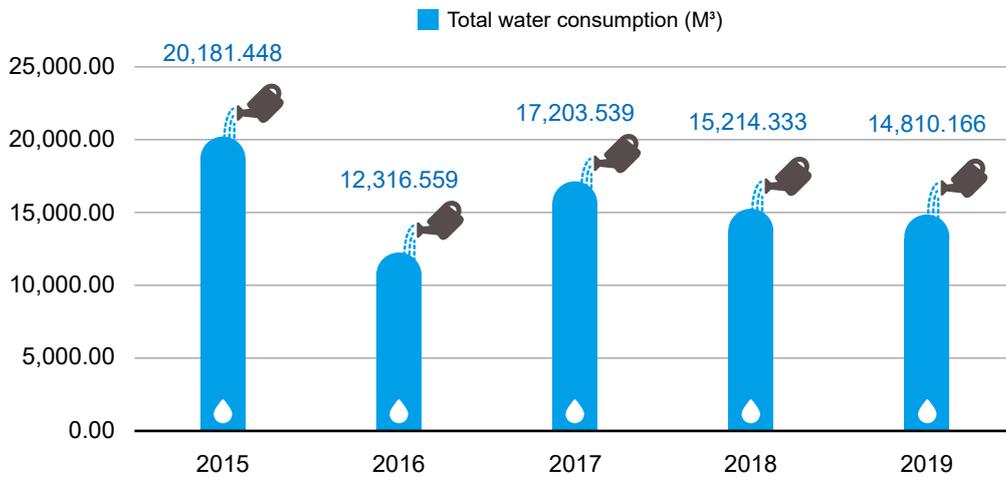
Year	2015		2016		2017	
Water body	Groundwater body	Surface water body	Groundwater body	Surface water body	Groundwater body	Surface water body
Individual water consumption (million liter)	13,245.52	6,935.93	7,374.08	4,942.48	11,070.44	6,133.10
Total water consumption (million liter)	20,181.45		12,316.56		17,203.54	
Operating income (NTD thousand)	32,722,582		32,974,720		31,749,691	
Water intensity (million liter / thousand dollars of revenue)	0.00062		0.00037		0.00054	

Year	2018		2019	
Water body	Groundwater body	Surface water body	Groundwater body	Surface water body
Individual water consumption (million liter)	9,172.90	6,041.43	8,965.14	5,845.03
Total water consumption (million liter)	15,214.33		14,810.17	
Operating income (NTD thousand)	27,558,207		26,409,607	
Water intensity (million liter / thousand dollars of revenue)	0.00055		0.00056	

Note:

- The statistics of water consumption of groundwater body and surface water body were measured values on water meters.
- Water consumption = Water intake - Water discharge = 14,810.17 - 2,145.09 = 12,665.08 million liters.

## Water consumption and water intensity



### Product Water Footprint Inventory

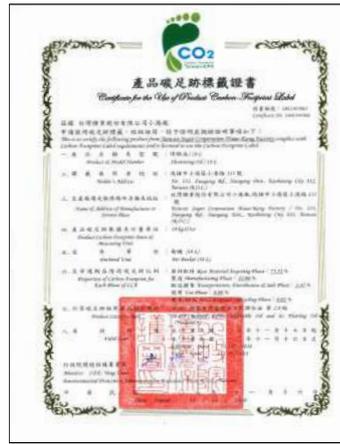
The application, review, management and audit of water use are all conducted in accordance with the Water Resources Management Regulations to achieve the goal of water conservation and efficient use of water resources. The Implementation Guidelines for Waste Reduction, Waste Recycling and Reuse, and Recycling of Multi-level Discharge for Reuse is formulated. In addition, TSC continues to improve various water use systems to increase water use efficiency based on the water conservation policy. After verified by SGS, the 50-kg refined sugar produced in Xiaogang Factory, the fresh meat and TSC Safety Pork series of the Livestock Business Division were issued a product water footprint verification statement. Based on the data of life cycle assessment of the Refined White Sugar produced at Xiaogang Refinery, it was verified by SGS that such product met the requirements of the ISO 14046:2014 standards and the Water Footprint Verification Statement was obtained, valid for 2 years from November 4, 2019.

Gangshan Incineration Plant of the Environmental Protection Business Operation Center was verified by SGS to meet the requirements of the ISO 14046:2014 standards and the Water Footprint Verification Statement at the Organizational Level was obtained. In addition, on December 23, 2019, Water Footprint Verification Statement for incineration services was obtained in accordance with the above standards. The two verification statements are both valid for 2 years.



## Product Carbon Footprint

Based on the data of life cycle assessment of the Refined White Sugar, Golden Brown Sugar, Fine Granulated Sugar and Refined Liquid Sugar produced at Xiaogang Refinery, it was verified by SGS that such products met the requirements of the ISO/TS14067:2013 standards and the Carbon Footprint Verification Statement was obtained, valid for 2 years from November 8, 2019. The 9 items of refined edible vegetable oils such as Soybean Oil and Shortening also obtained the Carbon Footprint Verification Statement from SGS and the Carbon-Footprint Label from Environmental Protection Administration, valid for 2 years from September 26, 2018 and for 3 years from November 17, 2018 respectively.



Certificate for the use of Product Carbon-Footprint label



Carbon footprint verification statement

Gangshan Incineration Plant of the Environmental Protection Business Operation Center followed the requirements of the Carbon Footprint Calculation Guidelines for Products and Services stipulated by the Environmental Protection Administration for the calculation of the carbon footprint of the garbage incineration services and obtained the Carbon Footprint Statement for garbage incineration services on November 18, 2019, valid for 2 years. In addition, the Carbon-Footprint Label from Environmental Protection Administration was also obtained on January 10, 2020, valid for 3 years.

In addition, to promote a "low-carbon diet" culture, a total of 56 items of TSC's fresh meat and TSC Safety Pork series obtained the Certificate for the Use of Product Carbon-Footprint Label in 2018 which is valid from March 24 in 2018 to March 23 in 2021, serving as the basis for the application of the "carbon reduction label" in the future, the application for the "carbon reduction label" has been initiated in 2020 for the promotion of the development of a green animal husbandry industry. Moreover, the Deluxe Single, Deluxe Twin, Family Twin, Queen Twin of Evergreen Plaza Hotel also obtained the Carbon Footprint Label in 2017, which is valid from December 2 in 2017 to December 1 in 2020.

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Product carbon footprint



Product carbon footprint advertisement



First cooking oil manufacturer obtaining the carbon-footprint label-TSC's soybean oil

## 4.3.2 Energy Conservation and Carbon & Waste Reduction

In order to effectively implement energy conservation and carbon reduction policies and to continue to promote energy conservation movement, all units continue to promote the Four Savings Project (oil saving, electricity saving, water saving and paper saving), relevant energy-saving targets are set and meetings are held regularly to review the effectiveness of energy conservation.



## Statics of the implementation effectiveness of the Four Savings Project

Item	2018	2019	Saving rate %
Electricity consumption (10,000 kWh)	2,209.12	2074.28	6.10%
Water consumption (M³)	718,849	623,559	13.26%
Oil consumption (liter)	637,506.92	670,868.59	-5.23%
Paper consumption (pack)	6,774	7,211	-6.45%

## Energy-saving Measures of all Units and Effectiveness

Item of Energy Conservation	Energy saving measures and effectiveness
 <p>Energy saving measures in Agriculture Business Division</p>	<ul style="list-style-type: none"> <li>✿ The insulation improvement in the greenhouse in Puli Farm saved 700 liters of diesel consumption.</li> <li>✿ The improvement of cooling water wall in the greenhouse in Dalin Farm saved approximately 12.9 thousand kWh.</li> <li>✿ The improvement of A/C equipment for electricity conservation saved 59,000 kWh in the Flask Room of the seedling field of Wushulin Recreation Park.</li> <li>✿ The renewal of the inner furnace body of the heating boiler in Taitung Farm saved diesel consumption by 3,600 liters.</li> <li>✿ The replacement of lighting to LED lighting in the offices in the business departments saved approximately 14.5 thousand kWh of electricity.</li> </ul>
 <p>Reduction of energy consumption during transportation and waste reduction in Animal Industry Business Division</p>	<p>Pigs from all pig farms are sent to the neighboring livestock markets for auction. For example, pigs from Pingtung Pig Farm are transported to the meat market in the neighboring areas of Gangshan, Cishan and Kaohsiung to reduce energy consumption during transportation.</p>
 <p>Unified warehouse logistics and introduction of new ERP system</p>	<p>Marketing Business Division has fully entrusted a third-party logistics and delivery service provider for regular (low) temperature delivery. Through the unified warehouse logistic and delivery and with the introduction of new ERP system, the business operation can be more efficient, and the impact of traffic can also be reduced.</p>
 <p>Energy saving measures in Petroleum Business Division</p>	<p>The total electricity consumption was 2,923,035 kWh in 2019, a reduction of 51,357 kWh compared with the 2,974,392 kWh in 2018. Relevant energy saving measures are as follows.</p> <ol style="list-style-type: none"> <li>1. All the lighting equipment in the 73 gas stations of the Petroleum Business Division was all replaced by LED lamps.</li> <li>2. Reduced the number of lamps in the halls and restrooms of the gas stations and installed sensors, and the habit of turning off the power is also encouraged and promoted.</li> <li>3. The A/C equipment is set to be turned on when the room temperature in the business offices is above 28oC. Fans are used instead of A/C to reduce the use of air conditioning.</li> <li>4. We cooperate with the government's energy-saving and carbon-reducing polity to shorten the lighting duration of the vertical and horizontal signboards at the gas stations.</li> </ol>



Leisure Business Division



Evergreen Plaza Hotel invested NTD 2,880,000 for the construction of green energy project and installed a solar power generation equipment with the capacity of 51.3 KW, generating 54,152 kWh of electricity.

Sugar Business Division



1. Cleaning the energy-saving equipment of furnace (ECO, GAH), saving 299 m<sup>3</sup> of fuel oil.
2. Solar power generation, reduced electricity purchase by 50,994 kWh.

Biotechnology Business Division



1. Installed rooftop solar power generation equipment with the capacity of 671 kwp (factory area and dormitory), generating 512,790 kWh of electricity in 2019.
1. Replaced 100 units of lighting with LED ones, saving 7,000 kwh of electricity.

Note: The data are all from actual calculation.

## Greenhouse Gas Inventory

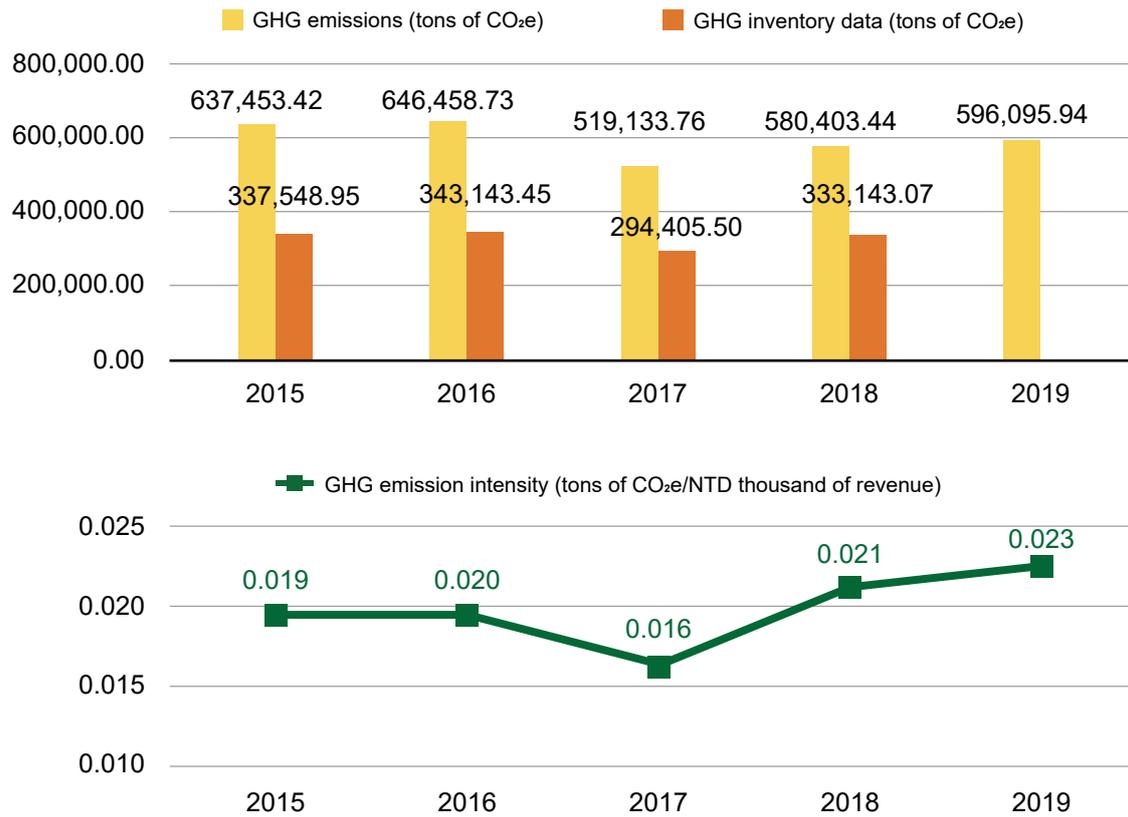
In 2019, the overall GHG emission was 596,095.94 tons of CO<sub>2</sub>e, increased by 2.70% compared with 2018. The GHG emission intensity was 0.023 (tons of CO<sub>2</sub>e/ NTD thousand of revenue), a 15.92% increase compared with 2018. This is mainly because of the increased efficiency brought by the repair of equipment in Gangshan Reuse Incineration Plants, leading to increasing amount of waste treatment and GHG emissions, showing the condition of reduced overall revenues but increased emission intensity in the whole company. The total GHG emission amount and emission intensity of TSC and its affiliations is shown below.

### GHG emissions within the organization over the years

	2015	2016	2017	2018	2019
GHG emissions (tons of CO <sub>2</sub> e)	637,453.42	646,458.73	519,133.76	580,403.44	596,095.94
NTD thousand of revenue	32,722,582	32,974,720	31,749,691	27,558,207	26,409,607
GHG emission intensity (tons of CO <sub>2</sub> e/ NTD thousand of revenue)	0.019	0.020	0.016	0.021	0.023

Note:

1. Scope: Taiwan Sugar Headquarters, 7 Business Divisions, 6 Operation Branches, Environmental Protection Business Operation Center, Taiwan Sugar Research Institute and Kaohsiung Branch. (The data was calculated based on the formula in which the amount of oil, water, electricity and gas usage is multiplied by the carbon emission factor).
2. The reference parameter description is based on the content of 6.0.4 version of EPA's GHG Emission Coefficient Management Table, and the CO<sub>2</sub>e equivalent conversion GWP value referred to that from the fourth announcement by IPCC.
3. The GHG inventory data disclosed were data verified as of 2018. The inspection units were Environmental Protection Business Operation Center (Gangshan and Kanting Refuse Incineration Plants) and Xiaogang Factory of the Sugar Business Division. In 2018, the GHG inventory in Scope 1 was 328,200.57 tons of CO<sub>2</sub>e. The GHG inventory in Scope 2 was 4,942.50 tons of CO<sub>2</sub>e.
4. The GHG inventory data for 2019 will be disclosed in the 2020 CSR Report after verification.
5. The GHG Inventory Survey is mainly based on the emission coefficient method and supplemented by the mass balance method.



### Green Meetings

TSC continues to promote the use of video conference to replace physical meetings not only to reduce time and cost for long-distance travel and to increase work efficiency, but also to achieve the benefits of energy conservation and carbon reduction. Based on the assumption of “one person/per business division”, there were a total of 413 video conferences held in 2019, and the calculated traveling distance saved (round-trip) was 389,825 km, saving NTD 1,304,402 of travel expenses (calculated by the fare of Tze-Chiang Train); in addition, according to the EPA’s carbon footprint calculation service platform, the carbon footprint coefficient of a small passenger car (petrol) was 0.115KgCO<sub>2</sub>e/passenger-kilometer (the GHG emission generated from the small passenger cars used for carrying passengers, including emissions from the fuel production, distribution and vehicle consumption) was reduced by 44,829.88 Kg of CO<sub>2</sub>e.

Video conference held (Unit: session)			Travel expenses saved (Unit: NTD)			Carbon emission reduced (Unit: Kg CO <sub>2</sub> e)		
2017	2018	2019	2017	2018	2019	2017	2018	2019
294	471	413	1,249,870	1,490,178	1,304,402	43,123.48	51,303.11	44,829.88



### 4.3.3 Air Pollution Prevention

In order to comply with the environmental protection laws and regulations, TSC has formulated Key Points for Environmental Management for the Operations of Air Pollution Prevention, and also included the ISO 14001 Environmental Management Standards to establish operations, inspections and emergency response measures to ensure compliance with laws and regulations related to air pollution. Prevention of air pollution begins with the rational reduction of pollutants in the process before being emitted into the exhaust gas, and air pollution control equipment handles pollutants in the exhaust gas.

The actual test results of the concentration of air pollutants over the years all met the emission standards stipulated by EPA. The NO<sub>x</sub> emission intensity in 2019 increased by 20.59% compared with 2018 while the SO<sub>x</sub> emission intensity increased by 27.27% compared with 2018 because that after the equipment maintenance in Gangshan and Kanting Refuse Incineration Plants, the efficiency of the incineration improved, and the waste treatment volume, air pollutant emissions and also the revenues all increased, leading to the situation in which the company's overall revenue reduced while the emission intensity increased. The air pollution control situation is as follows, and all the emission concentration met the standards.

Air pollutant emissions

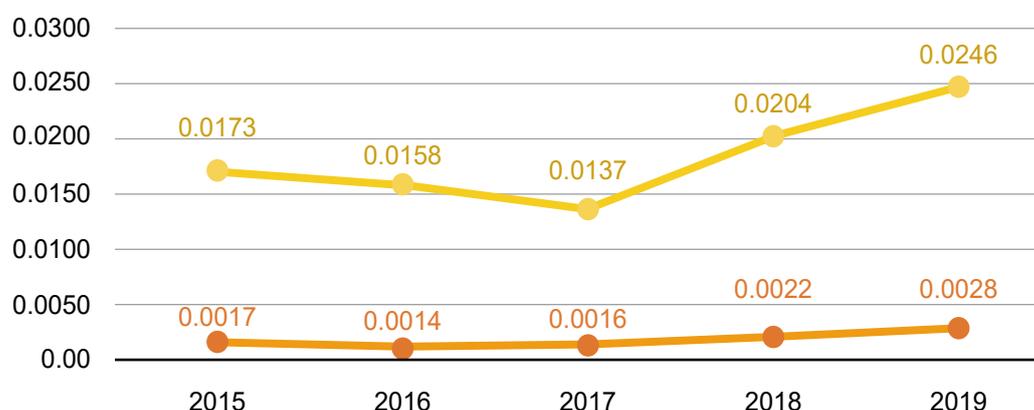
Unit: ton(s)

Item	2015	2016	2017	2018	2019
Particulate matter (PM)	37.93	28.94	25.22	18.70	28.31
NO <sub>x</sub>	564.91	521.37	435.97	607.83	650.94
SO <sub>x</sub>	55.93	45.13	50.98	65.21	74.84
VOC	223.91	199.98	152.28	235.02	135.20
HCL	36.05	30.78	34.58	45.55	57.95
CO	33.02	34.28	36.41	76.18	124.68
Ammonia	2.47	4.39	3.33	5.01	6.34
Revenue (NTD million)	32,722,582	32,974,720	31,749,691	27,558,207	26,409,607
NO <sub>x</sub> emission intensity (tons/ NTD thousand of revenue)	0.0173	0.0158	0.0137	0.0204	0.0246
SO <sub>x</sub> emission intensity (tons/ NTD thousand of revenue)	0.0017	0.0014	0.0016	0.0022	0.0028

Air pollutant emissions

Unit: ton(s)

—●— NO<sub>x</sub> emission intensity (tons/ NTD thousand of revenue) —●— SO<sub>x</sub> emission intensity (tons/ NTD thousand of revenue)



## Air pollution control measures of the Animal Industry Business Division



### Control measures

### Description

#### Odor Control Measures for Pig Feeding Areas

- ★ Add eco-friendly deodorant formula into pig feed.
- ★ Set up black nets and aromatic spraying equipment around the site.
- ★ Plant aromatic trees to create the Eucalyptus green belt around the site.
- ★ Use bio-deodorants for dispersal or add biological deodorants concentration into the drinking water to improve the ecology and hygiene of the farm.
- ★ Maintain water circulation in the defecation and urine ditch to prevent the accumulation of feces.

#### Control of odor at the slag storage site (compost)

- ★ Movable canvas is used to seal the field area.
- ★ Biological deodorant is spread.

#### Prevention of odor in wastewater treatment plant

- ★ Set up black nets and aromatic spraying equipment around the site.
- ★ Use movable canvas to seal solid-liquid separation equipment.
- ★ Plan to seal the facultative pool of the wastewater treatment equipment with red mud plastic sheet to collect biogas for reuse and for biogas power generation, and also for odor reduction.

#### Enhancement of good neighborly relations

- ★ Provide more job opportunities by hiring more local residents as the labor contractors to prosper the economy of the communities.
- ★ Communicate more frequently with local leaders and actively participate in community activities.

### 4.3.4 Water Pollution Control

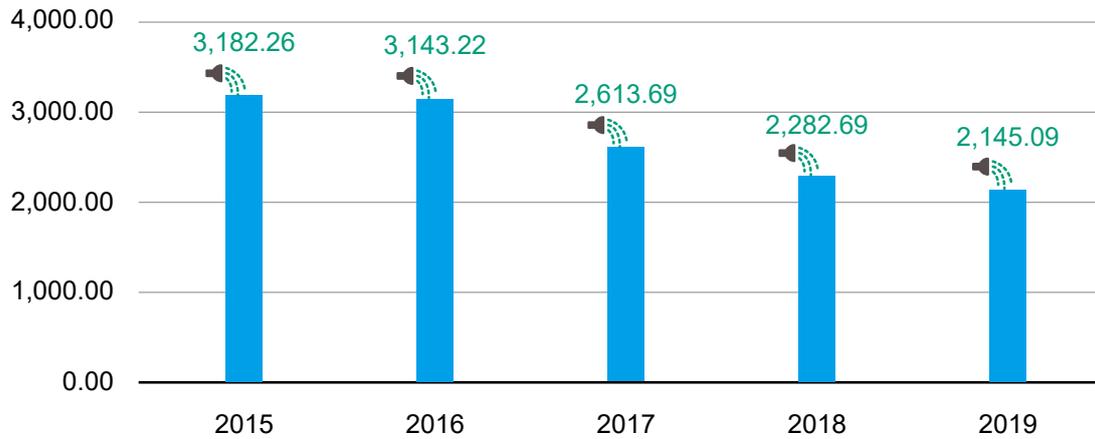
In accordance with the Water Pollution Control Act, wastewater (sewage) generating units shall have wastewater treatment procedures and obtain approval documents of water pollution prevention and shall be sampled and analyzed by qualified testing agencies in accordance with the prescribed schedules. Regular reporting shall be done on the website designated by the EPA, and all the wastewater (sewage) discharged shall meet the effluent standards without significant impact on water resources. The amount of wastewater discharged in 2019 reduced by 6.03% compared with 2018.

#### Wastewater discharge over the past years

Year	2015	2016	2017	2018	2019
Total wastewater discharge (M <sup>3</sup> )	3,182.26	3,143.22	2,613.69	2,282.69	2,145.09



Total wastewater discharge (M<sup>3</sup>)



Wastewater treatment process of Animal Industry Business Division (Pig Farms)



- ★ The wastewater adopts secondary aeration treatment system.
- ★ In 2019, Animal Industry Business Division initiated the application for the reuse of the wastewater in the farm, and 10 pig farms (Waipu, Huwei, Douliu, Annei, Nanjing, Lucao, Shanhua, Xincuo, Silinfan and Da-er Chang Pig Farms) were approved for the reuse, with the accumulative amount of 179,677 tons of reclaimed wastewater. Other livestock farms will apply for it in 2020.
- ★ To cooperate with the EPA's project to use biogas slurry and residues as farmland fertilizer and the cases of reuse of agricultural waste, as of 2019, the biogas slurry and biogas residue irrigation of 49,118.86 tons were approved in four farms (Nanjing, Liujicuo, Silinfan and Da-er Chang) and one session of 6,792 tons of liquid waste for the irrigation of agricultural land (in Douliu) was implemented, making good use of biogas slurry and residues to increase soil fertility while reducing discharged wastewater in rivers for pollution reduction.
- ★ Wastewater discharge standards: BOD: 80 mg/L, COD: 600 mg/L, SS: 150 mg/L.
- ★ All the livestock farms of the Animal Industry Business Division entrusted qualified inspection agencies to conduct sampling analysis every 6 months in accordance with the Water Pollution Prevention and Control Law. Regular reporting shall be done by filling out the animal husbandry wastewater (sewage) test declaration form on the website designated by the EPA, and the declaration is handled through network transmission.

## 4.3.5 Waste Management and Reuse

In 2019, the amount of general business waste handled included 28,364.53 tons for landfill, 0.43 ton for incineration, and 174,089.75 tons for reuse (compost or soil amendments). In 2019, the waste disposal amount decreased by 2.99% compared with 2018.

### Waste treatment capacity

Unit: ton(S)

Item / Year	2015	2016	2017	2018	2019	Treatment method
Sludge	5.73	8.23	8.88	6.67	8.02	Landfill
Fly ash stabilizer	28,520.70	24,397.82	21,123.22	20,156.89	25,866.71	Solidification treatment, landfill
Waste general items and containers	3,650.43	3,504.34	3,269.14	3,443.36	2,489.80	Landfill
Filter residue	7.86	8.86	4.84	3.82	3.64	Sent to reuse field (compost)
Filter paper	0.29	0.30	0.26	0.27	0.26	Sent to recycling site
Plastic bags	2.39	1.10	1.19	1.03	1.65	Sent to recycling site
Plant residue	0	17.74	12.31	6.10	11.80	Sent to reuse field (compost)
Waste clay	353.52	335.43	404.42	408.09	460.13	Sent to reuse field (compost)
soap stock	1,580.27	1,564.68	1,064.14	1,613.26	1,774.50	Sent to reuse field (compost)
Plant residues (waste bean meal)	19.69	12.73	30.45	10.86	26.82	Sent to reuse field (compost)
Died pigs	2,224.99	2,372.24	2,249.71	1,853.08	1,969.10	Sent to qualified rendering plant for processing
Bagasse	146,174.33	133,973.60	135,489.5	122,722.27	115,168.15	Composting, farm use, public auction, used as fuel
Filter mud	25,272.85	32,126.88	30,248.13	33,543.58	35,156.14	Composting, farm soil improvement
Soot	19,586.94	20,080.76	10,196.4	16,079.98	12,434.45	Composting, farm soil improvement
Pig manure slag	8,976.20	8,792.94	7,250.65	6,078.07	5,478.59	Composting, treated by contract vendors
Fertile soil	17,350.50	3,914.69	4,972.73	2,772.10	1,604.52	Public auction, soil amendments
Waste liquid	0.53	0.51	0.32	0.62	0.43	Incinerated
Total amount	253,727.21	231,112.85	216,326.29	208,700.14	202,454.71	-
Recycle ratio	87.32%	87.92%	88.72%	88.69	85.99%	-

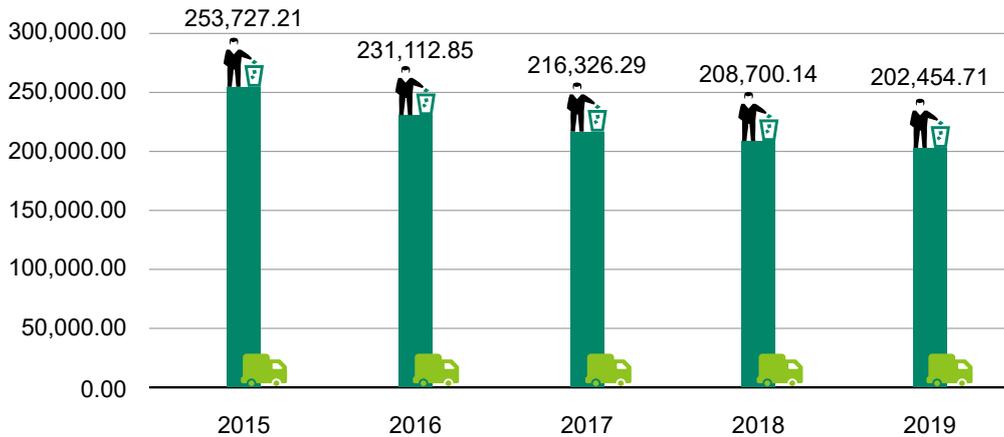
Note:

1. Only waste liquid belong to hazardous business waste, and others are general business waste.
2. The calculation of Recycle ratio = Recyclable waste treatment volume/ Total waste volume x100%.
3. Fly ash stabilizer is used to treat public environmental waste problem and is produced after incineration. The unit responsible for the treatment of it is prescribed in the contract with the local environmental protection agency. Here only the amount treated in Gangshan Refuse Incineration Plant is listed.



### The Total Amount of Waste

Unit: ton(S)



### Reduction in the Output of Waste

The recycling ratio of waste resource in 2019 reached 85.99%, decreased by 2.7% compared with 2018, mainly because of the reduced production of sugarcane and hogs, resulting in the reduced processing volume of bagasse and pig manure residues, causing the recycle ratio to reduce.

### 2019 Achievements of the promotion of green products and services of all units

#### Marketing Business Division and Biotechnology Business Division

The new product packaging design of the Marketing Business Division is in line with the policy of limiting over-packaging of products announced by the Environmental Protection Administration (EPA), Executive Yuan, to reduce the use of packaging materials and generation of waste, easing off the environmental load. Take the packaging of the Clam Essence for example, the lining frame strengthens the structure and texture of the box with folded edges while the size of the gift box is reduced to meet the requirements of the prescription. The Biotechnology Business Division uses glass bottles with reduced weight for the Clam Essence Products, a 7.6% decrease in weight compared with the old glass bottles, which is converted to a 24,798 kg reduction in glass use, reducing the impact of glass to the environment.

#### Sugar Business Division

The Shanhua Sugar Refinery of Sugar Business Division changed business waste of bagasse and filter mud into recycled materials as the soil amendment, reaching the purpose of circular economy. In 2019, the Bagasse Company of Shanhua Sugar Refinery received 15,782.26 tons of bagasse internally and sold 9,917.30 tons externally; the filter mud is officially named Fertile Soil, and the Company received 19,425.53 tons internally and sold 1,604.52 tons externally, achieving the reuse of resources and reducing the use of chemical fertilizers.

#### Animal Industry Business Division

In 2019, the egg cards of *Trichogramma chilonis* were provided to our self-operated farms and contracted sugarcane gardens. In addition, TSC was also entrusted to provide the eggs of *corcyra cephalonica* (stainton) as the materials to feed *Chrysopidae* to function as a pest control for fruits and vegetables, which can significantly reduce the use of pesticides.

#### Agriculture Business Division

To work in line with the government's requirements of green environmental protection, 40.86% of the pig manure slag produced in the livestock farms will be self-reused and fermented to environmentally friendly organic fertilizer for the farmers to use on the farmland to improve physical properties of soil, increase crop growth, yields of crops and the farmers' benefits.

The tissue culture bottles used for the production of *Phalaenopsis* seedlings are reusable glass culture bottles instead of non-reusable plastic cases. From January to December in 2019, a total of 1,179,892 glass culture bottles were used, and all of them were recycled for reuse, with the reuse rate of 100%.



5.1 SUSTAINABLE FOOD

5.2 PRODUCT HEALTH AND FOOD SAFETY

5.3 LAND ACTIVATION AND UTILIZATION

5.4 COMMUNITY CARE AND SERVICES

5 - MEETING PEOPLE'S LIVELIHOOD DEMANDS AND SOCIAL NEEDS

# 5



TSC continues its commitment to social participation and actively holds public welfare activities, giving back to the society. In addition, food safety and labeling are also emphasized, along with the efforts made to implement food traceability management and promote organic and eco-friendly farming to meet social needs for and expectations of food safety.

## Meeting People's Livelihood Demands and Social Needs

## Meeting People's Livelihood Demands and Social Needs

Corresponding material topics	Indirect Economic Impacts, Local Communities, Customer Health and Safety, Healthy and Reasonably Priced Food, Sustainable Food, Providing Land for Urban Planning, Marketing and Labeling	Corresponding SDGs	  
Policy	<ul style="list-style-type: none"> <li>➤ Widening service items to meet social welfare needs (Local Communities)</li> <li>➤ Implementation of eco-friendly farming and promotion of organic cultivation, with a certified area of 221.93 hectares (Sustainable Food)</li> <li>➤ Implementation of production history and food traceability management (Marketing and Labeling)</li> <li>➤ Cooperate with industrial policy of the government, stabilize prices and provide land for economic development (Providing Land for Urban Planning, Indirect Economic Impacts)</li> <li>➤ Deepening the core businesses and providing safe and affordable products (Customer Health and Safety, Healthy and Reasonably Priced Food)</li> </ul>		
Commitments and goals	<p>Short-term goals (within 3 years):</p> <ol style="list-style-type: none"> <li>1. To strengthen relations with neighboring communities, improve the well-being of the surrounding residents, and establish a good neighbor image</li> <li>2. To maintain food safety, and build a more complete traceability system</li> <li>3. To extend the value chain and circular economy, activate agricultural land, maintain food safety, and build a more complete and independent product supply chain</li> <li>4. To set the goal of the land activation area at 312.97 hectares between 2019 and 2021</li> </ol>	<p>Medium and long-term goals (3 to 7 years):</p> <ol style="list-style-type: none"> <li>1. To make a commitment to continue to abide by the code of ethics, contribute to economic development, and improve the quality of life in the local community and society as the company's sustainable business objectives</li> <li>2. To promote the added value of agricultural technology innovation, develop the bio-economic industry, strengthen the adaptability of agricultural industry to the climate change, strengthen the disaster response to agriculture, develop eco-friendly agriculture, and promote the sustainable development of agriculture</li> </ol>	
Responsible units	<ul style="list-style-type: none"> <li style="width: 50%;">+ Social and Employee Care Group of Corporate Sustainable Development Committee</li> <li style="width: 50%;">+ Department of Secretariat</li> <li style="width: 50%;">+ Environmental Sustainability Group of Corporate Sustainable Development Committee</li> <li style="width: 50%;">+ Quality Management Committee</li> <li style="width: 50%;">+ Department of Planning</li> <li style="width: 50%;">+ Food Factory Inspection Group</li> </ul>		
Input resources	<ul style="list-style-type: none"> <li>◆ Developed the “Guidelines for developing neighborly relations by TSC” and allocated a budget of NTD 8.8 million in 2019 to assist local governments, student associations, associations and foundations in handling various activities</li> <li>◆ Provides land for industrial areas, set up factories for small and medium-sized enterprises and as incentive for major construction use</li> <li>◆ Stabilizes prices to work in line with government policies</li> <li>◆ The actual amount of R&amp;D expenses (excluding personnel expenses) is NTD 38,175 thousand, and the actual amount for purchased research equipment is NTD 3,444 thousand</li> <li>◆ Built a GIS geographic information system to digitalize land maps, and makes the most effective use and decision analysis with GIS provided by government agencies</li> </ul>		



Grievance mechanism	Customer Complaints Handling Guidelines, Customer Service Hotline, Customer Service Email box, TSC Facebook Fan Page
Management System and Action	Guidelines for Developing Neighborly Relations by TSC, Guidelines for Land Lease and Provision for Establishment of Superficies, Guidelines for Land acquisition and Exchange, Guidelines for Land Sales and Expropriation Operations, Guidelines for Land Patrol, Guidelines for Land Replotting Operations, and Guidelines for Urban and Regional Planning Operations, Guidelines for Quality Management of Products Manufactured by Entrusted Manufacturers, Guidelines for TSC's Product Development, Guidelines for Product (merchandise) Recalling and Recycling, Food Safety Traceability Management System, After-sales Service and Customer Complaint Processing Procedures, Guidelines for Quality Execution, ISO 22000 Food Safety Management System, HACCP, ISO 9001 Quality Management System
Assessment management mechanism	Internal Control System, TSC Performance Assessment System, Corporate Sustainable Development Committee Work Plan and Implementation Review Meeting

## 5.1 Sustainable Food



### 5.1.1 Organic and Eco-friendly Farming

Organic farming is an environmentally friendly and sustainable model for agricultural production. The government has also actively promoted related certification system. TSC has been devoted to an eco-friendly farming and organic production for many years and has gradually expanded the scale of cooperation with farmers year by year.



#### TSC's Maguang Organic Group Cultivation Farm in Huwei

We set up an organic farming zone with an area of 197 hectares in Maguang Farm in Huwei Town, Yunlin County, making it the very first circular agriculture demonstration park in Taiwan. This project is divided into two phases. The first phase started from August 2017 and was completed in 2019. The planning and design of the second phase started in May 2018, and the second phase is scheduled to be completed in December 2021.



## Promotion of Eco-friendly Farming

To assist the government in promoting organic cultivation, TSC integrated small farmers engaging in organic farming with the concept of satellite farming to form a cooperation zone with professional division of labor and complementary resources to improve production and marketing efficiency and establish a value chain of cooperative agriculture.

The Key Points of Land Lease has been revised and organic cultivation will be given priority to in terms of the lease of our farmland. In addition, those who rent TSC's farmland for organic farming will have a 9-year lease guarantee to promote the cooperation of organic cultivation. Currently, there are 8 organic farms working with TSC in the form of contract farming, and 251 young farmers have been assisted to rent 1,464 hectares of farmland, with the organic farming area reaching 807.56 hectares (public organic farming zone and self-operated organic area are excluded).

To cooperate with the government's promotion of new agricultural policy for the promotion of organic cultivation, as of the end of December 2019, the Company has provided the government 250.94 hectares of leased land for the establishment of a special zone for organic agriculture; the area of other leased farmland for organic crops was 730.38 hectares.

## Organic Agricultural Products

### Organic rice verification area

TSC actively develops its own organic crop cultivation area to continue trial planning and mass production of economic crops. In addition, we also cooperate with organic certified farmers. In 2019, the organic rice verification area reached 116.59 hectares and organic fruit and vegetable verification area reached 58.34 hectares.

Year	2015	2016	2017	2018	2019
Organic rice verification area	98.93 hectares	103.08 hectares	103.08 hectares	103.08 hectares	116.59 hectares
Organic fruit and vegetable verification area	73.27 hectares	77.7 hectares	67.75 hectares	58.34 hectares	58.34 hectares

### The area of indigenous non-GMO soybeans

The production of indigenous soybeans in Taiwan is scarce, and most of the soybeans in Taiwan depend on imports, and the proportion of genetically modified soybeans is as high as 90% and above. Taiwan's indigenous non-GMO soybeans plantation area passing SGS 373 item (pesticide residues test 373 item) and Paraquat residues test is as follows.

Year	2015	2016	2017	2018	2019
Plantation area	50 hectares	95 hectares	95 hectares	105.2 hectares	103 hectares



## 5.1.2 Assistance in Agricultural Development

### Agricultural Land Leases and Value-added Service

To cooperate with the government's agricultural policy to stabilize the balance of the production and sales of domestic agricultural products, TSC handles the affairs concerning the lease of land for the cultivation of regulatory crops in accordance with the "Coordination between Council of Agriculture of Executive Yuan and Ministry of Economic Affairs for the Lease of TSC-owned Land". As of the end of December 2019, the area of farmland leased in cooperation with the policy to balance production and sales was 2,761.04 hectares.

TSC transforms the land tenants into partners, providing tenants with more services such as information of production technology, marketing and channel characteristics and assisting them in solving the problems they face, upgrading farmland leasing business into a full range of services. Through online communities and face-to-face interviews, we increase opportunities with young farmers to understand the difficulties they face and their needs and also exchange information concerning agricultural policies, technologies and experiences so as to help them effectively solve practical problems which will enhance their recognition of and cooperation with our company. TSC Agricultural and Economic Strategy and Business Management Workshop was held on December 19, 2019, and young farmers were invited to share their management concepts and experiences.

### Young Farmers Marketing Counseling and Channel Services

TSC also exerts its influence on agriculture and expands the target of service from TSC's tenants to the entire Hualien area in Eastern Taiwan. It is hoped that through various development of young farmer business, it can assist in the development of regional agriculture and more young people will be encouraged to return to their hometown. From May 2018 to December 2019, Hualien Tourism Sugar Factory was provided for the young farmers to set up a Weekend Green Market, the Dawn Market, to market the agricultural products produced by local young farmers via the tourism benefit of Hualien Tourism Sugar Factory.

### Taking Care of Sugarcane Farmers

To cooperate with the government in taking care of sugarcane farmers, TSC ensures the price of NT24,878 dollars/ton to purchase sugarcane sugar and to fulfill its strategic task of stabilizing the supply and demand of the domestic sugar market, and also subsidizes for the transportation charges of the raw material of sugarcanes, the cane garden fire insurance fees, the purchase of bait and the eggs of *Corcyra cephalonica* (stainton) as the materials to feed *Chrysopidae* to function as a pest control. In addition, TSC also provides low interest-rate loans with a monthly interest rate of 0.25% (simple interest method) to assist sugarcane farmers in financing for funds needed in the production process, stabilizing the economy in the rural areas.

### The Opening of the Academy of Agriculture and Animal Husbandry

Considering that education and training is the cornerstone of industrial development, the Company has established the Academy of Agriculture and Animal Husbandry on February 16, 2018. The goals are to enhance industrial technology and services, improve the income of employees in relevant industries, and promote the living standards.

Three sessions of Basic Training Course of Pig Farming Techniques were completed, including a total of 495 hours of in-class lectures and on-site practices. After the completion of the overall remodeling of the pig farm scheduled in 2021, a brand-new field can be provided for trainees for actual operation. We also expect to cooperate with experts in the cultivation industry from Council of Agriculture to establish a team of consultants, and with the diversified courses and training sessions, the leaning content will be further enriched.

### Animal Husbandry Courses

To cultivate students with common ideals for the future through standardized and advanced training courses and inspiring teaching contents, assisting in the integration of pig farming and other related industries, enabling the sustainable development of the pig farming industry that suits Taiwan best.



### Agricultural Economics Courses

To work with the strategic alliance, National Pingtung University of Science and Technology, and combined with the professional function training of the Council of Agriculture while providing 20 hectares of organic cultivation area in TSC's Kaohsiung Organic Farm as the environment for internship, TSC provides a one-stop local counseling services for the incubation of professional production suppliers to assist young farmers to have steady management.



## 5.1.3 Stabilizing Prices

The Company is a state-owned business and serves as the function of assisting the government in stabilizing the prices of pork, sugar, cooking oil and other large-scale staple merchandise.

### Stabilizing hog prices

In May, 2019, TSC worked in line with the policy and increased the supply of 1,300 hogs in response to the market demand on Dragon Boat Festival .

In September-October, 2019, TSC worked in line with the policy and increased the supply of 5,813 hogs.

In November, 2019, TSC worked in line with the policy and increased the supply of 2,000 hog in response to the market demand on Ghost Festival.

### Stabilizing salad oil prices

TSC works in line with the government policy of stabilizing prices. Large-packed salad oil maintained the lowest market price and the retail price of small-packed salad oil (less than 3 liters) has not increased since December 31, 2010.

### Stabilizing sugar prices

The price of domestic large-packaged sugar is calculated every day and the price is announced before 08:00AM every day; the retail price of the small-packaged sugar has remained unchanged at NTD 36/kg since September 16, 2010.





## 5.2 Product Health and Food Safety

### 5.2.1 Controlling the Quality for Food Safety

There have been several major food safety hazard incidents in recent years, which has caused people in Taiwan to fear for and lose confidence in food safety. TSC has about 330 items of various products ranging from sugar, pork, organic fruits and vegetables, processed foods to beauty care products. In terms of quality control, the costs of the laboratory under Sugar Business Division accounts for 1.08% of the revenue, Biotechnology Division accounts for approximately 8.39% of revenue and Animal Industry Business Division accounts for approximately 0.12% of revenue. For the items the laboratory is unable to test, the external third-party impartial laboratories (such as SGS) have been commissioned to assist in inspections to eliminate potential risks. Starting from the source management of food safety, we have achieved the goal of "Buy it safe, eat it safe, be healthy, trust TSC" to ensure food safety for consumers.

Statistics by Laboratories under Business Divisions in 2019

Business Division	Detection instrument	Test item	Inspection pass rate (%)	Related expenses
Taiwan Sugar Research Institute	Ultra Performance Liquid Chromatography (UPLC)	Analysis of unknown components of natural products and fermentation products, determination of pollutants in spoilage and adulterated foods, detection of non-volatile harmful substances	Inspection pass rate was 100%	NT 2,200 thousand dollars
Sugar Business Division	Constant temperature incubators, water bath, colony meters, stirrers, pharmaceutical scales, sterile consoles, electrical driers, autoclaves, distilled water machines, and atomic absorption spectrometers	Microorganisms, E. coli, coliform group, sulfur dioxide, heavy metals (arsenic, lead, copper), and pesticide residues	The pass rate of microorganisms, E. coli, coliform group, sulfur dioxide, heavy metals (arsenic, lead, copper) and pesticide residues was 100%	1.08% of revenue
Biotechnology Business Division	Sterile consoles, moisture balance, precision electronic balance, oscillators, electric hot plates, autoclaves, electrical driers, constant temperature incubators, constant temperature ovens, colony counting, pH meters, magnetic stirrers & heaters, HPLC, water activity meters, digital Brix spindle, Chemical Hood, and Biological Safety Cabinet	Microorganisms: 10 items Can test: 2 items Environmental monitoring: 1 item General nature: 7 items Residual analysis: 13 items Others: 2 items	Inspection pass rate (%): 100% compliance	8.39% of revenue
Animal Industry Business Division (Fresh meat and processed meat)	Multimode microplate readers, muffle (furnace), autoclaves, concentrated sulphuric acid decomposition systems, water activity meters, pH meters, moisture ovens, bacterial incubators, mold incubators, salinity meters, fat extraction instruments, Kjeldahl nitrogen analyzers, sterile consoles and bacterial testing platforms	Microorganisms: 7 items Chemical examination: 8 items Sulfonamide ELISA: 2 items Beta receptor ELISA test: 3 items Bacterial susceptibility test: 8 items	Food safety test results: pass rate of 100%	NT 3,186 thousand dollars (0.12%)

Note: The ratio of laboratory expenditures to the revenue = the business division's lab spending in 2019/ the revenue for the business division in 2019.

## Quality Control

In 2019, TSC has conducted 3 classes for quality management education and training, with 119 participants in total. TSC regularly holds quality control meetings or product quality meetings from time to time to discuss quality control issues and related improvement measures. Each business division has a "Quality Control Plan" every year. The business plans for quality policy, quality objectives, product realization, production management and customer service are used as the basis for implementation of quality control by each business division. Performance is reviewed on a quarterly basis. At the end of the year, the implementation results of quality control plans are reported. In addition, the Taiwan Sugar Headquarters randomly checks the execution status of quality control activities.



## Product safety certification

To enable consumers to feel confident about the purchase of TSC products and services, TSC has disclosed the necessary information for each product and service it provides, detailed information regarding various raw materials, ingredients, expiry dates, country of origin, storage conditions and instructions for use is listed on each product produced and on the packaging and description label of the product, so that consumers can understand the ingredients, sources and methods of safe use. In addition, consumer service hotlines are provided for questions and answers. All products and services that we provide to consumers comply with the relevant laws and regulations in their labeling and description. In addition, we also actively introduce Food Safety Management System and certification.

### Percentage of food categories that have passed food safety certification or obtained food safety certification

Certification										
	ISO 9001	ISO 22000	HACCP	FSSC 22000	TQF	CAS	IFS	BRC	Health Food Label	CAS Taiwan Organic Produce
Sugar (including processed sugar)	100%	100%	100%	82.46%	86.80%	-	-	-	-	-
Edible oil	100%	100%	100%	100%	100%	-	-	-	-	-
Organic rice	-	100%	100%	-	-	-	-	-	-	100%
Edible oil products (imported)	70.55%	29.45%	29.45%	70.55%	-	-	70.55%	70.55%	-	-
Brewed & reconstituted food	23.59%	76.41%	100%	8.89%	-	-	-	-	-	-
Canned food	17.25%	88.50%	100%	-	-	56.25%	32.32%	32.32%	-	-
Mineral water and beverages	-	100%	100%	-	46.29%	-	-	-	-	-
Prepared frozen food	3.73%	100%	100%	-	-	75.45%	-	-	-	-
Snack foods	100%	100%	100%	-	-	-	-	-	-	-
Health foods	96.22 %	100%	100%	-	85.06 %	-	-	-	72.08%	-
Functional drinks	100%	100%	100%	-	100%	-	-	-	81.89%	-
Fresh meat	-	100%	100%	-	-	99.59%	-	-	-	-
Processed meat	-	89.02%	89.02%	-	-	89.02%	-	-	-	-

Note: The percentage in the above table indicates the proportion of food categories that have passed food safety certification or obtained food safety certification. For example, the percentage of products in the category of edible oil having obtained TQF (Taiwan Quality Food Association) label is 100%, that is, all edible oil products have obtained the TQF label. The calculation formula is: the purchase amount of the food category that has passed the food safety certification or obtained the food safety certification in 2019 / the total purchase amount of all products of the food category in 2019.

## Traceability Management of Foods

To enable people to eat healthy and safe food, as a state-owned enterprise, TSC is obliged to keep records of food related data. In order to ensure the quality and brand value of TSC products, TSC has established its own "Food Safety Traceability Management System". Information on self-made foods, raw materials for OEM and ODM foods, additives, suppliers and so on was established. The production information and inspection reports for each batch of products are uploaded to the system. In addition, we set up "Food OEM Inspection Team" and promulgated regulations such as "Rewards and Punishments for Poor Food Quality and Recommendations for Improvement" and "Strengthening Supply Chain and Product Label Management" in order to strengthen the traceability management of various foods, prevent adulteration and protect consumers' rights.

All of TSC food products are included in our own Food Safety Traceability Management System. The system not only reveals all the food information for TSC employees to check and compare, the food inspection report is also disclosed on the TSC's official website, allowing consumers to check online. We further integrate the Company's product flow tracking mechanism of "sales and inventory system". In the future, we would combine the dual functions of product raw material traceability and product flow tracking to fulfill the goal of "TSC Produced, Safety Guaranteed".

TSC's Food Safety Traceability Management System is disclosed on TSC's official website for consumers to inquire at any time.



Food inspection Report

### Food Safety Traceability Management System (FT)

#### Raw Material Management

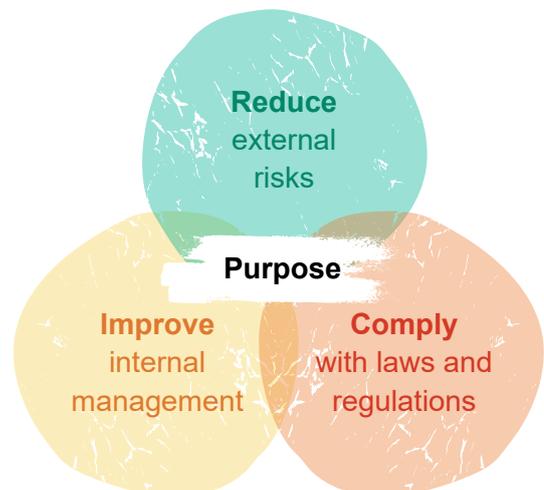
Obtain the certificate of quality control of incoming raw materials, control the expiry date of raw materials, avoid misuse of overdue raw materials, check food additives and confirm the use of legal food additives.

#### Product Management

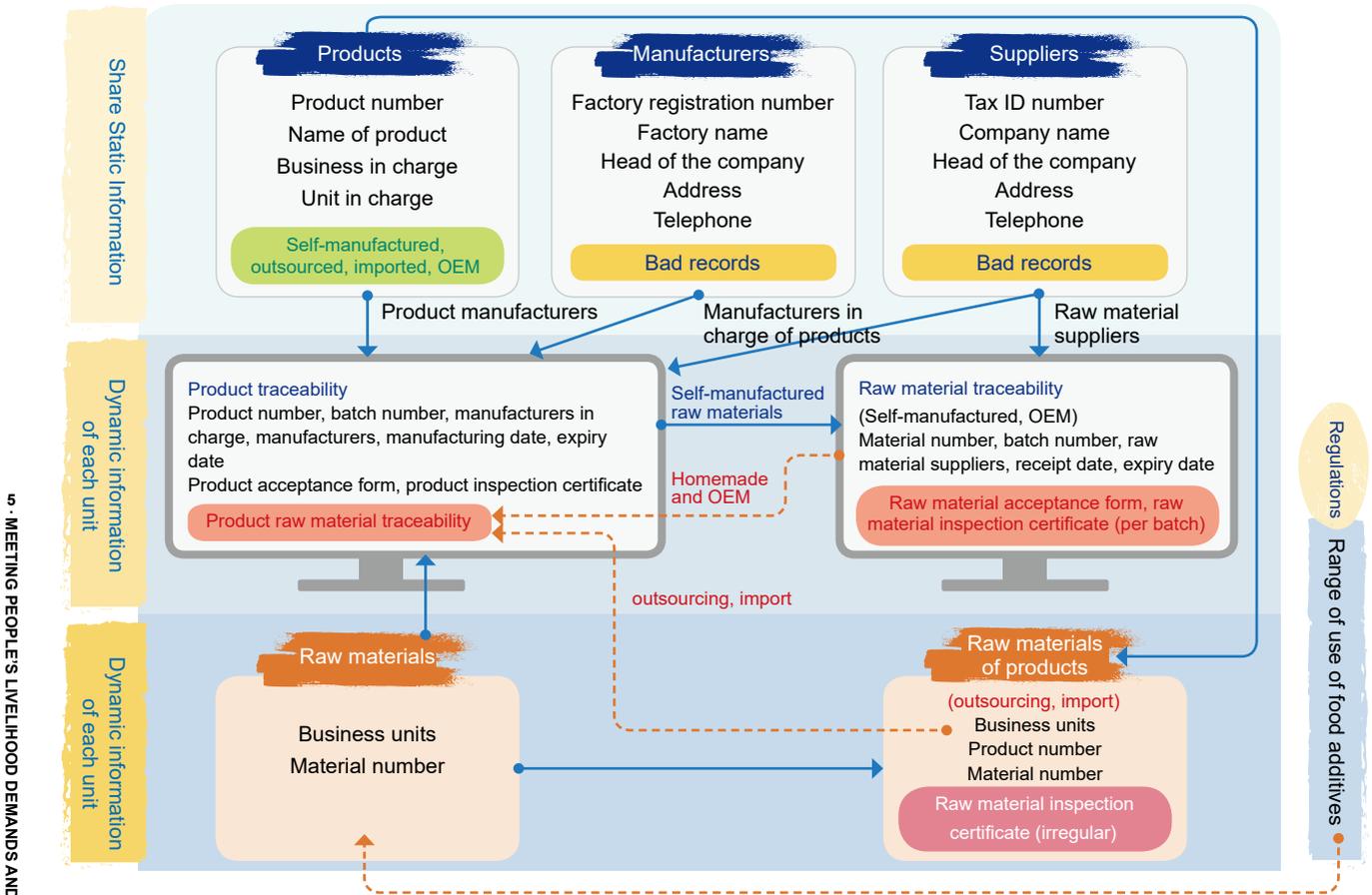
Data management of product manufacturing date, expiry date, production quantity, finished product inspection certificate, etc., which can trace quality control information of raw materials used in the batch of products

#### Supplier and Manufacturer Management

Establish basic information and related information of suppliers and manufacturers (such as bad records), which can be used for reference by various units when purchasing. When a food safety incident occurs, a system query function can be used to quickly determine whether the Company purchases related raw materials from a supplier or manufacturer involved and handles it immediately.



## Flow Chart of Food Safety Traceability Management System (FT)



5 - MEETING PEOPLE'S LIVELIHOOD DEMANDS AND SOCIAL NEEDS

In addition to our own Food Safety Traceability Management System (FT), TSC has joined the "TQF-ICT Service Platform" and "Food Traceability Management Information System" to establish a food safety protection network and enhance the safety and quality of TCS products for consumers.

### Fadenbook/Ftracebook

TSC has registered on the Registration Platform of Food Businesses (Fadenbook) in accordance with the schedule stipulated by Food and Drug Administration. The business units at TSC in the announced category completed the reporting operation on Food Traceability Management Information System (Ftracebook) and the OEMs of business units in the announcement category also completed the reporting as prescribed.



Fadenbook



Ftracebook

## 5.2.2 Health Products and R&D of Health Products for Senior Citizens

Taiwan has gradually entered an ageing society. The needs of the elders will gradually become one of the mainstreams of the market. We have wished ourselves to become a guardian of our citizens' health and a family partner of the senior citizens. In recent years, TSC has been actively developing health related products for the senior citizens.

Moreover, to cooperate with the government's long-term care policy, we will evaluate the investment in the elderly residence program and plan senior housing for rent in appropriate locations in accordance with relevant laws and regulations and entrust a professional property management company to station in it to provide the elders a peaceful living space with living functions and life care services and other diversified services.

### Ratio of Low-burden and Nutrition-fortified Products

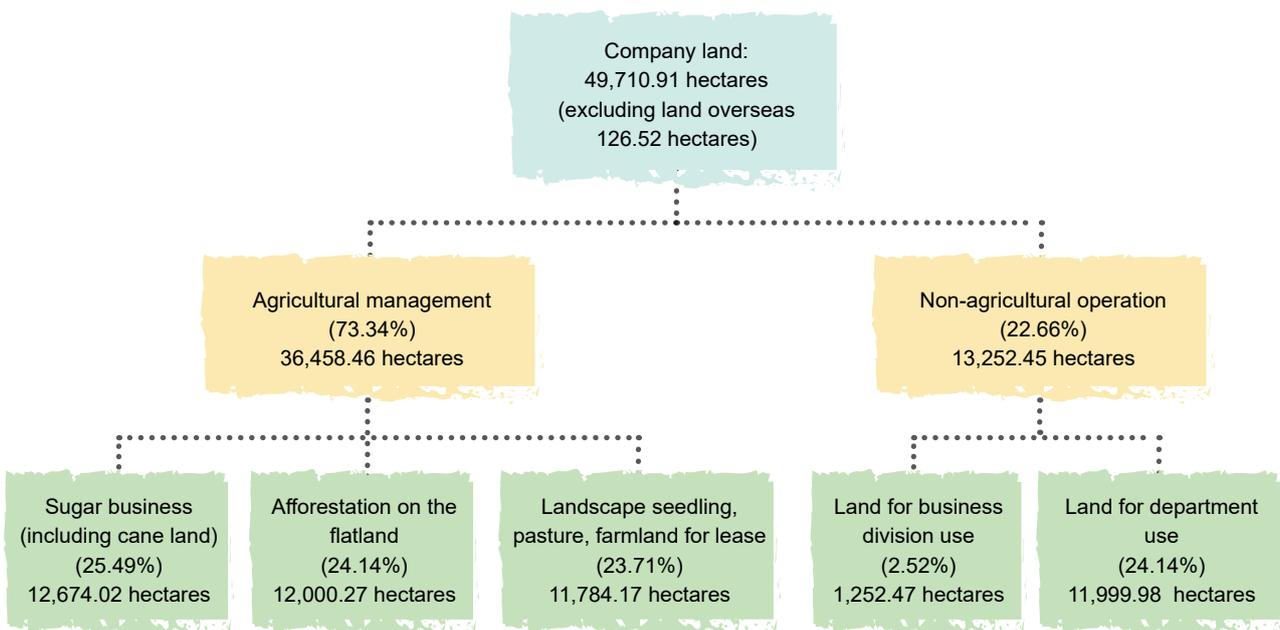
Product Category	Low-burden products					Nutrition-fortified products				
	Low (un)saturated fat	Low (no) trans fat	Low (no) sodium	Low (no) sugar	Low (no) sugar products containing artificial sweeteners	Fiber-fortified	Vitamin-fortified	Mineral-fortified	Plant extract-fortified	Functionality-fortified
Health food	85.06 %	96.44 %	18.76 %	33.07%	0.06%	50.78%	0.01%	13.60%	17.25%	6.97%
Functional drinks	100 %	100 %	100 %	88.25%	14.19%	10.77%	11.75%	0.98%	27.35%	11.76%

Note: The calculation formula: The sales amount of low-burden and nutrition-fortified products in the food category in 2019/ the total sales amount of all products in the food category in 2019.



## 5.3 Land Activation and Utilization

As of 2019, the land area of TSC's existing land resources reached 49,710.91 hectares (excluding 126.52 hectares of land overseas). In accordance with the concept of business development and sustainable development of land resources, TSC continues to meet the governments' needs for public policy based on the concepts of business development and sustainable management of land resources to maximize the value of the land.



### 5.3.1 Cooperation with Local Government for the Development of an Industrial Park

TSC cooperates with county and city governments in the planning of industrial parks and provides a total of 2,561.63 hectares of land in a cooperative development model.

The land provided to the local governments for the planning of industrial parks in 2019 included the following 11 pieces of land with the area totaling 992.83 hectares.

#### Taichung City:

1. Tanzi Juxing Industrial Park, with a total of 14.18 hectares (land allocation of 6.61 hectares, and contract signing has been completed).
2. Third Phase of Precision Machinery Innovation Technology Park, with a total of 14.64 hectares (land allocation is tentatively set at 30% or more, still under planning).

#### Changhua County:

1. Datiecu (North side) Industrial Park, with a total of 9.99 hectares (land allocation is tentatively set at 30% or more, still under EIA).
2. Datiecu (South side) Industrial Park, with a total of 5.16 hectares (land allocation is tentatively set at 30% or more, still under EIA).
3. Erlin Precision Machinery Park, with a total of 342.04 hectares (land allocation is tentatively set at 30% or more, still under EIA).

#### Yunlin County:

Gukang Industrial Value-Added Park, with a total of 67.90 hectares (land allocation is tentatively set at 30% or more, still under EIA).

#### Chiayi County:

Mahouhou Industrial Park (Late Stage), with a total of 335.73 hectares (land allocation of 100.72 hectares, and contract signing has been completed).

#### Tainan City:

Green Energy Technology Park, with a total of 86.23 hectares (land allocation is tentatively set at 30% or more, still under planning). The scope of the technology park includes the 9.072 hectares of land for organic crops rented by Honey Organic Farm between April and August in 2019, and organic transformation verification was obtained in September in 2019. It was learned that the municipal government has excluded the leased land by Honey Organic Farm from the scope of the development.

#### Kaohsiung City:

1. Renwu Industrial Park in Kaohsiung, with a total of 53.7 hectares (land allocation is tentatively set at 51.74%, under negotiations about the allocation ratio of the industrial land).
2. Dalinpu New Material Circular Industrial Park, with a total of 43.51 hectares (will undergo the urban planning change and EIA).

#### Pingtung County:

Liu-Kui-Cuo Industrial Park, with a total of 19.75 hectares (land allocation of 5.96 hectares, and contract signing has been completed).

In response to the return of Taiwanese businessmen, TSC cooperates with MOEA in the development of industrial parks, providing the following 10 pieces of land with a total area of 1,233.98 hectares.

- Provide 9 pieces of land with a total area of 1,204 hectares for the planning of industrial park development. The first stage is the short- and medium-term development area of 744 hectares of land, providing an area of 520.5 hectares of land for industrial use. The second stage is the long-term development area of 460 hectares, providing an area of 322 hectares of land for industrial use. Follow-ups will be coordinated with the policy in a cooperative development model with the Industrial Development Bureau.
- Provide the Export Processing Zone Administration an area of 29.98 hectares of land for the planning of the Pingtung Export Processing Zone Expansion Scheme. Follow-ups will be handled in a leasing model in accordance with the policy.

TSC cooperates with the Ministry of Science and Technology and provide the following 2 pieces of land with a total area of 334.82 hectares to Southern Taiwan Science Park (STSP).

- Approximately 244.01 hectares of land for the STSP Kaohsiung Second Science Park (Ciaotou) will be handled by section expropriation. Currently, the environmental impact assessment (EIA) related operations are handled by local authorities.
- Approximately 90.81 hectares of land expansion area for STSP Tainan Science Park (Shanhua) will be handled by section expropriation. Currently this project is under planning.

### 5.3.2 Rent-to-Own Excellent Residence

#### Shalun Smart Green Energy Circular Residence

To cooperate with the Shalun Smart Green Energy Science City Policy of the Executive Yuan to meet the living needs for the stationed staff in the Shalun Green Energy Science City, the Company has planned the “Shalun Circular Residence Development Project” in a designated area at Tainan High Speed Rail Station. The goal is to obtain both smart building and green building gold certificates, and this project won the FIABCI-Taiwan Real Estate Excellence Awards in Planning & Design Category in 2019. What is more, this is the very first example of introducing circular economy concept into a construction project, with the concept of recycling and reuse as the core concept of the architectural design, including introduction of flexible compartments, open pipping configuration, building materials bank, dismantling and reuse of building materials. At the same time, it is also equipped with the environmental management system for safety control, smart water grid and meter, self-cultivated food ingredients, connecting with the overall smart facilities and green energy technology in the whole science city, making this community a livable one with green energy cycling network, low-carbon transportation network and high-performance information network. The construction is scheduled to be completed in early 2021 to provide a timetable for the promotion of the policy of Shalun Green Energy Science City and the timing for personnel stationing



## Lease and Investment Plan of Self-built Housing

Targeting at students and young people, proper bases were chosen in Taipei, Hsinchu, Taichung, Tainan and Kaohsiung, and green building materials and low-carbon architectural design were adopted. Professional property management companies will be entrusted to station here for smart management by using the internet and monitoring equipment to create a shared space and excellent quality of life. In 2019, the locations include the Huajiang Section of Wanhua District in Taipei City, Baowen Section of Nantun District in Taichung City, Xinduxin Section of East District in Tainan City and Guanghua Section of Quanzhen District in Kaohsiung City. Construction is scheduled to be completed in 2021, and operations will start from 2022.

Low-carbon buildings in Huajiang Section of Wanhua District in Taipei City, Dongqiao Section in Hsinchu City, and Gaosong Section of Xiaogang District in Kaohsiung City are planned to be constructed for lease in 2020. These buildings are scheduled to be completed in mid- 2022, and operations will start from the second half of 2022.

## Plan for Elderly Residence for Rent

Taiwan has officially entered an aged society, and according to estimation, it will become a super-aged society by 2026. To work in line with the government's elderly service policy, after evaluation, it is planned to build elderly residence for rent at Land Lot No. 15 in Xinduxin Section of East District in Tainan City, with a total base area of 3,700m<sup>2</sup>, providing senior citizens with convenient, comfortable, safe and colorful life and care to fulfill the ultimate goal of elder care. Furthermore, circular economy concepts such as "ownership with the right to use" and "recycling resources" are also introduced. The construction period is scheduled to be between 2020 and 2022, and the operation is scheduled to begin in 2023.





## 5.4 Community Care and Services

TSC has established the “Guidelines for developing neighborly relations by TSC” and allocated an annual budget to assist local governments, student associations, associations and foundations in handling various activities in accordance with the regulations stipulated in “Main Points of Good-Neighborliness Work of MOEA Affiliated Institutions” and “Matters Requiring Attention of the Central Government Agencies for the Implementation of Subsidiary (Donation) Budget for Civil Groups and Individuals”. The relationship between TSC and the neighboring communities of its affiliated units is strengthened to improve the well-being of the surrounding residents, promote local harmony, and jointly prosper the place to build a good neighbor image. TSC and its affiliated units not only implement the promotion of the good neighborly relations to provide help and assistance to the communities but also continue to invest in the public welfare to care for the society and the disadvantaged groups so as to fulfill our corporate social responsibility.

In 2019, TSC assisted various local groups where its operation bases are located with a total of 185 public welfare activities, including educational & cultural activities, activities for the elderly and for people with disabilities, other emergency assistance and public assistance or other public welfare activities, with subsidies of approximately NTD 8.23 million.

Item	Count of Projects	Amount (NTD)
Activities for the elderly and for people with disabilities	56	1,187,420
Other public welfare activities	119	5,579,548
Emergency assistance	1	51,000
Educational & cultural activities	8	292,562
Run for Charity	1	1,121,490
<b>Total</b>	<b>185</b>	<b>8,232,020</b>

5 · MEETING PEOPLE'S LIVELIHOOD DEMANDS AND SOCIAL NEEDS

### Annual Key Events

TSC's 5th Run for Charity in 2019

TSC responded to the trend of exercise and organized the Run for Charity in 2019 for TSC's Charity Donation of Materials event. A total of 3,115 participants joined TSC's 5th Run for Charity and the runners accumulated the running mileage through the cloud marathon and materials equivalent of NTD 140,000 were donated to the Tobias Social Welfare Foundation

Assisted our allies in building schools

TSC cooperates with an international social enterprise, IMPCT, to build schools in the coffee production area in Honduras. The first school was built in a community called Los Izotes in Tegucigalpa City in the Province of Francisco Morazán which can accommodate 40 students at most. This school was opened on August 26, 2018 and school started in March 2019, with 26 students aged between 12-18 enrolling in the school. In addition, through the course of Community Young Leaders Development Plan, students can pay part of their tuition by community service working hours such as discovering community problems, providing assistance and finding solutions, which further positively affect the lives of about 200 households in the community.



Assisted our allies in building schools

The second and third schools are being built. Under the cooperation between TSC and IMPCT in 2019, two schools are currently being constructed in a community called Chaguite in the Province of El Paraiso and one called Las Delicias in the Province of Francisco Morazán and both are scheduled to be completed and operated in 2020.

Care for families with young children and their families in remote areas

With the collaboration with Chishang Township Office and Kiwanis Taiwan, Chihshang Branch, we co-organized a Rice Food DIY & Treasure Hunting Event for about 115 preschool children from Fuyuan Elementary School Affiliated Preschool, Dapo Elementary School Affiliated Preschool, Wan'an Elementary School Affiliated Preschool, and Tianjen Preschool in Chishang District. Through this event, the younger generation is educated to cherish the environment in the hometown and the concept of animal conservation is instilled, enabling these children in remote areas to feel the positive power in society.



Fund raising for the disadvantaged elders to support their year-end dinner

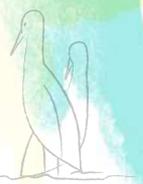
People coming to the TSC's gas stations could donate "red envelopes" at their will and those donating money could get a bottle of Taisugar Essence of Oyster and Clam for donation of every NTD 100 (cumulative). The raised funds will be transferred to Huashan Social Welfare Foundation for the year-end dinner to support the disadvantaged elders. The total funds raised amounted to NTD 1,130,683, and the number of beneficiaries was 1,884 in total (each dish is calculated at NTD 600).



Beach cleanup

To maintain the marine environment, TSC has adopted beach cleanup work since 2017. As of 2019, a total of 2,325 people conducted 46 times of beach cleaning, and 9.41 tons of garbage has been cleared (see Special Column- Beach Cleanup and Protection for details).





6.1 OPTIMIZATION OF TALENT AND ORGANIZATION

6.2 LABOR RELATIONS

Special Column- Taisuco Hypermarket

6.3 REINFORCED OCCUPATIONAL SAFETY

6.4 TECHNOLOGY MANAGEMENT

6 MANAGEMENT INNOVATION

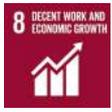


# 6

Talent cultivation and improvement of organizational efficiency are the key points of TSC's management innovation.

## Management Innovation

## Management Innovation

Corresponding material topics	Labor/ Management Relations, Innovative Research, Occupational Health and Safety	Corresponding SDGs	  
Policy	<ul style="list-style-type: none"> <li>➤ Cultivation of talents of the next generation and improvement of the overall operational management capabilities (Employment and Labor Relations)</li> <li>➤ Strengthening product power and marketing capabilities (Innovative Research)</li> <li>➤ Anticipation, prevention, compliance, implementation, systemization, self-management, follow-up inspection, continuous improvement (Occupational Health and Safety)</li> </ul>		
Commitments and goals	<p>Short-term goals (within 3 years):</p> <ol style="list-style-type: none"> <li>1.To implement the responsibility center system and practice goal management</li> <li>2.To check the contents of the job responsibilities and make plans for the company's manpower needs in 5 years</li> <li>3.To create more diversified channels for talent acquisition and strengthen talent cultivation</li> <li>4.To focus on health-oriented core technologies and products, increase resource investment and strengthen brand marketing</li> <li>5.To promote engineering contract source management, build online operations of "engineering hazard assessment", and specify that when proposing the project budget, an engineering hazard assessment form must be submitted, and the safety and health protection costs should be listed in accordance with the "engineering hazard assessment form" for further precautions to avoid listing in an irregular format</li> <li>6.Proactive performance target achievement rate: To have 100% compliance rate of regulations and other requirements as well as the improvement rate of deficiencies in safety and health inspections, and more than 98% of education and training participation rate</li> <li>7.Achievement rate of passive performance target: To have 100% completion rate of event investigations, and the Disabling Injury Frequency Rate and the Disabling Severity Rate to be the average value of the middle three years of the previous five years</li> <li>8.To cope with the International Standard for Occupational Safety and Health Management System (ISO 45001), the Company plans to conduct education and training and establish a promotion committee. By the end of 2020, it will be fully implemented in all units</li> </ol> <p>Medium and long-term goals (3 to 7 years):</p> <ol style="list-style-type: none"> <li>1.To publicly and selectively recruit manpower to reinforce the core and to meet the needs for sustainable management operations</li> <li>2.To introduce contract professional managers and introduce professional advisors from different fields to provide professional advice</li> <li>3.To combine new agriculture and the use of biotechnology for the R&amp;D of non-toxic, non-polluting, high value added and healthy products</li> <li>4.To achieve the highest occupational safety and health goals of "zero disaster", "zero accident" and "zero injury" for TSC</li> </ol>		
Responsible units	<ul style="list-style-type: none"> <li>➤ Social and Employee Care Group of Corporate Sustainable Development Committee</li> <li>➤ Internal and external units</li> <li>➤ Industrial union of TSC</li> </ul>		



<p>Input resources</p>	<ul style="list-style-type: none"> <li>◆ To foster the future talents for basic-, mid- and high-level executives through the reserve cadre plan to facilitate the succession. This plan is expected to be implemented in 2018~2022, with a budget of NTD 46.26 million</li> <li>◆ Set up Employee Welfare Committee and the Recreational Activities Promotion Committee to actively handle various sports, arts and cultural activities, and develop the cohesion and team spirit of the employees</li> <li>◆ In 2019, TSC's education and training expenses were NTD 45,449 thousand, with a total expenditure of NTD 44,656 thousand. The average number of employees was 3,476 from January to December in 2019. The average training expense for each employee was NTD 12,847</li> <li>◆ expenses were NTD 163,797 thousand and those for improvement or expansion of fixed assets were NTD 1,878,669 thousand</li> <li>◆ Invested NTD 2,953 thousand in occupational safety and health training</li> </ul>
<p>Grievance mechanism</p>	<ul style="list-style-type: none"> <li>• Set up an Employee Care Group to actively help employees with problems that can affect work, life and health, providing subsidies, condolence money and leave</li> <li>• Established grievance channels for employees when their rights are infringed or when they face improper disposal which is not able to be solved properly</li> <li>• Established the "Personnel Appraisal Committee" to review employee rewards and penalties</li> <li>• Formulated "Taiwan Sugar Corporation Complaint Investigation and Discipline Guidelines for Sex Harassment Prevention" to free employees and job-seekers from a workplace with sexual harassment and to prevent sexual harassment in the workplace</li> <li>• "Precautions against Illegal infringement in Duties"</li> </ul>
<p>Management System and Action</p>	<ul style="list-style-type: none"> <li>• Implement job rotation operations to expand personnel work functions and improve the flexibility of manpower utilization</li> <li>• Incorporate specific KPIs into the individual annual performance assessment as a measurement indicator and add the mechanism for assessment interview and counselling to assist employees to understand the functional items and work competence needed to be strengthened</li> <li>• Labor-management conferences, Organizational Rules for Employee Welfare Committee, Taiwan Sugar Corporation Complaint Investigation and Discipline Guidelines for Sex Harassment Prevention, Guideline of Grievance for TSC Staff, Working Rules for Practitioners, Guidelines for Employees' General and Project Evaluation, training-related rules and regulations</li> <li>• Research and Development Committee Charter, Guidelines for Intellectual Property Rights, Guidelines for Research Project Management, Guidelines for Technology Transfer and Authorization, Guidelines for R&amp;D Records and Document, Guidelines for Laboratory Safety and Use, Guidelines for Greenhouse Management, Taiwan Intellectual Property Management System (TIPS)</li> <li>• Occupational Safety and Health Management System (TOSHMS, OHSAS18001), Disasters Handling Guidelines, Guidelines for Disasters Emergency Response, Fire Safety Equipment Inspection and Guidelines for Maintenance and Report, Precautions for Diseases Caused by Abnormal Workloads, Precautions for Musculoskeletal Disorders Caused by Repetitive Tasks</li> </ul>
<p>Assessment management mechanism</p>	<p>Internal Control System, TSC Performance Assessment System, Corporate Sustainable Development Committee Work Plan and Implementation Review Meeting</p>



## 6.1 Optimization of Talent and Organization

The future planning of manpower and organization will be in line with the direction of business development and rolling adjustment will be adopted. In addition, through appropriate incentives and punishment systems, the Company can be united as one for smooth operation.

### 6.1.1 Talent Acquisition and Turnover

#### Talent Acquisition

The recruitment is based on the Employment Services Act, Labor Standards Act and “Regulations for the Employment of the Personnel of Business Units Affiliated with the Ministry of Economic Affairs”. In addition, for specialized or technical personnel with special business nature, it is possible to hire them in an open manner as contract employees. Recruitment of talents complies with legal regulations that require the protection of employee human rights, personal privacy, and the prohibition of improper discrimination. In the recruitment of talents, the Company upholds the principles of fairness, justice and integrity. Recruitment, selection, and hiring of employees are all in compliance with government regulations. There will be no discrimination and differential remuneration based on race, class, language, ideology, religion, political party, place of origin, place of birth, gender, sexual orientation, age, marriage, appearance, facial features, physical or mental disabilities, or membership in a union.

The terms of each contract require the suppliers to provide labor and health insurance to their employees, shall not perform forced labor or employ child labor (under 15 years old), and shall implement gender equality in work in accordance with the national human rights regulations and Labor Standards Act. Once suppliers are found to be in violation of gender equality in work, freedom of association, sexual harassment prevention, normal leave and non-payment of overtime, they will be immediately requested for improvement within a limited time and may be fined for breach of the contract. If they do not listen to advice or repeatedly violate the terms, the contract with such supplier may be terminated. Human rights protection requirements also apply to companies for major investment. Suppliers we have been working with for long can gradually attach more importance to human rights.

#### Talent Retention

In order to retain competitive talents, TSC strives to establish a friendly working environment, pay attention to the balance between work and life, provide employees with training and development opportunities and encourage employees to continuously improve themselves to achieve the development of individual careers. In recent years, new blood has been activated and most new employees recruited are under 30 years old. The number of employees entering and leaving TSC in the last three years was as follows.



### The number of new employees in the last three years

Year	2017				2018				2019			
Age/Gender	No. of male employees	Employment rate of male employees (%)	No. of female employees	Employment rate of female employees (%)	No. of male employees	Employment rate of male employees (%)	No. of female employees	Employment rate of female employees (%)	No. of male employees	Employment rate of male employees (%)	No. of female employees	Employment rate of female employees (%)
Under 30 years old	75	56%	38	48.1%	82	41.0%	62	46.6%	97	37.3%	84	42.0%
31-50 years old	66	6.5%	24	14.0%	72	7.2%	35	17.2%	72	7.3%	21	9.7%
51 years old and above	3	0%	-	-	4	0%	1	0%	5	0.3%	1	1.0%
Total number of new employees	206				256				280			
Total number of employees	3,556				3,560				3,451			
Employment rate (%)	5.8%				7.2%				8.1%			

Note:

1. New employees include retired/resigned ones.
2. Employment rate (%): Number of new employees in the category for the current year/ Total number of employees in the category at the end of the year.
3. The total number of employees does not include the number of those on leave without pay for the current year.

### The number of retired/resigned employees in the last three years

Year	2017				2018				2019			
Age/Gender	No. of male employees	Turnover rate of male employees (%)	No. of female employees	Turnover rate of female employees (%)	No. of male employees	Turnover rate of male employees (%)	No. of female employees	Turnover rate of female employees (%)	No. of male employees	Turnover rate of male employees (%)	No. of female employees	Turnover rate of female employees (%)
Under 30 years old	9	6.7%	5	6.3%	8	4.0%	4	3.0%	15	5.8%	4	2.0%
31-50 years old	17	1.7%	2	1.2%	17	1.7%	3	1.5%	44	4.4%	20	9.2%
51 years old and above	239	11.8%	21	15.9%	207	10.9%	11	8.7%	215	12.8%	22	21.0%
Total number of retired/resigned employees	293				250				320			
Total number of employees	3,556				3,560				3,451			
Turnover rate (%)	8.2%				7.0%				9.2%			

Note:

1. Turnover rate (%) = the number of retired/resigned employees in that category for the current year/the total number of employees in that category at the end of the year.
2. The number of retired/resigned employees includes employees who volunteer to resign or are fired, retire, or who die while on duty.
3. The total number of employees does not include the number of those on leave without salary for the current year.



## 6.1.2 Labor Structure

TSC has no foreign employees. We hire employees based on professional competence and experience, and all the employees are protected by the Labor Standards Act. The ratio of male to female employees is approximately 5.6:1. However, there is no differential treatment or discrimination in terms of employment, salary, performance appraisal and promotion due to gender or marriage status.

TSC is mainly in the agriculture and animal husbandry industry, with a majority of employees being males. Male employees account for 84.87% while female ones account for 15.13% of all employees. A joint examination is established based on medium and long-term manpower planning and the manpower needs of the respective units to recruit new employees, those who are enrolled will be assigned to the units in need of manpower for adequate jobs. The distribution and composition of TSC's staff in the past five years are as follows.

### Total number of employees

Item\ Year	2015		2016		2017		2018		2019	
Item\ Gender	Male	Female								
Total number of employees	3,787		3,641		3,556		3,560		3,451	
Dispatched personnel	1,382	181	1,340	177	1,336	216	1,328	266	1,343	346
Employed personnel	2,002	87	1,910	90	1,794	90	1,722	116	1,575	125
Contract-based personnel	13	5	12	5	14	5	19	6	7	2
Contracted personnel	32	85	30	77	29	72	29	74	4	49

**Note:**

According to Article 5 of the "Regulations for the Employment of the Personnel of Business Units Affiliated with the Ministry of Economic Affairs", personnel dispatched with rank 6 or above are called dispatched personnel; those who are employed with rank 5 or below are called employed personnel. In addition, for the needs of the business, for specialized or technical personnel with special business nature, it is possible to hire them in an open manner. Employees with rank 6 or above are contract-based personnel, the ones with rank 5 or below are contracted personnel.

Looking at the distribution of age and gender among the employees, those under the age of 40 is twice as many as those in 2015, and female employees in this age group account for 37.8% of the employees, more than twice the ratio of females (15.13%) among all employees, showing that the manpower structure in the Company is now being adjusted.

### Age and gender distribution of employees

Year	2015		2016		2017		2018		2019	
Age group \ Gender	Male	Female								
Under 30 years old	46	43	68	50	134	79	200	133	260	200
31-40 years old	243	86	245	86	258	99	286	126	311	147
41-50 years old	923	69	844	68	759	73	713	77	681	70
51 years old and above	2,217	160	2,135	145	2,022	132	1,899	126	1,677	105
Total	3,429	358	3,292	349	3,173	383	3,098	462	2,929	522



### Category, education background and age distribution of employees in 2019

Age group/category		High-level executives		Mid-level executives		Basic-level executives		Administration		Techniques	
		Male	Female	Male	Female	Male	Male	Female	Male	Female	Male
Age	Under 30 years old	0	0	0	0	0	0	77	118	183	82
	31-40 years old	0	0	1	0	7	4	138	108	165	35
	41-50 years old	1	0	34	3	53	3	298	47	295	17
	51 years old and above	74	9	222	12	181	4	571	70	629	10
Education background	Graduate school	40	8	95	7	52	6	182	114	188	62
	University/College	34	1	154	8	170	4	586	206	558	78
	High school and below	1	0	8	0	19	1	316	23	526	4
	Aborigines	0	0	0	0	0	0	14	2	12	1
People with disabilities		2	0	16	0	8	1	55	15	22	1

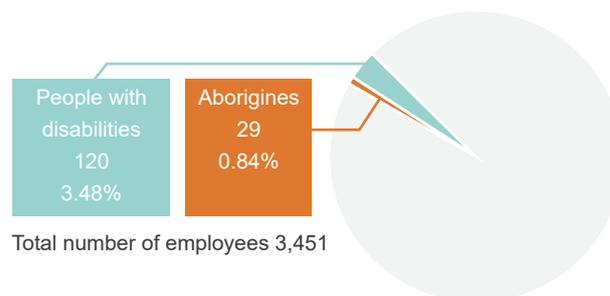
Note:

High-level executives include chairman, president, VP and all bosses and deputies herein in each unit.

### Hiring and Caring for Disadvantaged Groups

In order to protect equal employment opportunities for disadvantaged and related ethnic groups, we have complied with the relevant provisions of People with Disabilities Rights Protection Act and Indigenous Peoples Employment Rights Protection Act in the employment of physically and mentally disabled persons and indigenous peoples. The Company now employs 29 aborigines (accounting for 0.84% of total employees) and 120 people with disabilities (3.48% of total employees) in compliance with the employment regulations. There has been no report of infringement of the aborigines' right in the Company in 2019.

#### Employment rate of disadvantaged workers in 2019



### 6.1.3 Talent Cultivation

TSC attaches great importance to the development of each employee's work function and lifelong learning. By the end of November each year, we ask the various departments and units to organize curriculum that enhance the operation and management performance of each unit. In addition, they are submitted to the Company's Human Resources Department for annual education and training and act as the basis for the payment of education and training expenses. In order to cultivate staff's knowledge and professional skills and improve work performance and quality, the Company has set "Implementation Points for Human Resources Cultivation and Development of TSC". The minimum number of training hours per person per year is set according to the positions and ranks of employees. The promotion system and education and training are implemented to improve the knowledge and skills of employees and cultivate correct working attitudes. TSC will immediately carry out relevant education and training on its own rights, safety and health and internal control of the Company after the employment. We constantly explore the needs of organizations and individuals, review them at

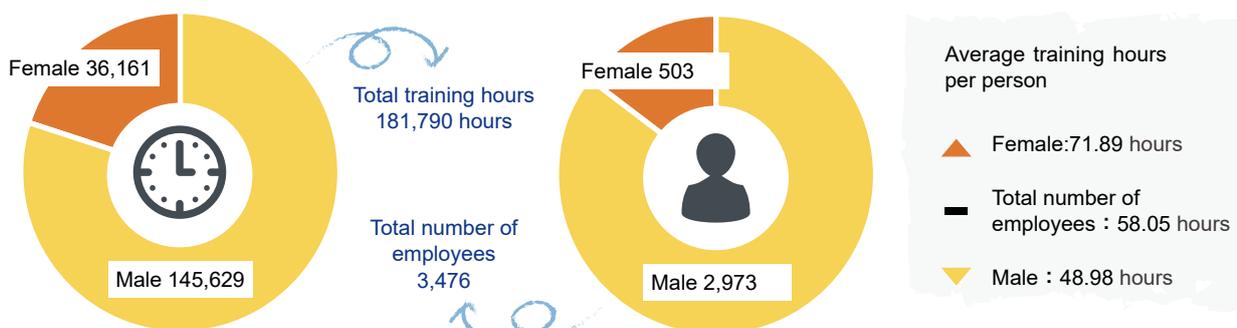
all times and gradually carry out all necessary trainings to enhance their knowledge and skills required for career development. In 2019, the number of trainees was 3,476 (average number from January to December), with 181,790 training hours in total, and the average training hours for each physical course and online course were 49.65 (172,552/3,476=49.64) hours and 2.66 (9,238/3,476=2.66) hours respectively, and the staff training expenses totaled NTD 44,655,637.

### The category and gender of the trainees and average number of training hours

Year		2017			2018			2019		
Item / Gender		Total no.	Total training hours	Average training hours	Total no	Total training hours	Average training hours	Total no	Total training hours	Average training hours
Management	Male	1,336	79,541	59.54	1,235	76,950	62.31	1,115	61,671	55.31
	Female	221	17,084	77.30	148	13,731	92.78	131	7,764	59.27
Permanent employees	Male	1,794	51,409	28.66	1,815	87,867	48.41	1,803	73,979	41.03
	Female	90	5,424	60.27	234	22,669	96.88	340	35,800	105.29
Temporary employees	Male	43	787	18.30	48	2,283	47.56	27	698	25.85
	Female	72	2,627	36.49	80	3,173	39.66	60	1,878	31.30
Dispatched workers	Male	0	0	0	0	0	0	0	0	0
	Female	0	0	0	0	0	0	0	0	0

- Note:
- Formula: Average training hours of male employees in 2019 = Total training hours of male employees in 2019 / Total number of male employees in 2019.
- Management includes the personnel with rank 7 (inclusive) or above; formal employees include the personnel with rank 6 or below and the evaluators; permanent employees include assigned and employed ones; temporary employees include contract-based personnel and contract personnel.
- The Company was in sugar manufacturing industry in early days. Due to the business model, the proportion of male and female employees was very different (about 10:1). In recent years, the proportion of newly recruited female employees has increased significantly (male/female: 5.6:1). The Company has arranged intensive training courses (about 70 hours/ person) so that new recruits can get familiar with the business earlier. The proportion of female new recruits in 2019 was higher (the number of female new recruits was 106/ the total number of female employees was 340: the number of male new recruits was 174/ the total number of female employees was 1,803 in 2019), resulting in their higher average training hours than male employees'.

### Average hours for employee learning and development in 2019 (by gender)



Note: The total number of employees was the statistical data as of December 2018.



## All-around Development

The employee training is based on the long-term development of the enterprise, with the indicators of promoting and activating the development of talent function. TSC attaches importance to the all-round learning of employees and provides diversified and innovative training channels to implement life-long learning to create a learning-type organization. The Company has formulated the “TSC Education and Training Operation Guidelines”. The channels include the common training organized by the Company, independent training organized by each unit in accordance with the individual business needs, second expertise and transfer training, participation in training outside the company, on-the-job training, knowledge sharing activities, digital learning courses and others to cultivate professional manpower meeting the company’s business needs.

In order to strengthen the training of all levels of supervisors, employees’ professional knowledge, skills and second expertise and to cooperate with the needs of business development and human resources development, the Company provides regular and comprehensive training resources and learning environment as well as a solid and stable education and training system for employees to grow and learn more efficiently so as to create a valuable and competitive corporate brand. In order to promote diversified learning channels and enhance training effectiveness, the Company has opened the blended course with digital and physical courses. In 2019, it organized two sessions for two courses each, including “New Employee Camp” and “New Employee Workshop”, one session of “Middle-level Manager Training Course” and “Primary Supervisor Training Course” each, and different digital courses are designated according to the trainees. The digital learning education training was promoted, and the total number of training hours of company-wide reading certification in 2019 was 9,238 hours, which was estimated to save the training costs of about NTD 1.85 million.

### Number of employees in various courses in 2019

Course Type	No. of trainees	Male	Female
New staff training	265	165	100
Primary supervisor training	40	27	13
Mid-level supervisor training	39	29	10
Expertise and technology training	33,841	28,587	5,254
Total	34,185	28,808	5,377

### The Performance and Results in 2019

- In-service education advancement subsidies**  
 There were 56 applications with a total subsidy of NTD 770,000.
- Tuition subsidies for foreign language studies**  
 35 applications were submitted with a total subsidy of NTD 240,000.
- Knowledge sharing activities**  
 A total of 20 units participated in knowledge sharing activities in 2019. There were 147 sessions in total with 3,997 participants.
- The book review competition held by the Ministry of Economic Affairs**  
 A total of 71 articles.

We encourage employees to pursue further studies and enrich their knowledge. In accordance with the “TSC Education and Training Operation Guidelines”, we provide in-service education advancement subsidies for those who study a master’s program and above or a credit program related to their business in the spare time. In 2019, there were 56 applications and a subsidy of NTD 770,000, which was good for improving the quality of employees. We encourage employees to actively study foreign languages, provide tuition subsidies for foreign language studies, offer subsidies for the registration fee to those who attend a foreign language examination and those who pass the exams are awarded bonuses. In 2019, 35 applications were submitted with a subsidy of NTD 240,000, which was effective in improving employees’ foreign language abilities.

In addition, in order to develop a reading habit by reading a good book, discussion or work knowledge sharing, a total of 20 units participated in knowledge sharing activities in 2019. There were 147 sessions in total with 3,997 participants. A total of 71 articles from all units were sent to the Ministry of Economic Affairs by the Company to participate in the book review competition.



## 6.2 Labor Relations

### Performance Assessment and Rewards & Punishments

In accordance with the "Employees Normal-Time and Project Evaluation Guidelines" and "Employees Annual Assessment Guidelines", 100% of the employees are subject to annual performance assessment. The direct supervisors conduct initial appraisal of performance. The supervisors consider the performance of the subordinate's job performance for the year and conduct the evaluation. After the initial appraisal, the department's indirect supervisor conducts the reassessment and then verifies the performance for the year in accordance with their responsibilities. Starting from 2015, the Company formulated the procedures and matters regarding the annual assessment of employees in order to promote the spirit of performance appraisal, awarding superior and eliminating the inferior and encourage performance of the employees. In addition, in order to make the system prudent and careful, we enhanced the audit level and established a review team to enforce the controversial administrative power based on the harmony of the employer-employee relationship.

The operational performance bonus is divided into "assessment bonus" and "performance bonus" as prescribed in the "Key Points for the Implementation of Performance Bonus Plan of the State-owned Enterprises Affiliated to the Ministry of Economic Affairs". Assessment bonus has to be granted in accordance with the results of work assessment; performance bonus is distributed when there is surplus in the company. The operational performance bonus of the year in all units is divided into "assessment bonus" and "performance bonus". The total allocated amount of the bonuses was amended in 2011 by MOEA to the limit of no more than 4.4 months' salary.

### Collective Agreement

The TSC Federation of Labor Unions entered the annual agreement with the Company for both parties to abide by in 2010 to protect the rights and interests of both parties, improve work efficiency and respect each other's exercise of rights of operation and labor to create a business development. The ratio of employees being protected by the collective agreement reaches 100%. In order to promote the unity and harmony of labor and capital, the seventh consultation meeting for the draft of the collective agreement was held in February 2020. Both the employers and the employees reached a consensus on the draft of the collective agreement, and such agreement has been reported to MOEA for approval.



## Maintaining Employee Rights

TSC has been upholding the concept that the employees are the Company's most important assets as well as the cornerstone of the Company's growth, and it also attaches great importance to the employees' working environment, development and care. We have established diversified communication channels internally to continuously promote employee relations projects, hoping to create a working environment where the employees can work and enjoy life happily. The protection of human rights is handled in accordance with government regulations at TSC. During the reporting period of 2019, TSC was not subject to any human rights review or impact assessment.

In order to strengthen and implement human rights, regular human rights-related courses are held, including the implementation of gender mainstreaming, sexual harassment prevention and control, the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) and seminars or courses related to gender equality, labor laws and Labor Standards Act. There were 2,101 participants in 2019, and the total number of training hours was 3,796 hours, accounting for 60.4% of the total number of employees (3,476).

In terms of labor rights, TSC strictly abides by various labor laws. We have established employee opinion mailboxes and held employee seminars which allow the employees to offer open and unimpeded advice and appeals. TSC also commits itself to prevention and control measures for sexual harassment. Apart from advocating in orientation training, it also sets up special hotlines, faxes or e-mail boxes to handle sexual harassment complaints. If a complaint is received, the privacy of the parties should be protected during the investigation process in order to provide employees with a work environment free from sexual harassment. Education and training programs such as gender mainstreaming, sexual harassment prevention and gender impact assessment are continuously arranged from time to time to enhance employees' awareness of gender sensitivity and gender mainstreaming. In 2019, there was no occurrence of violation of human rights and discrimination nor labor complaints. If there is feedback from the employees, TSC will immediately reply and help them solve the problem.

## Labor Conference

The Labor Conference aims to dissolve differences and seek consensus. It consists of representatives of both employers and employees and discusses and effectively communicates relevant issues such as labor rights and working conditions. The proposals of the labor conference are all documented, tracked and understood at any time. All employees are provided with timely information on the meeting and an interactive mechanism is established. In addition, it also strengthens the relationship between the Company and its employees through multiple practices such as timely communication with labor representatives, issuing company publications and setting up mailboxes to enhance employee satisfaction. Both employers and employees timely exchange opinions or negotiate with each other in terms of the issues of common concern between them. In 2019, all units held a total of 86 labor conferences and there were 9 responses to proposals, enabling the labor-management communication channels to stay smooth, and no labor dispute or loss was caused by it.

## Advance Notice of Operation Change

Where TSC terminates a labor contract pursuant to Article 11 or the provisions of Article 13, the provisions set forth below shall govern the minimum period of advance notice:

- Where a worker has worked continuously for more than three months but less than one year, the notice shall be given ten days in advance.
- Where a worker has worked continuously for more than one year but less than three years, the notice shall be given twenty days in advance.
- Where a worker has worked continuously for more than three years, the notice shall be given thirty days in advance.



After receiving the advance notice referred to in the preceding paragraph, a worker may, during working hours, ask for leave of absence for the purpose of finding a new job. Such leave of absence may not exceed two work days per week. Wages shall be paid during such leave of absence. Where an employer terminates the contract without serving an advance notice within the time limit prescribed in the first paragraph of this article, he/she shall pay the worker wages for the advance notice period.

## Remuneration System

The overall employee remuneration includes the monthly salary and variable pay (including bonuses). The monthly salary is based on the employee's professional functions and job title, and the variable pay is distributed in accordance with the company's operating performance and individual work performance regardless of gender or region. In 2019, the starting salary of new recruits through the joint examination of state-owned businesses of the Ministry of Economic Affairs was NTD 36,982 and that of the self-employed personnel through independent exams was NTD 24,206. The salary of new recruits is higher than the local (Taiwan) minimum wage. The ratio of basic salary and remuneration of women and men in the same department, seniority, position and rank is 1:1. The ratio of TSC's highest annual personal income to the median annual income of all employees was 1.97 times. The percentage of the Company's highest annual total salary increase is consistent with the median percentage of other employees' average annual total salary increase. The salary was not adjusted in 2019.

## Welfare

In addition to providing basic protection for employees, TSC has also established the "TSC Employee Welfare Committee" in accordance with the "Employee Welfare Fund Act" and "Organization Regulations on Employee Welfare Committee" in order to strengthen the implementation of employee welfare programs in the affiliated units. The Employee Welfare Committee consists of 1 chairman, 1 vice-chairman, 21 members and 1 director-general assisting the chairman in handling daily business affairs. In addition, the business, general affairs and accounting divisions are set up to handle the planning and implementation of employee welfare issues. A harmonious working environment is therefore created by the perfect welfare system.

### Welfare Items

Care of living	Condolatory supplement for death of employees' parents and spouses	Employees' maternity allowance
Living cost loan	Condolatory supplement for natural disasters	The subsidy for children attending Nan-Kwang Senior High School
Festival gifts	Emergency loans for employees and dependents	Recreational facilities and activities
Employee and children education loans	Condolatory supplement for employees suffering from cancer	Retirement fellowship
Employees' and their Children's Award and Scholarship	Employee Welfare Committee Group Insurance	Mutual aid money
Employees' and the dependents' medical benefits	Loans for natural disasters	Mutual aid money for the death of members of the TSC Federation of Labor Unions
Subsidy of Consultation fee	Condolatory supplement for major illness/injury	Club activities
Employee health examination subsidy	Accommodation subsidy in TSC's own tourist attraction	Wedding gift money



## Nursery Benefits

There is no difference regarding parental leave without pay due to gender, job titles and work areas. Both male and female employees can apply for parental leave without pay. In 2019, 11 employees (1 male and 10 females) applied for parental leave without pay and 7 were reinstated (0 male and 7 females). The 7 females continued their work after the reinstatement in 2019. In 2019, the retention rate for men and women both reached 100%.

Year	2017			2018			2019		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
The number of employees eligible to apply for parental leave without pay (A)	67	37	104	72	42	114	74	42	116
The number of employees who actually applied for parental leave without pay in the current year (B)	0	4	4	2	10	12	1	10	11
The number of employees who were expected to be reinstated after parental leave without pay in the current year (C)	2	3	5	2	4	6	0	7	7
The number of employees who were actually reinstated in the current year (D)	2	3	5	1	4	5	0	7	7
The number of employees who were actually reinstated in the previous year (E)	1	5	6	2	3	5	1	4	5
The number of employees who were actually reinstated in the previous year and has been reinstated for 12 months (F)	1	5	6	2	3	5	1	4	5
Reinstatement rate in the current year % (D/C)	100%	100%	100%	50%	100%	83%	-	100%	100%
Retention rate in the current year % (F/E)	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note:

As one of the male employees resigned after the reinstatement in March 2018, the male retention rate for 2018 was 50%.

## A Sound and Complete Retirement System

TSC handles retirement, compensation and severance in accordance with the "Regulations Governing the Pension, Severance and Survivor Payments for Employees of State-owned Enterprises Administered by the Ministry of Economic Affairs". The pensions contributed are deposited in the special accounts of the trust department of the Bank of Taiwan. The Employee Pension Management Committee and the Supervisory Committee of Business Entities' Labor Retirement Reserve are responsible for management and supervision. Pensions were allocated in accordance with the ratio of the total salary paid in 2019 (staff: 4.19%; worker: 0.26%). The pensions contributed are deposited in the special accounts of the trust department of the Bank of Taiwan managed and supervised by the Employee Pension Management Committee and the Supervisory Committee of Business Entities' Labor Retirement Reserve. For workers choosing new pension system, 6% of their monthly salary is set aside as their retirement pension.

## Organizational Adjustment

In recent years, due to the changes in the domestic economic environment, TSC has actively expanded its diverse management. To achieve corporate sustainable development, the business strategies are adjusted and organizational adjustment is conducted to move toward the development of the health industry oriented model. TSC's major organizational adjustment cases in 2019 are as follows.

1. To simplify administrative operations, the Hsinchu, Taichung, Chiayi, Tainan and Kaohsiung Offices were merged with Marketing Business Division to the Headquarters of Business.
2. For the needs of occupational safety and health, the "Occupational Safety and Health Section" was added in the Xiaogang Sugar Refinery of Sugar Business Division.
3. To cooperate with the business adjustment of the cooperation case of the TSC Hypermarket Business Division, the "Online Shopping Group" and "Property Management Group" and TSC Healthy Market of the Taipei Business Office were added in the Marketing Business Division.
4. To promote circular economy, the Dong Hai Fen Livestock Farm was adjusted to "Dong Hai Feng Agricultural Circular Park, and the "Livestock Farm", "Renewable Energy" and "Park Management" are planned in accordance with the business planning. In addition, the "Organic Fertilizer Section" is also added to the Farm Division of Pingtung Operation Branch.

In the future, we will continue to review the rationality of the units, departmental organization and manpower allocation in accordance with our business strategy and business growth.

## Special Column- Taisuco Hypermarket

The keen competition in the hypermarkets leads to regular low-price competition. In addition, the rapid development and expansion of community-based supermarkets, fresh food department as well as the online shopping market also caused deficits for Taisuco Hypermarket. After evaluation, the business had completed its phased tasks. Taking into considerations the rights and interests of the employees, manufacturers and consumers, the resolution to cooperation with the leading retailer, Carrefour, was approved in the 10th board meeting of the 33rd Session of BOD, and the contract was signed on April 12th, 2019. Taisuco Hypermarket stopped its operation on June 17th, 2019.

Among the 945 employees in the Hypermarket Business Division, 86 were full-time employees who would be transferred to other units of the Company. The 59 contracted employees and 800 part-time staff were laid off. After the mediation of labor disputes and compulsory negotiation organized by the Labor Affairs Bureau, layoff conditions better than those stipulated by laws and regulations were provided, and the staff were laid off in three batches on June 17th, June 30th, and July 31st, with the severance pay totaling NTD 295 million. Besides the desirable severance, we not only helped these employees arrange interviews with Carrefour, but also assisted them in applying for unemployment grants and contacting the Employment Service Center for employment counseling.

With the cooperation with Carrefour, the marketing of products would be more effective through Carrefour's operational advantages and competitiveness. It is hoped that more investments can be drawn to create a better employment environment and cooperative development opportunities to continue to provide quality services and products for the common prosperity and for the effect of 1+1 is greater than 2 and thus to better fulfill our corporate social responsibility.





## 6.3 Reinforced Occupational Safety

### 6.3.1 Occupational Safety and Health Management System

In order to promote workplace safety, prevent accidents, improve working conditions and safeguard the health of employees, the Head Office, the units and their subordinate units meeting the conditions prescribed in Article 10 of the “Regulations for Management of Occupational Safety and Health” all established the Occupational Safety and Health Committees. Members of the committee include safety and health managers, full-time nurses and members in different areas within the organization, of which 45 are from the Head Office and representatives of trade unions or those elected by the labor account for more than one-third of the total number of members. There are 29 employers’ representatives elected by various units and related departments, 15 employees’ representatives elected by the TSC Federation of Labor Unions and 1 nurse. Through the Occupational Safety and Health Committee, the management review meetings or relevant meetings, worker and employee representatives are able to participate in the consultation and related issues concerning Taiwan’s occupational safety and health management system and be provided with timely information. Supervisors at all levels should reduce and remove barriers of obstacles to consultation to enhance the mutual participation between the labor and management to promote safety in the workplace.

The Occupational Safety and Health Committee reports, coordinates and offers advice on the quarterly results of occupational safety work, changes in the external environment, occupational safety and health policies and self-management plans. It will discuss improvement measures for environmental conditions, equipment and operating conditions. Through regular meetings, the policy of TSC Labor Safety is communicated and the opinions between representatives of labor and management are exchanged through the Health and Safety Committee to prevent occupational disasters and to protect occupational safety and health.

In the collective agreement draft, the Company and the TSC Federation of Labor Unions agreed that the Company should handle safety and health issues in accordance with the Occupational Safety and Health Act and other relevant regulations and carry out occupational disaster prevention in accordance with government regulations. The trade union members should strictly abide by the relevant provisions of the Occupational Safety and Health Act and the rules made by the Company to prevent the occurrence of occupational hazards. In the collective agreement draft, the percentage of health and safety related topics is about 7%.

### Occupational Safety and Health Management System

The “Taiwan Occupational Health and Safety Systems (TOSHMS)” has been established according to the “Regulations for Management of Occupational Safety and Health”. We have 9 units that have been verified by ISO 45001 and TOSHMS, including the Head Office, Xiaogang Sugar Refinery of Sugar Business Division, Shanhua Sugar Refinery, Huwei Sugar Refinery, Gangshan Incineration Plant of the Environmental Protection Business Operation Division, Kanting Incineration Plant, Kaohsiung Branch, the Petroleum Business Division and Biotechnology Business Division. The Biotechnology Business Division first applied for ISO 45001 in 2018 and passed the verification at the end of 2018. The follow-up re-evaluations are also conducted in accordance with regulations to maintain the system’s operation and effectiveness.

In order to integrate matters regarding occupational safety and health management and improve performance in industrial safety management, the “TSC Occupational Safety and Health Management Information System” was established to manage occupational safety online. In addition to sharing information on industrial safety and saving data online, it also accelerates data transmission and simplifies the procedures. Meanwhile, it also achieves the purpose of saving paper for environmental protection. In addition, the Environmental Protection Information Webpage on TSC International Information Network and TSC Workplace Safety and Health Improvement Business Reporting System were established to establish a communication channel with employees to improve workplace safety and health.



## The Functions of Occupational Safety and Health Management Information System

Item	Description
Hazard Identification and Risk Assessment	Establish a platform for risk assessment based on projects or accidents and routine work for each department.
Contractor Management	The projects contracted by all units and documents for contracting management are required to register online for the daily management.
Industrial Safety Reporting and Management	For emergency and incidents (including natural disasters), all levels of units can be immediately notified through this system.
Occupational Disaster Management	Industrial safety or pollution in all units can be notified through the system.
The System of Occupational Disaster Statistics	The occupational disaster statistics regarding employee workplaces entered online by each unit, contractors, traffic accidents and industrial safety environmental performance indicators are calculated and output automatically.
License Management System	All employees with licenses for industrial safety and the number of HS licenses required will be managed online and the licensees will be notified of on-duty training period by email beforehand.
Health Management	The employees' general health checkups and special health checkups will be managed online. The employees who do not undergo the checkups will be notified by email before the next inspection time expires.
Industrial Safety Inspection	The platform for sharing the management of each unit, inspection content for industrial safety and improvement measures.
Database Management	Industrial safety information, industrial safety reporting, regulations regarding industrial safety and the platform for sharing documents about industrial safety.

### Hazard Identification and Risk Assessment

The head of each unit assigns personnel for “hazard identification and risk/opportunity assessment operations” for the relevant education and training organized by Occupational Safety and Health Department for 3 hours and more, and such personnel will be responsible for hazard identification and risk/opportunity assessment operations within the unit. Every September, it is necessary for them to confirm the hazard identification and risk/opportunity assessment operations online at the “TSC Occupational Safety and Health Management Information System” and publicize the hazards in the workplace and preventive measures. Therefore, when any of the following situations occurs, relevant operations have to undergo hazard identification and risk assessment process:

1. When the standard provisions of the "Taiwan Occupational Health and Safety Systems (TOSHMS)" are revised;
2. When there are new processes, process changes, new equipment, changes in raw materials or changes in the conditions of the operating environment (including the setting of target plans and before the adaptation of non-compliance corrective measures) that will obviously affect the risks, hazard identification and risk assessment should be conducted before these changes;
3. When something unexpected occurred;
4. When the legal changes are sufficient enough to affect the score of risk assessment;
5. When there are more than 3 false alarm events of the same nature or in the same area;
6. When it is strongly requested by the stakeholders;
7. When a major defect is found during the inspection or audit.

The head of each department should also establish corresponding control measures based on the results of the hazard identification and risk assessment (risk level). Occupational Safety and Health Department also visits the workplace from time to time to discover potential hazards, make suggestions, propose improvement measures, and organize the List of Unacceptable Risks.



## Qualifications for personnel for occupational safety and health

- Internal auditor of occupational safety and health should be equipped with any of the following qualifications:
  1. Received more than 6 hours of internal training of occupational safety and health and passed the assessment;
  2. Have certificate of external training of internal auditor of occupational safety and health or the certificate of lead auditor;
  3. Accompany on the audit for more than 3 times and the written experience report or related audit report is approved by the occupational safety and health management representative.
- Hazard identification and risk assessment personnel: Should receive the education and training of hazard identification and risk/opportunity assessment for more than 3 hours.
- The regulatory compliance auditor should be equipped with any of the following qualifications:
  1. Graduated from occupational safety and health related department;
  2. Received education and training of regulatory compliance for more than 3 hours;
  3. Being the supervisor of labor/occupational safety and health operations or have relevant safety and health management personnel certificate;
  4. Legal professionals (such as business supervisor, /labor/occupational safety/health manager (staff), solvent operation supervisor, first-aid personnel, fire-fighting management personnel): Received training as prescribed in related regulations and obtained relevant certificates.

## Occupational Safety Performance Indicators over the Years

TSC attaches great importance to the safety of the working environment of employees and contractors. In order to create a safe operating environment, the company enhanced the professional knowledge of employees and improved the safety of various equipment through effective management methods. There have not been any occupational disease related cases among our employees and contractors, nor has there been any case of death over the past three years, showing the efforts we have made in occupational safety for our employees.



## Statistics of occupational injury

Category	Item	2017	2018	2019		
Employees	Working hours	Total working hours for men	6,187,381	6,106,946	6,038,454	
		Total working hours for women	2,945,835	2,907,539	1,976,720	
		Total working hours	9,133,216	9,014,485	8,015,174	
	Serious Occupational Injury Rate(Excluding deaths)	Total male Serious Occupational Injury Rate	0.16	0.04	0.03	
		Total female Serious Occupational Injury Rate	0	0.05	0.30	
		Total Serious Occupational Injury Rate	0.11	0.13	0.10	
	Recordable occupational injury rate (including deaths and number of serious occupational injury)	Total male Occupational Injury Rate	0.16	0.04	0.03	
		Total female Occupational Injury Rate	0	0.05	0.30	
		Total Occupational Injury Rate	0.11	0.13	0.10	
	Non-employee workers (contractors)	Working hours	Total working hours for men	3,089,087	2,945,542	3,329,046
			Total working hours for women	4,008,049	3,821,801	3,255,708
			Total working hours	7,097,137	6,767,343	6,584,754
Serious Occupational Injury Rate(Excluding deaths)		Total male Serious Occupational Injury Rate	0.27	0.10	0.18	
		Total female Serious Occupational Injury Rate	0.16	0.02	0	
		Total Serious Occupational Injury Rate	0.20	0.12	0.09	
Recordable occupational injury rate (including deaths and number of serious occupational injury)		Total male Occupational Injury Rate	0.27	0.10	0.18	
		Total female Occupational Injury Rate	0.16	0.02	0	
		Total Occupational Injury Rate	0.20	0.12	0.09	

**Note:**

1. There were 4 work-related injuries in total, 1 happening to male employee and 3 to female employees in 2019. Among them, 1 fell down, 1 got burned, 1 crushed by collapsed object and 1 got hurt in traffic at work.
2. There were 3 injuries for contractors in 2019, including 3 male employees. Among them, 2 were rolled in and 1 was cut.
3. After the accident, every unit has to file the report to the Occupational Safety and Health Management Information System in accordance with the guidelines of injury filing and statistical analysis operation standards.
4. Related calculation formulas:
5. Death rate caused by occupational injury= number of deaths caused by occupational injury/working hours\* 1,000,000 hours
6. Serious Occupational Injury Rate= Number of serious occupational injuries (excluding deaths)/ working hours\* 1,000,000 hours
7. Recordable occupational injury rate= recordable occupational injury number(including death)/ working hours\* 1,000,000 hours



## 6.3.2 Safe Working Environment

To reduce occupational safety risks, the company has formulated corresponding operation management process, adopted appropriate preventative measures and implemented necessary control methods. In addition, through training, advocacy, drills and inspections, hazard identification continues to be carried out to control risks within an acceptable level and positively creates a safe working environment.



### Equipment Safety Management

TSC classifies risks based on the contents of the equipment and operating conditions, formulates the procedures of equipment safety management and plans a plant maintenance and service system based on critical levels. Detailed inspections are planned for dangerous equipment to ensure safe operation of the equipment. During the use of dangerous equipment, automatic inspections, key inspections, operating inspections shall be carried out according to laws. In addition, regular inspections shall be carried out by labor inspection agencies within the statutory period. For hazardous gas and chemical supply systems, toxic gas monitoring systems, process exhaust gas treatment systems, there are regular inspections and maintenance procedures in place. In the area of equipment, safety management methods are proposed in response to the safety needs of people, incidents, places and objects and they are controlled by standard operating procedures.

### Emergency Response Management

Taiwan Sugar Corporation has formulated internal control like "Fire Safety Equipment Inspection, Maintenance and Report Guidelines" to make sure that all fire equipment pass the regular inspections and can be used at any time. Each unit has developed the "Fire Protection Plan" in accordance to Article 13 of the Fire Service Act to achieve the purpose of preventing fires, earthquakes and other disasters to ensure the safety of lives. Moreover, the employees are organized into teams for fire protection and training for disaster prevention and contingency are provided (including reporting, fire extinguishing, evacuation guiding, safe protection and rescue courses). Earthquake countermeasures, fire prevention during construction, emergency contact hotlines and evacuation routes have also been planned. Taiwan Sugar Corporation has also developed various types of emergency contingency plans for various situations, such as natural disasters, chemical spills and hypoxia operations and established an emergency reporting system based on the internal control system of Disasters Handling Guidelines, Guidelines for Disasters Emergency Response and TSC Operation Guidelines for Various Disasters and Emergency Incident Reporting. The earthquake prevention and disaster relief drills of various units promote the earthquake disaster prevention education, which helps all employees establish the correct earthquake-proof concept and develop the emergency evacuation and response capabilities at the early stage of the earthquake so as to achieve the purpose of earthquake prevention for employees. In 2019, we cooperated with the National Disaster Prevention Day and organized earthquake disaster prevention education and emergency evacuation drills. We organized 147 sessions in total and 3,250 participants attended the training and drills.



## Industrial Safety Training and Promotion

To deal with the transformation of the business and the retirement, resignation and turnover of personnel, the Industrial Safety and Environmental Protection would carry out the investigation of training needs of the general staff. TSC has developed the annual training program to ensure the industrial safety of the laborers based on the "Occupational Safety and Health Education and Training Rules". Besides, to increase the knowledge and management ability of the persons in charge of workplaces in occupational safety and health, letters are sent to the persons in charge who have not yet received the training to require them to participate in the "Occupational Safety and Health Training" they need. Before the newly employed or transferred personnel commence their work, each unit must provide training to them based on the nature of their business and work requirements and keep records of the training for review. In 2019, a total of 9 sessions of occupational safety and health-related education and training were conducted and 1,132 people were trained.

Training course	Session	No.	Training performance
Certificate Training Course for Supervisor in Charge of Roofing Operations	1	42	To improve the knowledge and management ability of all units in roofing operations and reduce the risk of falling
Online Workshop of Operations of Engineering Hazard Assessment	1	200	To strengthen the knowledge of hazard assessment in the planning stage of the project and improve the reporting quality of online operations in the occupational safety and health management information system
ISO 45001 Promotion Group Training	1	30	To analyze and understand all the requirements of ISO 45001 Standards
Zero Disaster Training course for New Employees	1	213	To enhance the new employees' understanding about industrial safety and deepen the culture of industrial safety through the group activities and seminars
Workshop on ISO 45001 Regulatory Compliance and Risk Identification	1	40	To study the analysis and understand the methods for regulatory compliance and risk identification of ISO 45001
Headquarters On-the- job Education Training Course of Safety and Health	1	449	As prescribed in the Article 17 of Occupational Safety and Health Education and Training Rule that general workers should receive at least three hours of training every three years
Occupational Safety and Health Workshop	1	55	To strengthen the promotion of various businesses in industrial safety, reduce workplace hazards and promote physical and mental health of employees
Headquarters Earthquake Disaster Emergency Evacuation and Self-defense Fire Prevention Training Course	1	63	To improve the fire-fighting and disaster-relief capabilities of the Headquarters Defense Corps
Workshop of Health Promotion and Healthcare in the Workplace	1	40	To study and promote the employees' awareness of obesity prevention and learn health management methods of diets and sports
Total	9	1,132	



## Guidance and Inspection of Industrial Safety

In order to implement the management of industrial safety and strengthen the inspection of industrial safety, the annual "Industrial Safety Inspection Plan" is established according to the nature of business. The unsafe equipment, unsafe environment and behaviors are identified in advance through an active and effective management mechanism of industrial safety inspection and are tracked until they are truly improved to effectively prevent disasters from happening. Items to be improved are proposed and tracked until they are improved to ensure the safety of factory sites, business sites and workplaces and prevent disasters from happening so as to improve occupational safety and health management performance. In addition, through the walking management of high-level executives, senior executives at all levels will be sent to each unit for guidance and inspections from time to time.

Year/Item	2015	2016	2017	2018	2019
No. of annual industrial safety audits	1,819	944	993	1,037	936
No. of the walking management of high-level executives	1,232	3,113	3,729	3,183	3,074
No. of industrial safety audits for contractors	752	725	716	711	784



9 MANAGEMENT INNOVATION

## Excellent Occupational Safety

In 2019, Jianshanpi Jiangnan Resort under the Leisure Business Division and Shanhua Refinery of the Sugar Business Division were awarded the "Occupational Safety and Health Unit Award in 2018" by the Labor Affairs Bureau of Tainan City Government.



## Sustainable Occupational Safety and Health Family

To maximize the effect of the plan to solidify the occupational safety and health program locally, Taiwan Sugar Corporation established the "Sustainable Occupational Safety and Health Family" to effectively improve the workplace environment and enhance the labor safety and health. The Environmental Protection Business Operation Center plays the core leading role to improve the performance of all the corporate family members through collective trainings, mutual safety inspection, disaster case studies or simulated emergency contingency exercises and provides advice to other manufacturers through factory on-site counseling. The family currently consists of 36 businesses covering the industries of environmental protection business, mechanical (electrical) servicing, steel, high-tech and solar power. In 2019, the Company held its own occupational safety and health training to provide free training for family members. There were 5 sessions.

## Zero Disaster Training

In order to reach the goal of zero disaster through education and training to deepen the employees' safety awareness in the workplace, we have worked on the organization of training for "foreseeable risk training for zero disaster" and "traffic safety propaganda campaign", leading our employees to master hazard identification before the work to take early measures and prevent any possible occupational accidents. In 2019, 17 units continued to organize training for "foreseeable risk training for zero disaster" with 1,106 participants, and the performance was included into the annual assessment to encourage all units to implement the training.



## Industrial Safety and Environmental Protection Month

To promote employees' awareness of industrial safety and environmental protection, prevent incidents of occupational hazards and pollution, promote employee safety and health, protect the environment and show good will, the "Industrial Safety and Environmental Protection Month" was introduced in November 2019 to promote content in environmental protection, mainly including green embellishment for the area, disaster prevention, earthquake and safety as well as environmental protection education. We also carry out safety training, promote various advocacy activities, implement contractors' occupational safety management and audit, implement the 5s activity in the factory area, implement occupational safety audit and inspection, disaster prevention and rescue and various emergency response drills, implement the management of the licenses of dangerous machinery and equipment and its operators and carry out the industrial waste reduction, recycling of waste and waste sorting.



## Occupational Safety Health Promotion Assembly

To cooperate with the Ministry of Labor, TSC organized the national Occupational Safety Health Promotion Assembly, focusing on the enhancement of the employees' knowledge and skills of workplace safety and disaster prevention, promoting occupational safety, reinforcing autonomous management and health promoting activities to reduce the occurrence of occupational accidents. This current year, each unit organizes the related activity separately based on the characteristics of the business unit. In the Head Office, the President will lead the employees to make a declaration of labor safety in the meeting of the Occupational Safety and Health Management Committee in the third quarter this year.



6 · MANAGEMENT INNOVATION

## 6.3.3 Employee Health Management

We attach great importance to the health and safety of our employees. In accordance with the Regulations of the Labor Health Protection, we have employed five more nursing staff (contract staff) in the Agriculture Business Division, Petroleum Business Division, Animal Industry Business Division, Kaohsiung Branch and Pingtung Operation Branch respectively in addition to the four existing nursing staff, which is superior to the regulations. The total number of employed or contracted nursing staff service covers 100% of the total number of employees. We cooperate with contracted on-site physicians to promote the four comprehensive health management programs of special protection, health care, health promotion and employee assistance. We hope to comply with the regulations and meet the practical needs and focus on risk management and employee care. In addition, we strive to prevent occupational injuries and diseases and promote the physical and mental health of our employees.

## Occupational Hazard Prevention

In order to prevent employees from diseases caused by shift work, night work, long hours of work and other abnormal workloads, we planned a management plan for "brain and cardiovascular disease prevention". We arranged for doctors to predict the risk of brain and cardiovascular disease associated with workload. Employees with high risks need to consult with the doctors for specific guidance and follow-up. In 2019, 171 employees were arranged for this management plan and 100% have been completed. The risk factor for cardiovascular disease in 2019 remained at 8% to 11%, showing actual improvement results. For employees taking long-term sick leave and public injury leave, injury management and recovery tracking was carried, and the evaluation report of a total of 49 people returning to work was completed.





## Health Promotion Activities

We held relevant health education lectures to promote employees' self-health management ability and professional growth. There were 48 sessions with 2,861 participants in total. In order to encourage the employees for the follow-up and early treatment, we provide the official leave for self-paid health examination and the Employee Welfare Committee subsidizes up to NTD 10,000 of self-paid health examination fee per person per year. The employees informed of major abnormalities in the health checkups would receive re-inspection notice for the return visit within 10 working days, and a total of 71 people paid return visits. Free cancer screening services are provided free of charge, and 1,162 employees received colorectal cancer screening, 70 received breast cancer screening, 45 for oral cancer screening and 49 for cervical cancer screening. The 2019 Maternal Health Protection Plan has been implemented to 34 pregnant female workers, with a regular birth inspection rate of 100%; there were 33 female workers during lactation, and the rate of health instruction

and promotion reached 100%. In order to take care of the physical and mental health of employees, we not only require all units to actively promote employee assistance programs but set up the Heart to Heart Consulting Room to help them relieve the mental stress.



By upholding the concept that the talent is the most important asset of the Company, TSC has been committed to the development of a healthy and friendly workplace, planning complete physical and mental balance measures and also organizes many parent-child activities. In addition to the basic safety and health protection (employee health checkups every other year), basketball courts, badmintons courts, tennis courts and walking trails are established in the Company for the employees to train their bodies for health. Employees are also encouraged to establish sports associations to set autonomous training.





## 6.4 Technology Management

To strengthen the grasp of market information, develop accurate marketing and enhance the application of innovative dynamic and new technology as the key points for management.

### 6.4.1 Application of Information Technology

#### Smart Pig Farming

TSC will adopt the modern smart pig farming model by introducing the Internet of Things (IoT) and software to lead the upgrade of both the software and hardware of the domestic pig farming industry. It is expected to save manpower in the pig farms and at the same time increase the efficiency of pig production.

In addition, it will be developed into big data as an expert system in the future that can be used by the private sectors to upgrade the pig farming industry in Taiwan to a high-tech industry. The functions of such system include the piggery with negative pressure ventilation and water curtain, the high-bed design and scraper system, automatic feeding system, and automated control of equipment. This not only effectively reduces the demands for manpower and promotes industries to transform from labor-intensive to technology-intensive ones, it also provides a comfortable and stable feeding environment in line with EU Animal Welfare Requirements. With the friendly breeding environment and with the control and reduced spread of disease, the breeding efficiency and productivity can thus be further increased.

#### Occupational Safety and Health Management System

The "Taiwan Occupational Health and Safety Systems (TOSHMS)" has been established according to the "Regulations for Management of Occupational Safety and Health". We have 9 units that have been verified by ISO 45001 and TOSHMS, including the Head Office, Xiaogang Sugar Refinery of Sugar Business Division, Shanhua Sugar Refinery, Huwei Sugar Refinery, Gangshan Incineration Plant of the Environmental Protection Business Operation Division, Kanting Incineration Plant, Kaohsiung Branch, the Petroleum Business Division and Biotechnology Business Division. The Biotechnology Business Division first applied for ISO 45001 in 2018 and passed the verification at the end of 2018. The follow-up re-evaluations are also conducted in accordance with regulations to maintain the system's operation and effectiveness.

In order to integrate matters regarding occupational safety and health management and improve performance in industrial safety management, the "TSC Occupational Safety and Health Management Information System" was established to manage occupational safety online. In addition to sharing information on industrial safety and saving data online, it also accelerates data transmission and simplifies the procedures. Meanwhile, it also achieves the purpose of saving paper for environmental protection. In addition, the Environmental Protection Information Webpage on TSC International Information Network and TSC Workplace Safety and Health Improvement Business Reporting System were established to establish a communication channel with employees to improve workplace safety and health.

1. Central room of piggery smart control system



2. Deodorization equipmen



### 3. Automatic feeding system



### 4. Gas detection, table for temperature and humidity control



The “RFID ear tag positioning and transferring management system”: The sows are attached with RFID tags once entering the farm, and whenever they are moved from the house for mating, the house for pregnant sows or the farrowing house, the handheld or fixed reader installed by the door can read the signals on the ear tag and the pig positioning and transferring management is completed. With the combination of the intelligent management of IoT Technology, manpower utilization can be more effective. In addition, all the corners of the piggery can be effectively monitored and controlled in case of emergencies to avoid equipment failures that may cause threat to pig breeding. Moreover, there are multiple layers of protection measures for the pigs and the biogas center operations, and the risks of breeding and occupational safety can be effectively reduced.



Diagram of pig ear tag



Fixed RFID Reader



Handheld RFID Reader

9 · MANAGEMENT INNOVATION

### Informationization of Orchid Nursery

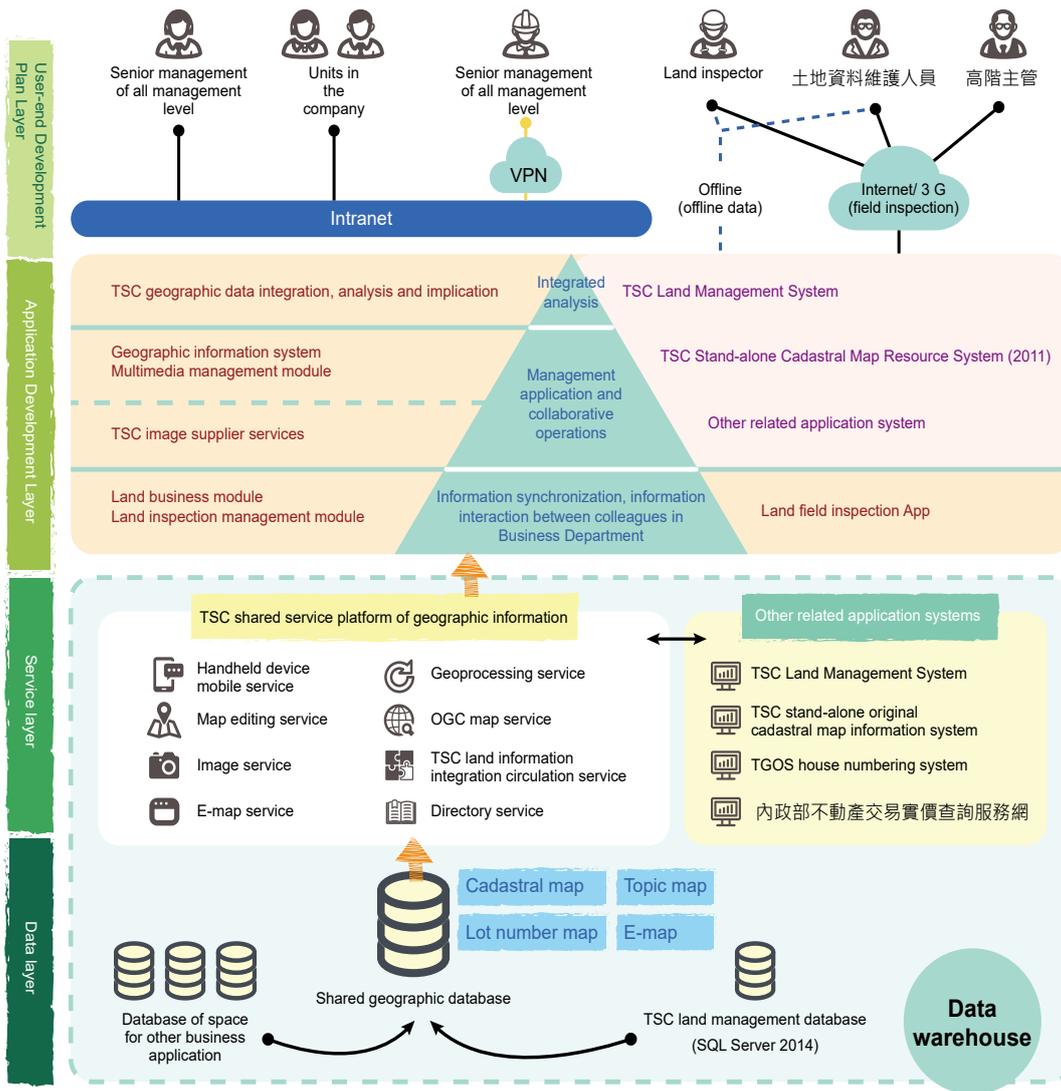
To reduce the shortcomings and elimination rates of existing orchid variety to improve the success rate of test varieties, the Company proposes to combine the IoT, big data analysis and cloud computing to construct a production and marketing system to grasp market trends. With the application of IoT technology, biological data including the selection, mating, cultivation and growing processes and also the environmental control data can be collected for the simulation test to predict the breeding results. The application of big data is to introduce the production and marketing data in the database of the business intelligence analysis of production and marketing system.

### Land Management System

Currently, the company possesses more than 90,000 pieces of land, with approximately 49,710 hectares in land area. If all the data are handled in paperback form and searched in the traditional manual way, it will be hard to cope with the rapidly changing operating environment. Therefore, TSC invested NTD 12.65 million in the development of a geographic information system (GIS).

With the cadastral maps, cadastral registration, land price data, along with the public land management data and related geographic data, such as the urban planning data and maps of administrative areas, a land management model with this system with GIS graphics and geographic analysis functions is established. The shared geographic information, rapid update of cadastral maps, improved efficiency of land and other assets management and other functions are reached with the digitalization, mobilization and utilization of the environment in an eco-friendly way. This system was awarded the 13th TGIS Gold Map Award by Taiwan Geographic Information Society.



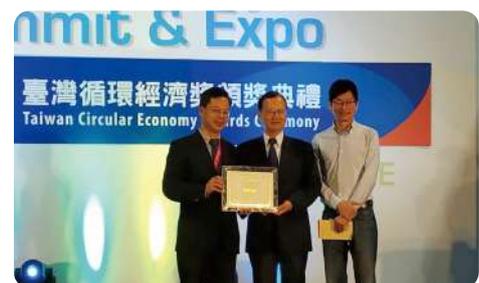


## 6.4.2 Increase of Innovation Dynamics

### Biorefinery Applications

About 85% of the chemicals available in market are made from non-renewable resources, and with the population growth, globalization of the supply chain, the lack of resources, and the increased raw material demands and mining costs, the EU proposed the target that 30% of chemicals to be made from bio-renewable resources by 2030. TSC's core technology and equipment of microbial fermentation is the necessary tool for recycling of resources in the process of biological refining (the process of biomass to be converted to other products through thermochemistry or biochemistry).

Moreover, TSC has the advantage of agricultural resources. The waste produced by all business divisions can be used as bio-refined raw materials that can be used as materials for the production of food, health products, cosmetics, and even medical supplies. This not only increases the value of the misplaced resources but also serve as a big step toward the goal of zero waste. In terms of the achievement, TSC has developed the shampoo product made from pork bile, the Smooth Amino Acid Shampoo, which was granted the Product Innovation Award in the 2019 Taiwan Circular Economy Award.



## Research and Development Committee

In order to pursue sustainable innovation with higher quality and service, TSC has set up a research and development business management and control organization of the Research and Development Committee whose chairman is the president with 2 deputy chairmen, 19 to 35 committee members, 1 executive secretary and 2-3 secretaries. Its main tasks include the development of R&D policies, R&D budget management and implementation, research program management, the application and follow-up of R&D results. Through regular R&D business integration meetings, various units involved in R&D can quickly resolve issues and problems they have faced, coordinate R&D resources across units and improve research energy.

## Taiwan Sugar Research Institute

Taiwan Sugar Research Institute is divided into the Biological, Chemical and Engineering Groups responsible for technology development, and the Industry Information Group for scientific and technological management planning according to the task attributes. The three technical groups are set up in accordance with technical expertise and perform cross-disciplinary and product development tasks through close cooperation among the groups. The Industrial Information Group provides research-related services such as industrial information, intellectual property management, market research and technology transfer. It also acts as the Research Institute's window of contact with internal and external units of TSC.



The growth of wasabi seedlings in the medium in various multiplication.



Laboratory staff

## Research Results

There were no cases of infringement of other patents or intellectual property rights at TSC in 2019. In 2019, intellectual property output included 2 invention patent, 7 SOPs of the process and 4 technology transfers of the business divisions.

Year	Item	Invention patent		SOPs of the process	Technology transfer of business divisions
		Submitted	Approved		
2015		3	3	21	5
2016		0	4	20	1
2017		1	2	6	5
2018		0	1	10	4
2019		2	0	7	4



## 7.1 INVESTMENT

## 7.2 OVERSEAS INVESTMENT

Special Column- TSC worked with IMPCT in the Promotion of Smallholder Coffee from Honduras and Cooperated in School Building Projects

## 7.3 SUSTAINABLE MANAGEMENT OF THE VALUE CHAIN



# INVESTMENT AND EXTERNAL COOPERATION



## 7.1 INVESTMENT

According to the transformation strategy planning, under the analysis of the investment evaluation team, we seek partners to establish cooperative relationships with the Company's advantages of land, funds, technologies and other resources and accumulate the experience of professional evaluation and investment management to foster more solid and professional capabilities.

Currently, the major fields of business TSC has invested include western medicine, livestock feed, high-speed rail, power generation, sugar, stocks of biotech companies, and biotech medical supplies. As of the end of December 2019, total investment in 16 domestic and foreign private-owned enterprises amounted to approximately NTD 6.058 billion. In the domestic market, we have invested in 13 companies, including Pfizer Biotech and others, with an investment of approximately NTD 5.157 billion, accounting for 85.13%. Investment is made in 3 foreign companies, such as Vietnam-Taiwan Sugar Co. Ltd., with an investment of approximately NTD 901 million, accounting for 14.87%.



## 7.2 Overseas Investment

TSC continues to deepen and expand its overseas investment and cooperation with our allies. To strengthen the current overseas bases, we continue to strengthen the supervision of the investment target, Vietnam-Taiwan Sugar Co. Ltd. In addition, we also keep a close grasp of the Vietnamese Government's policy for sugar industry and information of the domestic needs for local sugar industry to expand our production capacity at an appropriate time. Furthermore, the current business performance of the Tai Viet. Agribusiness Company Limited is improved based on local production and local sales, seeking investment opportunities to expand the operation scale in Vietnam.

For highly developed regions such as Japan, the United States and Canada, we have established production bases and channels for TSC's orchids which enjoy international reputation globally. Therefore, we will continue to deepen the existing overseas markets, accurately grasp the market information, actively reduce the costs, focus on the strains meeting market demands and seek opportunities for profits. Furthermore, a team was formed with the collaboration among the diplomatic, agricultural agencies and the industry to plan suitable high-quality orchid species for special orchid exhibitions presented in a way combining Taiwanese culture, art and stories based on the local market needs. The exhibitions will not only increase the orchid marketing markets and brand exposure but also promote the international competitiveness and sales volume of domestic orchid industry.

### Assessment of New Southbound Investment (Assessment of Investment in Indonesia Sugar Industry )

New Southbound Policy has been one of the important policies of the government. As a state-owned enterprise, TSC should assist the government in the implementation of related policies. Located in Southeast Asia close to Taiwan, Indonesia is a great investment target for the short distance from Taiwan and the convenience in investment management. In addition, the similar climate and customs as well as the similar management of agricultural farming, along with the lower production cost and easy access to land and materials all make Indonesia one of the best choices for TSC's sugar investment.

### Working in Line with Foreign Policy to Promote Collaboration with Allies

Honduras is an important country we have diplomatic relation with. Honduran coffee is imported to Taiwan for sale through trade. In addition, a joint investment model with Taiwan Agricultural Investment and Development Co. Ltd. is evaluated for to expand the international supply chain of agricultural products (such as avocado) from contract farming and integrated production and marketing. Coffee is an important export commodity of Honduras. Based on the consideration of overseas agriculture and humane care for coffee farmers, TSC directly purchases coffee from smallholders in Honduras and cooperates with domestic companies to bring excellent Honduran coffee to people in Taiwan and give back partial of the profits to projects to enhance the smallholders' production technology and quality of life in Honduras. Purchases from smallholders and marketing activities of the project will continue from 2018-2022 to establish TSC's Honduran coffee brand and consumer groups. To maintain friendly relations with our ally, the government has planned investments for TSC to assist Paraguay in establishing a production and business model of Phalaenopsis seedling.



## Special Column

### TSC worked with IMPCT in the Promotion of Smallholder Coffee from Honduras and Cooperated in School Building Projects



Since the introduction of special highland smallholder coffee from Honduras at the end of 2017, the coffee has been well received, and the smallholder coffee farmers were substantially helped. In July, 2018, TSC worked with an international social enterprise, IMPCT in the Coffee For the Future Project and promoted TSC's Honduran Smallholder Coffee with its story, and part of the income from the coffee trade would be directly given back to the coffee plantation area in the construction of high schools in the remote areas to pass love to the next generation and jointly build future for children in the remote areas in our ally.

The opening ceremony of the first school, built in a community called Los Izotes in Tegucigalpa City in the Province of Francisco Morazán, was on August 26th, 2018, and the school can accommodate 40 students at most. The school started operation in March, 2019, with 26 students aged between 12-18 enrolling in the school. In addition to providing teachers, teaching materials, aids, books and stationery needed, through the course of Community Young Leaders Development Plan, students can pay part of their tuition by community service working hours such as discovering community problems and providing assistance and finding solutions, which further positively affect the lives of about 200 households in the community. In 2019, TSC and IMPCT cooperated again in the construction of schools in a community called Chaguite in the Province of El Paraiso and one called Las Delicias in the Province of Francisco Morazán, and both are scheduled to be completed and operated in 2020.

To promote Honduran smallholder coffee in a more diverse way, in addition to the distribution channels related to TSC, we even cooperate with Taiwan High Speed Rail to launch the "TSC Honduran Highland Smallholder Coffee" available on board. In July, 2019, TSC's first Coffee Truck officially made its debut, carrying the great essence of Honduran coffee to spread the fragrance to all around Taiwan. Let us work together to help Honduras located in the other end of the earth to light up the lives of the smallholder coffee farmers and the future of the next generations in Honduras.



Please refer to official website for more details



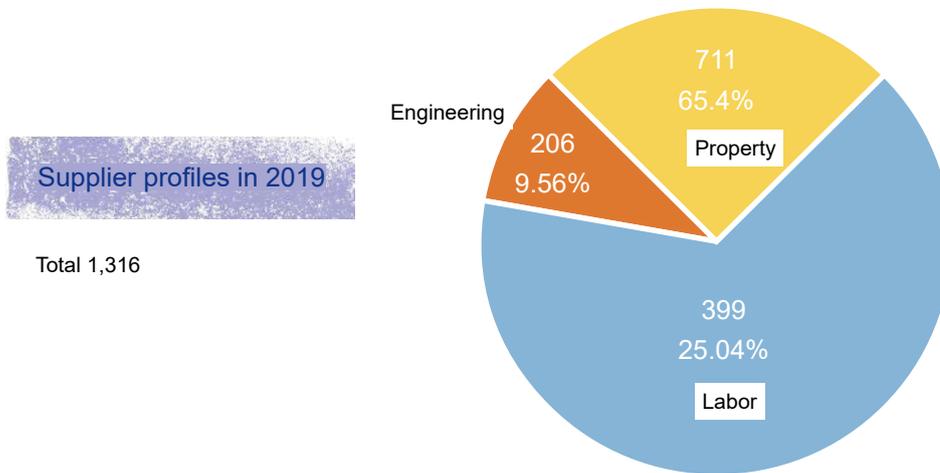


## 7.3 Sustainable Management of the Value Chain

### 7.3.1 Procurement Policies

All the procurement of TSC must comply with the relevant provisions of the Government Procurement Act in order to achieve justice, openness and fairness, and the results have been good. The internal control system set up the Key Points for Financial and Labor Procurement Operations, Key Points for Bulk Grain Purchase, Operating Points of Project Purchase and Performance Management, and Operating Points of Public Selection of Technical Service and Labor Procurement. TSC has set up an outsourcing center as a dedicated unit in charge of purchasing and organizes doubts, objections, complaints and consulting related to the Government Procurement Act so as to complete the procurement system and increase procurement efficiency. New suppliers and existing suppliers should all meet the requirements of the Procurement Act.

In 2019, the total purchase amount (based on the contract amount) was NTD 12,808,214,373. Among them, the purchase amount of bulk grain purchase and imported sugar was NTD 4,045,338,810. In 2019, the amount of foreign purchases accounted for approximately 31.58% of the total purchase and the domestic purchases accounted for 68.42%.



### Usage of Raw Materials

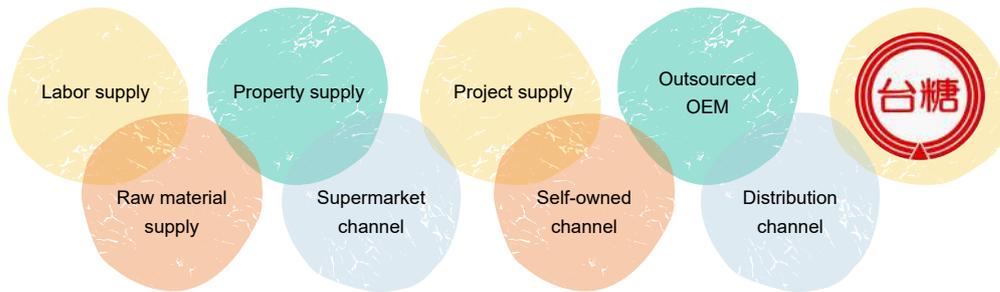
The main raw materials imported in 2019 include raw sugar, corn and soybeans. No recycled raw materials were used as the raw materials for the production of food products.

	 Sugarcane	 Imported cane sugar	 Corn	 Soybeans	 Meat	 Oil products
Usage amount in 2019	439,272 tons	225,000 tons	98,740 tons	46,501 tons	1,074 tons	322,287 kl
Country of origin	Taiwan 100%	Nicaragua 16.89% Honduras/ Guatemala 16.89% El Salvador 16.89% Thailand 49.33%	U.S. 48.51% Brazil 37.55% Argentina 13.94%	U.S. 100%	Taiwan 100%	Taiwan 100%
Renewable raw materials/ Non-renewable raw materials	Renewable raw materials	Renewable raw materials	Renewable raw materials	Renewable raw materials	Renewable raw materials	Non-renewable raw materials
Usage of recycled raw materials	None	None	None	None	None	None



## 7.3.2 Supplier Management

The reason for TSC to operate so steadily is because we have reliable partners throughout the value chain. TSC's suppliers, distributors, corporate customers, consumers and communities where our business is located are all the key elements for Taiwan Sugar to develop steadily. Therefore, through the stakeholder questionnaire survey, we can understand each value activity in the value chain and the concerned material topics. These topics can help TSC and its partners in the value chain understand and solve key issues to further improve and develop unique competitive advantages. After analysis, the four major issues of concern to TSC and its partners in the value chain are Product and Service Labeling, Customer Health and Safety, Marketing Communication and Product Compliance.



### Selection of new suppliers

The selection of suppliers follows the prescriptions of the Government Procurement Act and also considers the sources of supply or services provided by domestic suppliers to support domestic industries. At present, apart from the 100% of bulk grain raw materials in the Animal Industry Business and sugar raw materials in the Sugar Business that are imported from abroad, domestic suppliers are prioritized for the supply of the remaining raw materials. In addition, it is clearly stated in all relevant bidding documents that new suppliers shall comply with the principles of fair trade, environmental protection regulations, Labor Standards Act, and Occupational Safety and Health Act. It is hoped that by requiring new suppliers, TSC and its suppliers can jointly fulfill corporate social responsibility and reach corporate sustainable development. Due to the complexity of human rights assessment mechanism, TSC currently screens the suppliers based on the self-assessment of the human rights compliance prescribed in the agreement by the suppliers. In 2019, the percentage of new supplier meeting the selection criteria reached 100%.

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Aspect	Issues of concern	Conditions of new suppliers
 Environment	New environment management	New suppliers shall comply with environmental regulations such as the Air Pollution Control Act, Water Pollution Control Act, and regulations concerning waste and resources management. If there are any violations of related laws and regulations, improvements have to be made as prescribed. If the circumstances are serious, TSC may terminate or cancel the contract with the supplier.
 Human rights	Employee grievance channel	Due to the complexity of human rights assessment mechanism, TSC currently screens the suppliers based on the self-assessment of the human rights compliance prescribed in the agreement by the suppliers <ol style="list-style-type: none"> <li>The suppliers shall hire people with disabilities and aborigines in accordance with Peoples with Disabilities Rights Protection Act, Indigenous Peoples Employment Rights Protection Act and Government Procurement Act.</li> <li>The new suppliers shall not have gender discrimination or discriminate against indigenous or vulnerable groups in the hire of employees.</li> </ol>
 Society	Anti-corruption advocacy Community impact response mechanism	<ol style="list-style-type: none"> <li>New suppliers must not request, agree to accept, accept or provide a bribe, commission, percentage, brokerage, kickback, rebate, gift, treat or other improper benefits from the procurement personnel.</li> <li>The bidding documents shall specify the contact number, fax and address of the audit team and the report hotline and mail box of the investigation station (station or group) of the Investigation Bureau of Ministry of Justice to report cases of corruption.</li> </ol>

Aspect	Issues of concern	Conditions of new suppliers
 Labor	Employee salary and benefits Occupational safety and health Industrial safety performance	To maintain labor conditions and safety, it is required to comply with the relevant regulations concerning labor safety and health. In addition, the Precautions for Occupational Safety and Health of Engineering and Labor Services” is formulated, prescribing that when handling procurement cases that exceed one-tenth of the amount announced, the precautions shall be included in the tender documents as part of the procurement contract, requiring suppliers to implement occupational safety and health management.
 Product	Quality assurance Product labeling	<ol style="list-style-type: none"> <li>1. To formulate “Key Points for the Quality Management Operations of the Manufacturing Companies” to ensure the quality of the products comply with the requirements of TSC and the provisions of the Act Governing Food Safety and Sanitation. In addition, vendor review, production supervision, product acceptance and vendor evaluation are also conducted for the new suppliers’ design, manufacture and assembly of products.</li> <li>2. Quality plan shall be established based on the project contract, design drawings, specifications, relevant technical regulations and the outline of the reference quality plan for the promotion and implementation.</li> </ol>

## Supplier Compliance Management

TSC signs contracts with all its suppliers. During the compliance period, the manufacturer acceptance is conducted before entering the factory. Upon acceptance, suppliers shall provide a Certificate of Origin, ingredient analysis documents, product inspection reports (inspection of heavy metal, E.coli. plasticizers and so on) or Import Certificate of Inspection issued by Bureau of Standards, Metrology & Inspection. If quality and quantity do not comply with the purchase contract after acceptance, the supplier will be notified of a deadline for improvement. The terms of each contract require the suppliers to provide labor and health insurance to their employees, shall not perform forced labor or employ child labor, and shall implement gender equality in work in accordance with the national human rights regulations and Labor Standards Act. Once suppliers are found to be in violation of gender equality in work, freedom of association, sexual harassment prevention, normal leave and non-payment of overtime, they will be immediately requested for improvement within a limited time and may be fined for breach of the contract. If they do not listen to advice or repeatedly violate the terms, the contract with such supplier may be terminated.

The human rights protection requirements for major investment companies are the same as those of suppliers. We also strengthen the safety and health management of contract operations, and all units shall inform the work environment, hazard factors and safety and health related regulations of the units in advance when the project is delivered. In addition, TSC’s “Precautions for Occupational Safety and Health of Engineering and Labor Services” shall be specified in the contract and obligate the contractors to implement safety and health management and conduct automatic inspections to prevent accidents during construction operations in accordance with Occupational Safety and Health Act and relevant regulations. In order to protect the contractors’ labor rights, it is stipulated that the contracted project must cover the employer’s accidental liability insurance and the third-party accident insurance with an individual death and injury of at least NTD 4 million. For labor services or construction contracts below NTD 100,000, it is required to establish a simple contract and handle the prescribed safety and health management issues.



## Human Rights and Security Personnel Management

Except for the office building of Marketing Business Division that adopts Security Alarm System, the access control and security of all units of Taiwan Sugar Corporation is entrusted to the security company. Security personnel all received professional courses and first-aid personnel training, and they also have to receive an 8-hour human rights related education every year. According to statistics, there are a total of 142 security personnel in 13 locations in 2019, and 142 of them received human right education training, with the training rate reaching 100%.

## Food Supplier Assessment

TSC conducts assessment of its partner suppliers in terms of the technical capacity, production performance, corporate image and responsibility and contract performance reliability so as to maintain its market sensitivity and keep abreast of the dynamics of supplier and if necessary, TSC will perform or entrust a third impartial inspection agency to conduct on-site inspection of the factory and the assessment results will be included in the score. Related defects will be asked to improve to ensure all the products and services the suppliers provide meet the needs of TSC. The assessment results are also used as reference for contract renewal.

List of the ratio of food suppliers meeting the food safety system standards

Compliant standards Business Division	TQF	CAS	ISO9001	ISO 22000	FSSC 22000	IFS	BRC	HACCP	GMP
Sugar Business Division	-	-	9.11%	9.17%	9.11%	-	-	9.17%	-
Animal Industry Business Division	-	94.43%	-	94.43%	-	-	-	94.43%	-
Marketing Business Division	3.72%	37.14%	21.04%	83.89%	7.49%	21.31%	21.31%	94.31%	15.67%
Biotechnology Business Division	7.80%	-	19.07%	38.56%	1.74%	-	-	6.54%	-

Note:

Ratio of food suppliers meeting the food safety system standards = the 2018 purchase amount of the food suppliers meeting the food safety system standards of the business division / the 2018 purchase amount of the business division \*100%

Assessment results of food industry suppliers

Business Division	Number of suppliers	Number of suppliers assessed	Percentage	Assessment items	Assessment results
Sugar Business Division	377	377	100%	Quality, price, and delivery situation	Pass rate: 100%
Animal Industry Business Division	61	61	100%	Quality, price, and comprehensive assessment	Pass rate: 100%
Biotechnology Business Division	144	144	100%	Quality, price, and delivery situation	Pass rate: 100%
Marketing Business Division	39	39	100%	Purchase specifications, amount, and compliance deadline	Pass rate: 100%

## Audit of OEM Factories

To ensure the quality and safety of TSC branded foods, TSC conducts strict quality and safety management of the outsourced foods. In addition to sending non-scheduled staff from various units to station in the factories to supervise the manufacturing, the Quality Management Committee also organizes inspection teams irregularly to conduct on-site inspections without prior notice to thoroughly check and inspect the OEM factories from the raw materials, manufacturing processes, quality control, packaging materials, personnel and environmental sanitation to prevent the occurrence of food safety hazard. First, the domestic food factories TSC is cooperating with shall conduct at least one factory audit every year. The inspection team will conduct inspection of 19 domestic OEM factories outsourced by the Marketing Business Division, Biotechnology Business Division, Leisure Business Division and Animal Industry Business Division, and the inspection content shall follow the 72 items of inspection record of OEM factory listed in the Key Points for the Quality Management Operations of the Manufacturing Companies”, and the audit results shall be included in the reference for assessment scores for annual contract renewal. In 2015, the on-site audit items and the adjustment of assessment score of the Guidelines for Quality Management of Products Manufactured by Entrusted Manufacturers were revised, and the manufacturers with the total assessment score reaching 80 points are entitled to renew the contract.

### Assessment results of OEM factories

Product Category	Number of entrusted manufacturers	Number of manufacturers audited	Percentage	Audit results
Health food	1	1	100%	Excellent, acceptable OEM factory
Fresh and processed meat	1	1	100%	Good, acceptable OEM factory
Edible oil	1	1	100%	Excellent, acceptable OEM factory
Brewed & reconstituted food	5	5	100%	Good, acceptable OEM factory
Domestic Mineral water and beverages	4	3	75%	2 ranked excellent, 1 ranked good, acceptable OEM factory
Prepared frozen food	3	3	100%	1 ranked excellent, 2 ranked good, acceptable OEM factory
Snack foods	2	2	100%	1 ranked excellent, 1 ranked good, acceptable OEM factory
Canned food	3	3	100%	2 ranked excellent, 1 ranked good, acceptable OEM factory
Imported Edible oil	1	0	0%	TSC's internal control is to conduct the audit every three years. This item was audited in 2018, so the auditing in 2019 was not listed.
Imported Canned food	4	3	75%	TSC's internal control is to conduct the audit every three years, and 3 factories were audited in 2019.
Total	25	22	88%	

Note:

1. On-site audits of foreign OEM factories are conducted every three years.
2. The audit rate of the category of “Mineral water and beverages” was 75% because upon the on-site audit of one factory scheduled to be conducted in October, 2019 when the factory happened to shut down production for the expansion construction of the production line, and the on-site audit was therefore cancelled. However, to ensure the quality of the products, the batch of the products of the factory were inspected by an impartial third party.



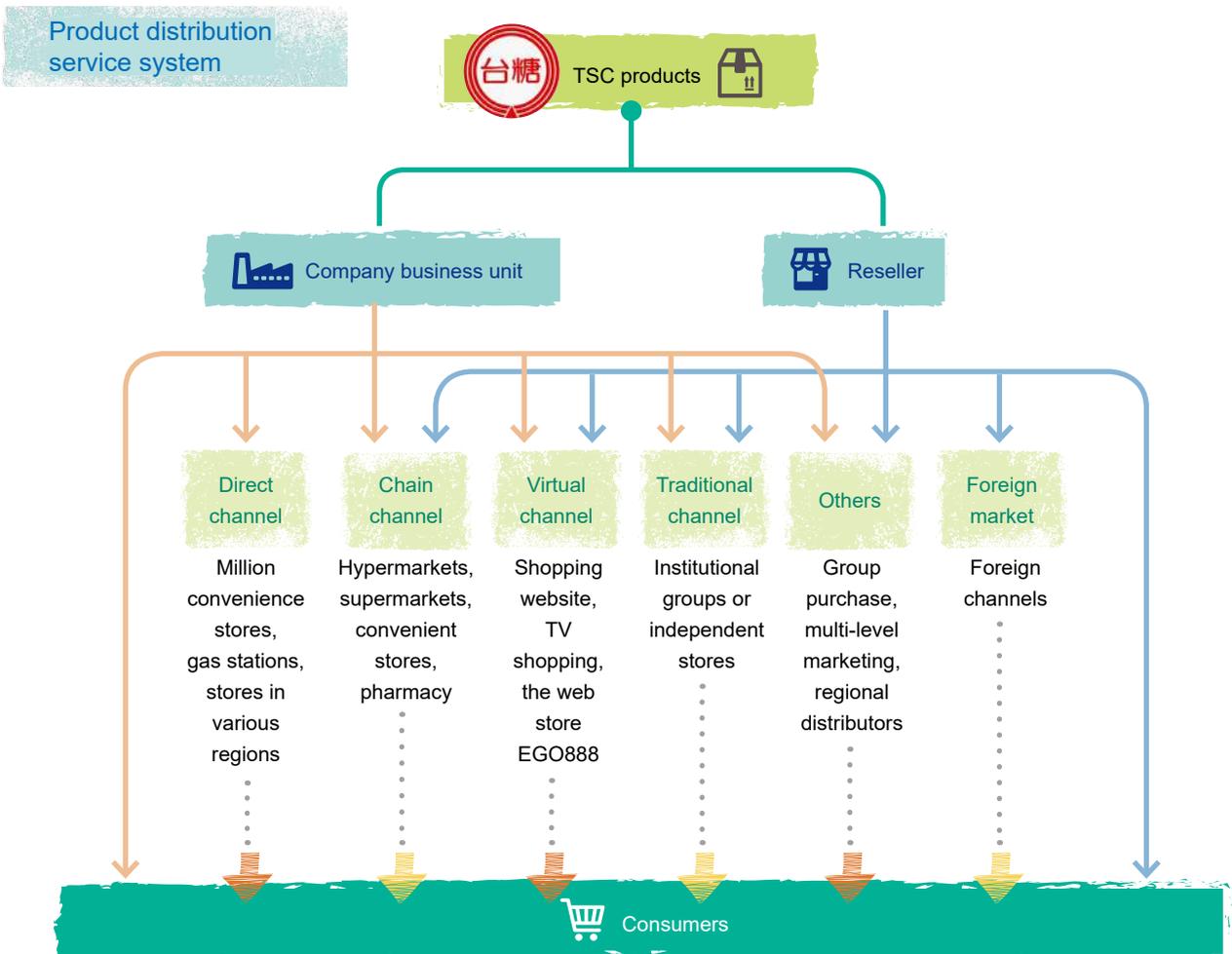
## Project Contractor Management

For TSC's project contractors, the principle of inspection scope of the construction quality inspection is no less than 10% of the ongoing construction projects exceeding the announced construction costs of the year, as prescribed in the Key Points for the Establishment of TSC's Construction Quality Inspection Team. The selection of engineering contractors and product distributors is based on the prescriptions of the Government Procurement Act in an open, just and fair manner. Domestic companies are given priority, and contractors are screened by human right regulations. However, the conditions in each contract are the same as the requirements of suppliers in accordance with national human rights regulations and Labor Standards Act to protect human rights. In addition, the "Precautions for Occupational Safety and Health of Engineering and Labor Services" is formulated as part of the contract, and with the strategies of counseling, auditing and advocacy, TSC is actively engaged in the counseling of contractors' safety management, strengthening the industrial safety counseling and reinforcing the safety awareness of the laborers in the workplace to safeguard the labor safety. If there is a breach of the contract, it will be handled in accordance with the supplier management model. There were no violations of relevant provisions of the contract in 2019.

## Dealer Management

The dealership is concerned with the quality of TSC products to consumers. We plan the dealership based on the overall marketing strategy and merchandise access strategies (access coverage, number of access levels, single access or multiple access, vertical marketing systems or horizontal marketing systems) and follow the Dealer Selection Criteria and the Government Procurement Act when selecting and auditing dealers. The performance management of dealers is handled in accordance with the principles of the management of suppliers and contractors.

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## Supplier CSR Evaluation

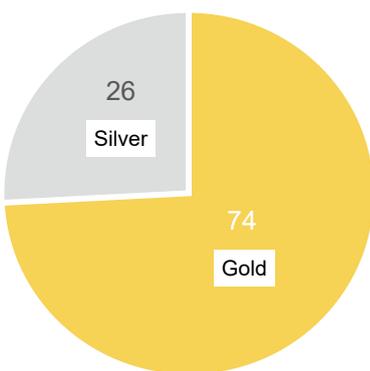
TSC attaches great importance to the sustainable development of the Company. In addition to strictly demanding the self-implementation of CSR responsibilities and commitments, we also drive our suppliers to move toward sustainable development together. In 2019, TSC held the "Business Integrity Forum" and its suppliers and representatives from cooperative vendors were invited to the lectures related to anti-corruption policy. In addition, when handling various types of procurement tenders, the anti-corruption policies and reporting channels are also described in the contractual bidding instructions for the bidders to know. We have fully notified all our business partners of anti-corruption policies so as to work together to fight against corruption. We hope that we can commonly act for anti-corruption and implement the philosophy of "Honest TSC, Integrity Governance" for the demonstration of TSC's determination of integrity and clean governance.

TSC conducts a CSR evaluation system for suppliers with more than the amount of 5 million purchase to complete a self-assessment questionnaire, whose content would be adjusted annually based on the current situation of TSC, the international trends and reference to GRI provisions. In 2019, the supplier questionnaire was significantly revised. In addition to the introduction of GRI Standard Topics, specifications and regulations of RBA, Ecovadis and ISO 20400 were also referred in the revision of the questionnaire, which is divided into five aspects, including environmental, labor rights, human rights, social and product liability aspects. A total of 74 suppliers completed the self-evaluation in 2019.

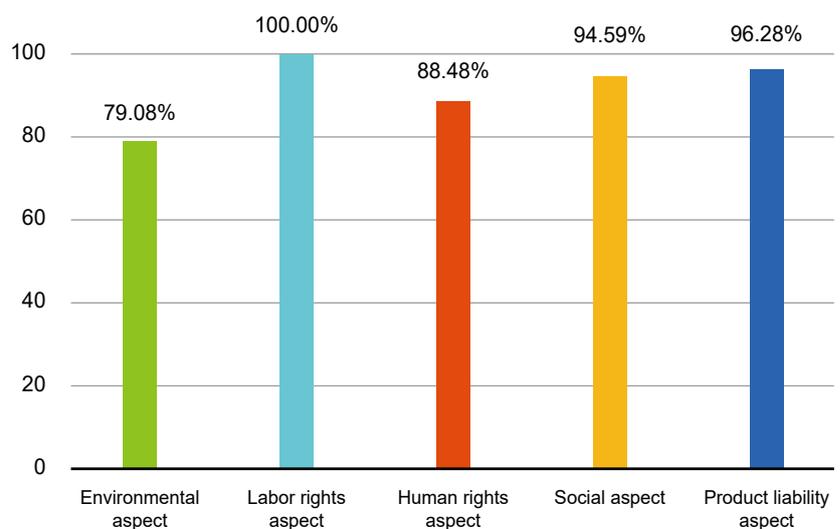
According to the self-evaluation results, the suppliers are divided into three levels, gold, silver and copper based on the scores. All the suppliers in this evaluation scored more than 60 points, with 100% of passing rate. Among them, 55 even scored more than 85 points, reaching gold level. In addition, further analysis of the five aspects was conducted, and each aspect scored more than 60 points averagely. The scores were lower only in the environmental aspect because TSC sets higher requirements in environmental management, leading to the lower scores among the suppliers. However, all the suppliers comply with relevant laws and regulations. We will refer to the results of the suppliers' self-assessment and adjust the contents of the questionnaire. TSC will strengthen the management of suppliers with lower assessment scores to improve the procurement system and enhance the efficiency of procurement. In the future, we will also continue to promote the assessment of the five major aspects of corporate social responsibility in our suppliers of all categories to enhance our partners' implementation and management of CSR.

### Analysis of Supplier CSR evaluation

#### Supplier information disclosure levels



#### Scores of the aspects of supplier information disclosure



### 7.3.3 Customer Relationship Management

TSC has set up a customer service system that conducts customer satisfaction survey every year, and it is also responsible for the confidentiality of customer information.

#### Customer Satisfaction

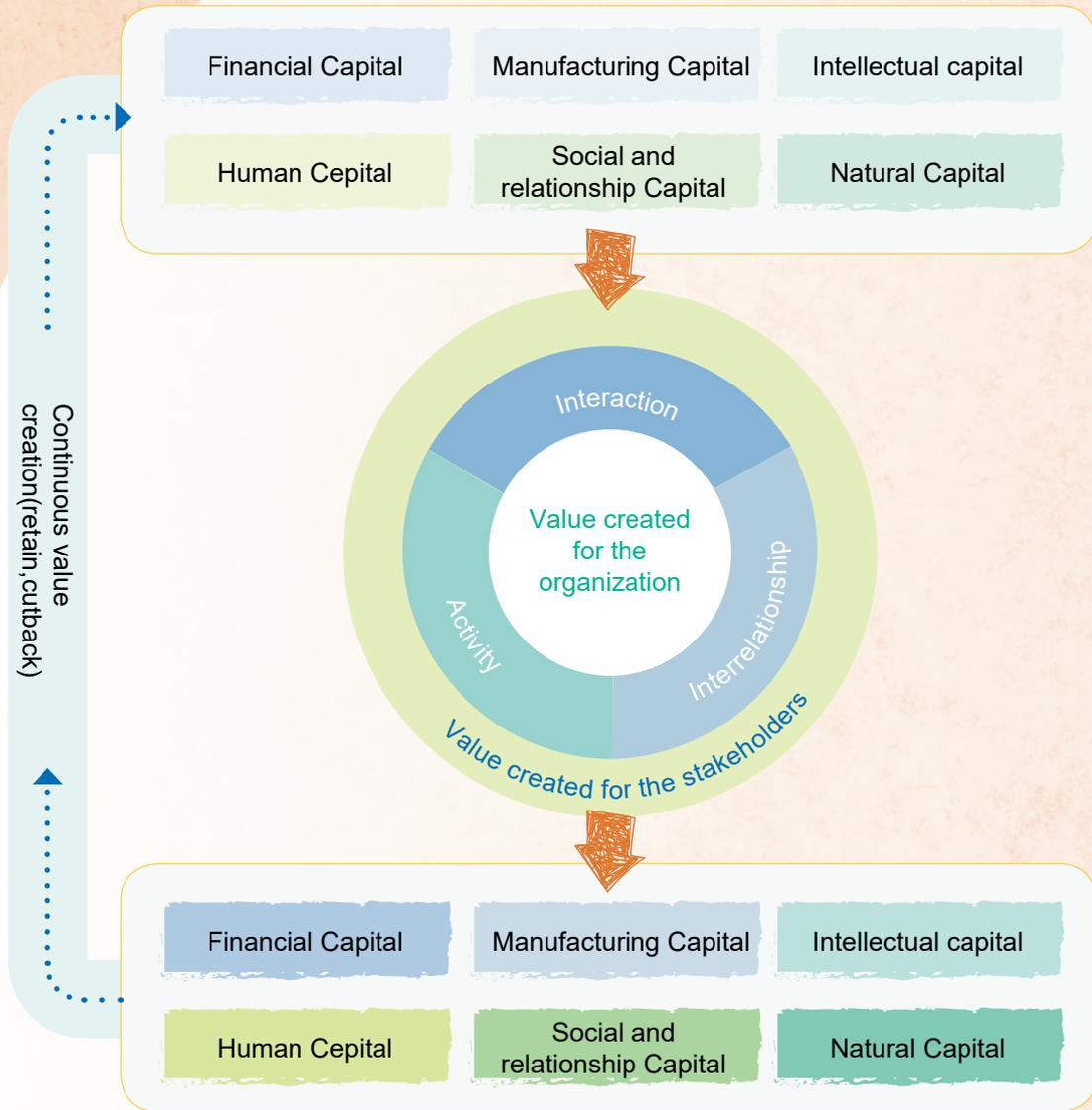
TSC has formulated “Customer Complaints Handling Guidelines” to provide transparent and effective consumer complaint procedures to handle complaints from customers and clients in a fair and immediate manner. In addition, “Customer Opinion Management System” was established to gather customer feedback. The feedback would be dealt with quickly, and statistics and analysis could be conducted through the internal network as a reference for all units as reference for operations and improvement. At the same time, we set up various communication channels such as TSC Fan Page, Customer Service Line (0800-026-168), and online customer service mailbox (tsc01@taisugar.com.tw). In addition, the designated person will answer the questions for customers and respond to suggestions and customer complaints.

In order to grasp customer inquiry information, TSC has set targets for customer satisfaction in all units according to the business characteristics, and the "Customer Satisfaction Survey Questionnaire" has been set up to conduct customer satisfaction surveys at least once a year for the implementation of relevant business operations. The results of the survey are also reviewed and analyzed and improvement measures are formulated by relevant units. In cooperation with State Enterprise Commission, MOEA, TSC has entrusted an impartial third party to conduct the “Customer Satisfaction Surveys”. The score for customer satisfaction survey in 2019 was 94.4 points and the results of the survey and recommendations were submitted to TSC as a reference for improvement.

7 - INVESTMENT AND EXTERNAL COOPERATION







# 8

## Creation of Value

The value TSC creates is presented through the increase, decrease or changes in the capitals caused by commercial activities and output of the organization. The value includes two interactive aspects, including the self-created value that can allow the capital provider financial gain and the value created for other stakeholders (namely the stakeholders and the public).

# Creation of Sustainable Value

## Principles of Integrated Reporting (IR)

TSC strengthens its sustainability strategy to comprehensively promote economic growth, social equality and progress and environmental protection, thereby demonstrating the Company's long-term value. In terms of the Future Business Strategy, the Company integrates the Sustainable Development Goals (SDGs) and Integrated Reporting (IR) into our medium- and long-term investments, strategies and business models so that the Company will have a comprehensive and sustainable business advantages in a rapidly changing environment.

### Integrated capital investment      TSC Value Chain Corresponding to SDGs      Integrated performance output



#### Financial Capital :

Financial capability for TSC to provide products and services

TSC future business strategy  
 ➡ Strengthen the capital utilization and investment assessment capabilities

Major stakeholders

Stockholders  
 Government agencies

- ❖ Made financial contribution of NTD 4,235,097 thousand to the government domestically.
- ❖ The solar power generation capacity increased by 24.84% compared to 2018

Corresponding to SDGs



#### Intellectual capital:

All the knowledge-based intangible assets TSC owns, such as IPR (intellectual property rights), patents, varieties of sugarcane, orchid, hogs, and so on; it also includes knowledge, system procedures and innovation capabilities within the organization

TSC future business strategy  
 ➡ Strengthen product power and marketing capability

Major stakeholders

Consumers/ clients  
 Employees  
 Agents

- ❖ Awarded the Product Innovation Award in the 2019 Taiwan Circular Economy Award
- ❖ Submission of 2 invention patents; 7 SOPs for manufacturing process; 4 technology transfers in the Business Division

Corresponding to SDGs



Integrated capital investment

TSC Value Chain Corresponding to SDGs

Integrated performance output



**Manufacturing capital:**

Physical objects provided to TSC for product production or services, including buildings, equipment, infrastructure (such as roads, docks, bridges and waste and water treatment plants)

TSC future business strategy

- Implement the industrial policy of the government and deepen the core business
- Overall planning of land and assets

Major stakeholders

Raw material suppliers  
Contractors  
Consumers/clients

Corresponding to SDGs



- ❖ The relevant laboratories of Sugar Business Division, Biotechnology Business Division and Animal Industry Business Division have been certified by the Taiwan Accreditation Foundation (TAF).
- ❖ TSC products have obtained relevant certification
- The verified area of organic rice reached 163.59 hectares.
- ❖ The verified area of organic vegetables and fruits amounted to 58.34 hectares.
- ❖ 95 hectares of Non-GMO soybeans
- ❖ All the food products produced by TFC are 100% included in our own Food Safety Traceability Management System (FT).
- ❖ Bagasse power generation of 101.244 million kWh.



**Natural capital:**

It is used to provide products or services to support TSC's successful renewable or non-renewable environmental resources and processes in the past, at present and in the future, including air, water, land, minerals, forests, biodiversity and the health of ecosystem

TSC future business strategy

- Recycle waste for reuse

Major stakeholders

Community residents  
Media  
Government agencies

Corresponding to SDGs



- ❖ The 2019 Green Conference reduced carbon emission by approximately 44,829.88Kg/ CO<sub>2</sub>e
- ❖ Wastewater discharge decreased by 6.03% compared with 2018
- ❖ The percentage of waste resources was 85.99%, a 2.7% decrease compared with 2018
- ❖ Cooperated with the government's Healthy Taiwan policy, and the afforestation and tendering area totaled 12,014 hectares.
- ❖ The total electricity generated from agricultural waste resources amounted to 10.27 million kWh.



**Social and relationship capital:**

The relationship among TSC and its stakeholders and the capabilities to improve the well-being and the ability to share information, including mutual trust and willingness to cooperate, social reputation and recognition TSC enjoys

TSC future business strategy

- Strengthen the bond with affection in the local place to create brand value
- Strengthen the bond and communication with the outside

Major stakeholders	Community residents Consumers/clients
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Corresponding to SDGs



- ❖ The score of customer satisfaction survey was 94.4 points.
- ❖ There was no incident of customer privacy infringement or loss of customer data
- ❖ Organized 185 public welfare activities, with the subsidy of about NTD 8.23 million.
- ❖ TSC's Sugar Culture Festival activities were awarded the 14th Arts and Business Award in 2019 by Ministry of Culture.



**Human capital:**

Skills, capabilities, experience and motivation for innovation for TSC personnel include the followings:

1. Recognize and support the governance structure, risk management approach and ethical values of the organization.
2. Abilities to understand, develop and implement organizational strategies
3. Loyalty and motivation to improve processes, products and services, including their abilities to lead, manage and cooperate.

TSC future business strategy

- Strengthen corporate governance
- Organizational adjustment and transformation

Major stakeholders	Employees
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Corresponding to SDGs



- ❖ The average hour of employee education and training was 52.3 hours (including online courses and training).
- ❖ A total of 2,101 trainees participated in the human rights education and training, with a total of 3,796 training hours  
Cooperated with the National Disaster Prevention Day to organize earthquake disaster prevention education and emergency evacuation drills. We organized 147 sessions in total and 3,250 participants attended the training and drills.
- ❖ Organized 9 sessions of Occupational Safety and Health related education and training, with the trainees reaching 1,132.



## 9. Appendix

### Appendix I : Global Reporting Initiative (GRI) Index (includ GRI Food processing sector disclosures)

The following content has been verified by an independent third-party and the result is published in the independent assurance report in Appendix IV.

"\*" indicates major aspects while "," indicates external verification.

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
<b>1. Organizational Profile</b>					
	102-1	Name of the organization	•	2.1.1 Company Overview	38
	102-2	Activities, brands, products, and services	•	2.1.1 Company Overview	38
	102-3	Location of headquarters	•	2.1.1 Company Overview	38
	102-4	Location of operations	•	2.1.1 Company Overview	38
	102-5	Ownership and legal form	•	2.1.1 Company Overview	38
	102-6	Markets served	•	2.1.1 Company Overview	38
	102-7	Scale of the organization	•	2.1.1 Company Overview 2.1.2 Financial Performance 6.1.2 Labor Structure	38 41 125
GRI 102 General disclosure 2016:Core	102-8	Information on employees and other workers	•	6.1.2 Labor Structure	125
	102-9	Supply chain	•	7.3.1 Procurement Policies	151
	102-10	Significant changes to the organization and its supply chain	•	2.1.1 Company Overview 6.2 Labor Relations	38 129
	102-11	Precautionary Principle or approach	•	2.4.1 Risk Management	58
	102-12	External initiatives	•	Editing Principles 2019 Sustainability Results and Recognitions 1.4 Implementation of Sustainable Development Goals (SDGs)	4 8 29
	102-13	Memberships of associations	•	2.1.1 Company Overview	38
<b>2. Strategy</b>					
GRI 102 General disclosure 2016:Core	102-14	Statement from senior decision-maker	•	Message from the Top Management	4
<b>3. Ethics and Integrity</b>					
GRI 102 General disclosure 2016:Core	102-16	Values, principles, standards, and norms of behavior	•	1.1 Sustainable Development Policy 2.3.1 Integrity and Eradication of Fouls	15 54

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
<b>4. Governance</b>					
GRI 102 General disclosure 2016:Core	102-18	Governance structure	●	2.2.1 Board of Director Structure	44
<b>5. Stakeholder Engagement</b>					
	102-40	List of stakeholder groups	●	1.2.1 Identification of Stakeholders	18
	102-41	Collective bargaining agreements	●	6.2 Labor Relations	129
GRI 102 General disclosure 2016:Core	102-42	Identifying and selecting stakeholders	●	1.2.1 Identification of Stakeholders	18
	102-43	Approach to stakeholder engagement	●	1.2.2 Communications with Stakeholders	19
	102-44	Key topics and concerns raised	●	1.2.2 Communications with Stakeholders	19
<b>6. Report Profile</b>					
	102-45	Entities included in the consolidated financial statements	●	7.1 Investment	149
	102-46	Defining report content and topic Boundaries	●	1.3.3 The Value Chain Boundary of Material Topics	28
	102-47	List of material topics	●	1.3.1 Identification of Material Topics	22
	102-48	Restatements of information	●	Editing Principles	2
	102-49	Changes in reporting	●	Editing Principles1. 3.1 Identification of Material Topics	2 22
GRI 102 General disclosure 2016:Core	102-50	Reporting period	●	Editing Principles	2
	102-51	Date of most recent report	●	Editing Principles	2
	102-52	Reporting cycle	●	Editing Principles	2
	102-53	Contact point for questions regarding the report	●	Editing Principles	2
	102-54	Claims of reporting in accordance with the GRI Standards	●	Editing Principles	2
	102-55	GRI content index	●	Appendix I : Global Reporting Initiative (GRI) Index (includ GRI Food processing sector disclosures)	164
	102-56	External assurance	●	Editing Principles	2



Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
Topic-specific disclosure: 200 series (Economic topics)					
*Indirect Economic Impacts					
GRI 103 Management approach of indirect economic impact management 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics5 Meeting People's Livelihood Demands and Social Needs	28 102
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
GRI 203 Disclosure of Indirect Economic Impacts topics 2016	203-1	Infrastructure investments and services supported	●	3.3.1 Overall Renovation Plan of a Modern Livestock Housing	69
				4.1 Cultural Preservation and Added Value	76
	203-2	Significant indirect economic impacts	●	5.1 Sustainable Food5.3 Land Activation and Utilization	104 113
Topic-specific disclosure: 300 series (Environmental topics)					
*Energy					
GRI 103 Management approach of Energy 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 4 Resources and Environmental Protection	28 74
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
GRI 302 Disclosure of Energy topics 2016	302-1	Energy consumption within the organization	●	4.3.1 Energy Resource Management	87
	302-3	Energy intensity	●	4.3.1 Energy Resource Management	87
	302-4	Reduction of energy consumption	●	4.3.2 Energy Conservation and Carbon & Waste Reduction	92

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
<b>*Water</b>					
GRI 103 Management approach of Water 2018	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 4 Resources and Environmental Protection	28 74
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
	303-1	Interactions with water as a shared resource	●	3.3.1 Overall Renovation Plan of a Modern Livestock Housing 4.3.1 Energy Resource Management	69 87
	303-2	Management of water discharge-related impacts	●	4.3.4 Water Pollution Control	97
GRI 303 Disclosure of Water topics 2018	303-3	Water withdrawal	●	4.3.1 Energy Resource Management	87
	303-4	Water discharge	●	4.3.4 Water Pollution Control	97
	303-5	Water consumption	●	4.3.1 Energy Resource Management	87
<b>*Emissions</b>					
GRI 103 Management approach of Emissions 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 4 Resources and Environmental Protection	28 74
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
GRI 305 Disclosure of Emissions topics 2016	305-1	Direct (Scope 1) GHG emissions	●	4.3.2 Energy Conservation and Carbon & Waste Reduction	92
	305-2	Energy indirect (Scope 2) GHG emissions	●	4.3.2 Energy Conservation and Carbon & Waste Reduction	92
	305-3	Other indirect (Scope 3) GHG emissions	●	4.3.2 Energy Conservation and Carbon & Waste Reduction	92
	305-4	GHG emissions intensity	●	4.3.2 Energy Conservation and Carbon & Waste Reduction	92
	305-5	Reduction of GHG emissions	●	4.3.2 Energy Conservation and Carbon & Waste Reduction	92
	303-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	●	4.3.3 Air Pollution Prevention	96



Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
<b>*Effluents and Waste</b>					
GRI 103 Management approach of Effluents and Waste 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 4 Resources and Environmental Protection	28 74
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
GRI 306 Disclosure of Effluents and Waste topics 2016	306-1	Water discharge by quality and destination	●	4.3.4 Water Pollution Control	97
	306-2	Waste by type and disposal method	●	4.3.5 Waste Management and Reuse	99
	306-3	Significant spills	●	2.3.2 Compliance Special Column- Environmental Penalties and Review	56 57
	306-5	Water bodies affected by water discharges and/or runoff	●	4.3.4 Water Pollution Control	97
<b>*Environmental Compliance</b>					
GRI 103 Management approach of Environmental Compliance 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 4 Resources and Environmental Protection	28 74
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 2.3.2 Compliance 4 Resources and Environmental Protection	24 56 74
GRI 307 Disclosure of Environmental Compliance topics 2016	307-1	Non-compliance with environmental laws and regulations	●	2.3.2 Compliance Special Column- Environmental Penalties and Review	56 57
Topic-specific disclosure: 400 series (Social topics)					
<b>*Labor/Management Relations</b>					
GRI 103 Management approach of Labor/Management Relations 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 6. Management Innovation	28 120
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 6. Management Innovation	24 120
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 6. Management Innovation	24 120

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
GRI 402 Disclosure of Labor/Management Relations 2016	402-1	Minimum notice periods regarding operational changes	●	6.2 Labor Relations	129
*Occupational Health and Safety					
	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 6. Management Innovation	28 120
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 6. Management Innovation	24 120
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 6. Management Innovation	24 120
	403-1	Occupational health and safety management system	●	6.3.1 Occupational Safety and Health Management System	134
GRI 103 Management approach of Occupational Health and Safety 2018	403-2	Hazard identification, risk assessment, and incident investigation	●	6.3.1 Occupational Safety and Health Management System	134
	403-3	Occupational health services	●	6.3.3 Employee Health Management	142
	403-4	Worker participation, consultation, and communication on occupational health and safety	●	6.3.1 Occupational Safety and Health Management System	134
	403-5	Worker training on occupational health and safety	●	6.3.2 Safe Working Environment	138
	403-6	Promotion of worker health	●	6.3.3 Employee Health Management	142
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	●	6.3.2 Safe Working Environment	138
GRI 403 Disclosure of Occupational Health and Safety topics 2018	403-8	Workers covered by an occupational health and safety management system	●	6.3.1 Occupational Safety and Health Management System	134
	403-9	Work-related injuries	●	6.3.1 Occupational Safety and Health Management System	134
	403-10	Work-related ill health	●	6.3.1 Occupational Safety and Health Management System	134



Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
<b>*Local Communities</b>					
GRI 103 Management approach of Local Communities 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	28 102
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
GRI 413 Disclosure of Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	●	4.1 Cultural Preservation and Added Value 5.4 Community Care and Services	76 117
	413-2	Operations with significant actual and potential negative impacts on local communities	●	4.3.3 Air Pollution Prevention	96
<b>*Customer Health Safety</b>					
GRI 103 Management approach of Customer Health Safety 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	28 102
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
GRI 416 Disclosure of Customer Health Safety 2016	416-1	Assessment of the health and safety impacts of product and service categories	●	5.2.1 Controlling the Quality for Food Safety	108
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	●	2.3.2 Compliance	56
<b>*Marketing and Labeling</b>					
GRI 103 Management approach of Marketing and Labeling 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	28 102
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
GRI 417 Disclosure of Marketing and Labeling 2016	417-1	Requirements for product and service information and labeling	●	5.2.1 Controlling the Quality for Food Safety	108
	417-2	Incidents of non-compliance concerning product and service information and labeling	●	2.3.2 Compliance	56
	417-3	Incidents of non-compliance concerning marketing communications	●	2.3.2 Compliance	56
<b>*Customer Privacy</b>					
GRI 103 Management approach of Customer Privacy 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 2 Sustainable Governance at Taiwan Sugar	28 36
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36
GRI 418 Disclosure of Customer Privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	●	2.4.1 Risk Management	58
<b>*Socioeconomic Compliance</b>					
GRI 103 Management approach of Socio-economic Compliance 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 2 Sustainable Governance at Taiwan Sugar	28 36
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36
GRI 419 Disclosure of Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	●	2.3.2 Compliance	56
<b>GRI Food processing sector disclosures</b>					
GRI Disclosure of labor relations topics 2016	FP3	percentage of working time lost due to industrial disputes, strikes and/or lock-outs, by country	●	6.2 Labor Relations Special Column- Taisuco Hyper-market	129 134



Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
GRI Disclosure of Customer Health and Safety topics 2016	FP5	Percentage of production volume manufactured in sites certified by an independent third party	●	5.2.1 Controlling the Quality for Food Safety	108
	FP6	according to internationally recognized food safety management system standards	●	5.2.2 Health Products and R&D of Health Products for Senior Citizens	112
	FP7	Percentage of total sales volume of consumer products, by product category, that are lowered in	●	5.2.2 Health Products and R&D of Health Products for Senior Citizens	112
<b>*Healthy and reasonably priced food</b>					
GRI 103 Management approach of Healthy and reasonably priced food 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	28 102
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
TSC's sustainability topics					
<b>*Corporate Governance</b>					
GRI 103 Management approach of Corporate Governance 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	28 102
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
<b>*Integrity Management</b>					
GRI 103 Management approach of Integrity Management 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 2 Sustainable Governance at Taiwan Sugar	28 36
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
<b>*Innovative Research</b>					
GRI 103 Management approach of Innovative Research and Development 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 6. Management Innovation	28 120
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 6. Management Innovation	24 120
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 6. Management Innovation	24 120
TSC's sustainability topics Supplementary disclosure of Innovative R&D topics 2016	PT1	Types and quantities of patents applied and passed in the year	●	6.4.2 Increase of Innovation Dynamics	146
	PT2	Number of cases infringing patents or intellectual property rights (IPR) of others in the year	●	6.4.2 Increase of Innovation Dynamics	146
<b>*Sustainable food</b>					
GRI 103 Management approach of Sustainable food 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	28 102
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 102
<b>*Circular economy</b>					
GRI 103 Management approach of Circular economy 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 3 Circular Economy	28 62
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 3 Circular Economy	24 62
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 3 Circular Economy	24 62
<b>*Providing land for urban planning</b>					
GRI 103 Management approach of Providing land for urban planning 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	28 62
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 62
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 5 Meeting People's Livelihood Demands and Social Needs	24 62



Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
<b>*Climate action</b>					
GRI 103 Management approach of climate action 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 2 Sustainable Governance at Taiwan Sugar	28 36
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 2 Sustainable Governance at Taiwan Sugar	24 36
<b>*Cultural assets</b>					
GRI 103 Management approach of Cultural assets 2016	103-1	Explanation of the material topic and its Boundary	●	1.3.3 The Value Chain Boundary of Material Topics 4 Resources and Environmental Protection	28 74
	103-2	The management approach and its components	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
	103-3	Evaluation of the management approach	●	1.3.2 Goals of Material Topics 4 Resources and Environmental Protection	24 74
<b>General standards Non-Core disclosures</b>					
GRI 102 General disclosure 2016: Comprehensive	102-15	Key impacts, risks, and opportunities	●	Message from the Top Management 2.4.2 Responses to Climate Change Risks	4 60
	102-17	Mechanisms for advice and concerns about ethics	●	2.3.1 Integrity and Eradication of Fouls	54
	102-19	Delegating authority	●	1.1 Sustainable Development Policy	15
	102-20	Executive-level responsibility for economic, environmental, and social topics	●	1.1 Sustainable Development Policy	15

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
GRI 102 General disclosure 2016: Comprehensive	102-21	Consulting stakeholders on economic, environmental, and social topics	●	2.2.3 Performance Evaluation and Information Disclosure 2.3.1 Integrity and Eradication of Fouls	52 54
	102-22	Composition of the highest governance body and its committees	●	2.2.1 Board of Director Structure	44
	102-23	Chair of the highest governance body	●	2.2.1 Board of Director Structure	44
	102-24	Nominating and selecting the highest governance body	●	2.2.1 Board of Director Structure	44
	102-25	Conflicts of interest	●	2.2.2 Review of Motions	50
	102-26	Role of highest governance body in setting purpose, values, and strategy	●	1.1 Sustainable Development Policy	15
	102-27	Collective knowledge of highest governance body	●	2.2.2 Review of Motions	50
	102-28	Evaluating the highest governance body's performance	●	2.2.3 Performance Evaluation and Information Disclosure	52
	102-29	Identifying and managing economic, environmental, and social impacts	●	2.2.2 Review of Motions	50
	102-30	Effectiveness of risk management processes	●	2.2.2 Review of Motions	50
	102-31	Review of economic, environmental, and social topics	●	1.1 Sustainable Development Policy 2.2.2 Review of Motions	15 50
	102-32	Highest governance body's role in sustainability reporting	●	Editing Principles	2
	102-33	Communicating critical concerns	●	1.1 Sustainable Development Policy	15
	102-35	Remuneration policies	●	2.2.3 Performance Evaluation and Information Disclosure	52
	102-36	Process for determining remuneration	●	2.2.3 Performance Evaluation and Information Disclosure	52
	102-38	Annual total compensation ratio	●	6.2 Labor Relations	129
	102-39	Percentage increase in annual total compensation ratio	●	6.2 Labor Relations	129



Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
Non-material topic-specific standards: 200 series (Economic topics)					
Economic performance					
GRI 201 Disclosure of Economic Performance 2016	201-1	Direct economic value generated and distributed	●	2.1.2 Financial Performance	41
	201-2	Financial implications and other risks and opportunities due to climate change	●	2.4.2 Responses to Climate Change Risks	60
	201-3	Defined benefit plan obligations and other retirement plans	●	6.2 Labor Relations	129
	201-4	Financial assistance received from government	●	2.1.2 Financial Performance	41
Market Presence					
GRI 202 Disclosure of Market Presence topics 2016	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	●	6.2 Labor Relations	129
	202-2	Proportion of senior management hired from the local community	●	6.1.2 Labor Structure	125
Procurement Practices					
GRI 204 Disclosure of Procurement Practices topics 2016	204-1	Proportion of spending on local suppliers	●	7.3.1 Procurement Policies	151
Anti-corruption					
GRI 205 Disclosure of Anti-corruption topics 2016	205-1	Operations assessed for risks related to corruption	●	2.3.1 Integrity and Eradication of Fouls	54
	205-2	Communication and training about anti-corruption policies and procedures	●	2.3.1 Integrity and Eradication of Fouls	54
	205-3	Confirmed incidents of corruption and actions taken	●	2.3.1 Integrity and Eradication of Fouls	54
Anti-competitive Behavior					
GRI 206 Disclosure of Anti-competitive Behavior topics 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	●	2.3.1 Integrity and Eradication of Fouls	54
Non-material topic-specific standards: 300 series (Environmental topics)					
Materials					
GRI 301 Disclosure of Materials topics 2016	301-1	Materials used by weight or volume.	●	7.3.1 Procurement Policies	151
	301-2	Recycled input materials used	●	7.3.1 Procurement Policies	151
	301-3	Reclaimed products and their packaging materials	●	7.3.1 Procurement Policies	151

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<b>Biodiversity</b>					
GRI 304 Disclosure of Biodiversity topics 2016	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	●	4.2 Maintenance of Natural Resources	82
	304-2	Significant impacts of activities, products, and services on biodiversity	●	4.2 Maintenance of Natural Resources	82
	304-3	Habitats protected or restored	●	4.2 Maintenance of Natural Resources	82
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	●	4.2 Maintenance of Natural Resources	82
<b>Supplier Environmental Assessment</b>					
GRI 308 Disclosure of Supplier Environmental Assessment topics 2016	308-1	New suppliers that were screened using environmental criteria	●	7.3.2 Supplier Management	152
	308-2	Negative environmental impacts in the supply chain and actions taken	●	7.3.2 Supplier Management	152
<b>Non-material topic-specific standards: 400 series (Social topics)</b>					
<b>Employment</b>					
GRI 401 Disclosure of Employment topics 2016	401-1	New employee hires and employee turnover	●	6.1.1 Talent Acquisition and Turnover	123
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	●	6.2 Labor Relations	129
	401-3	Parental leave	●	6.2 Labor Relations	129
<b>Training and Education</b>					
GRI 404 Disclosure of Training and Education topics 2016	404-1	Average hours of training per year per employee	●	6.1.3 Talent Cultivation	126
	404-2	Programs for upgrading employee skills and transition assistance programs	●	6.1.3 Talent Cultivation 6.2 Labor Relations	126 129
	404-3	Percentage of employees receiving regular performance and career development reviews	●	6.2 Labor Relations	129
<b>Diversity and Equal Opportunity</b>					
GRI 405 Disclosure of Diversity and Equal Opportunity topics 2016	405-1	Diversity of governance bodies and employees	●	6.1.2 Labor Structure	125
	405-2	Ratio of basic salary and remuneration of women to men	●	6.2 Labor Relations	129



Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
Non-discrimination					
GRI 406 Disclosure of Non-discrimination topics 2016	406-1	Incidents of discrimination and corrective actions taken	●	6.2 Labor Relations	129
Freedom of association and collective bargaining					
GRI 407 Freedom of association and collective bargaining Disclosure topics for 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	●	6.2 Labor Relations	129
Child labor					
GRI 408 Disclosure of child labor for 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	●	6.1.1 Talent Acquisition and Turnover	123
Security Practices					
GRI 410 Disclosure of Security Practices topics 2016	410-1	Security personnel trained in human rights policies or procedures	●	7.3.2 Supplier Management	152
Indigenous Rights					
GRI 411 Disclosure of Indigenous Rights topics 2016	411-1	Incidents of violations involving rights of indigenous peoples	●	6.1.2 Labor Structure	125
Human Rights Assessment					
	412-1	Operations that have been subject to human rights reviews or impact assessments	●	6.2 Labor Relations	129
GRI 412 Disclosure of Human Rights Assessment topics 2016	412-2	Employee training on human rights policies or procedures	●	6.2 Labor Relations	129
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	●	7.3.2 Supplier Management	152
Supplier Assessment for Impacts on Society					
GRI 414 Disclosure of Supplier Assessment for Impacts on Society topics 2016	414-1	New suppliers that were screened using social criteria	●	7.3.2 Supplier Management	152
	414-2	Negative social impacts in the supply chain and actions taken	●	7.3.2 Supplier Management	152

Category/ Material Aspects	NO	GRI Index	External Verification	Chapter and Section	Page
Public Policy					
GRI 415 Disclosure of Public Policy topics 2016	415-1	Political contributions	●	2.3.1 Integrity and Eradication of Fouls	54
Non-material GRI Food processing sector disclosures					
GRI Disclosure of Procurement Practices topic 2016	FP1	Percentage of purchased volume from suppliers compliant with company's sourcing policy	●	7.3.2 Supplier Management	152
	FP2	Percentage of purchased volume which is verified as being in accordance with credible, internationally recognized responsible production standards, broken down by standard	●	7.3.2 Supplier Management	152
GRI Disclosure of Animal welfare topic 2016	FP9	Percentage and total of animals raised and/or processed, by species and breed type	●	3.3.1 Overall Renovation Plan of a Modern Livestock Housing	69
	FP10	Policies and practices, by species and breed type, related to physical alterations and the use of anaesthetic	●	3.3.1 Overall Renovation Plan of a Modern Livestock Housing	69
	FP11	Percentage and total of animals raised and/or processed, by species and breed type, per housing type	●	3.3.1 Overall Renovation Plan of a Modern Livestock Housing	69
	FP12	Policies and practices on antibiotic, anti-inflammatory, hormone, and/or growth promotion treatments, by species and breed type	●	3.3.1 Overall Renovation Plan of a Modern Livestock Housing	69
	FP13	Total number of incidents of significant non-compliance with laws and regulations, and adherence with voluntary standards related to transportation, handling, and slaughter practices for live terrestrial and aquatic animals	●	3.3.1 Overall Renovation Plan of a Modern Livestock Housing	69



## Appendix II: Reference table of Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies (Article 4, Item 1)

Number	Content of indicator	Chapter and section	page
(1)	The evaluation and improvement regarding the company's personnel, work environment, hygiene management of facilities and quality control system to improve food sanitation, safety and quality, as well as the significant product categories and the percentage affected.	5.2.1 Controlling the Quality for Food Safety	108
(2)	The applicable laws relating to the management of food safety and sanitation which the listed company shall observe, as well as the types and number of incidents of violation by the listed company against the aforesaid laws.	2.3.2 Compliance	56
(3)	The percentage of the listed company's purchased volume in accordance with internationally recognized responsible production standards.	7.3.2 Supplier Management	152
(4)	The percentage of the production volume manufactured in sites certified by an independent third party according to internationally recognized food safety management system standards.	5.2.1 Controlling the Quality for Food Safety	108
(5)	The number and percentage of suppliers audited by the listed company, and the audit items and results.	7.3.2 Supplier Management	152
(6)	The product trace and track management conducted by the listed company voluntarily or according to the applicable laws, and the percentage of such relevant products to the whole products.	5.2.1 Controlling the Quality for Food Safety	108
(7)	The food safety laboratories established by the listed company voluntarily or according to the applicable laws, testing items, testing results, relevant expenses and the percentage of such expenses to the net revenue.	5.2.1 Controlling the Quality for Food Safety	108

## Appendix III:United Nation Global Compact Index

Item	Article	Chapter and section	page
<b>1.Human Rights</b>			
1	Businesses should support and respect the protection of internationally proclaimed human rights.	7.3 Sustainable Management of the Value Chain	151
2	Make sure that they are not complicit in human rights abuses.	6.1 Optimization of Talent and Organization	123
<b>2.Labor</b>			
3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	6.2 Labor Relations	129
4	The elimination of all forms of forced and compulsory labor.	6.2 Labor Relations	129
5	The effective abolition of child labor.	6.2 Labor Relations	129
6	The elimination of discrimination in respect of employment and occupation.	6.1.2Labor Structure	125
<b>3.Environment</b>			
7	Businesses should support a precautionary approach to environmental challenges.	3.3 Circular Agriculture and Animal Husbandry	69
8	Undertake initiatives to promote greater environmental responsibility.	3 Circular Economy 5 Meeting People's Livelihood Demands and Social Needs	62 102
9	Encourage the development and diffusion of environmentally friendly technologies.	3.3 Circular Agriculture and Animal Husbandry	69
<b>4.Anti-Corruption</b>			
10	Businesses should work against corruption in all its forms, including extortion and bribery.	2.3.1 Integrity and Eradication of Fouls	54



## Appendix IV:ISO26000 Guidance on Social Responsibility

item	Article	Chapter and section	page
1.Organizational Governance			
1.1	The system by which companies are directed and controlled	2.3 Implementation of Integrity Management	54
2.Human Rights			
2.1	Due diligence		
2.2	Human rights risk situations		
2.3	Avoidance of complicity		
2.4	Resolving grievances	7.3 Sustainable Management of the Value Chain	151
2.5	Discrimination and vulnerable groups	6.1 Optimization of Talent and Organization	123
2.6	Civil and political rights		
2.7	Economic, social and cultural rights		
2.8	Fundamental principles and rights at work		
3.Labor Practices			
3.1	Employment and employment relationships		
3.2	Conditions of work and social protection		
3.3	Social dialogue	6 Management Innovation	120
3.4	Health and safety at work		
3.5	Human development and training in the workplace		
4.The Environment			
4.1	Prevention of pollution	3.3 Circular Agriculture and Animal Husbandry 4.3 Green Production	69 87
4.2	Sustainable resource use	3.3 Circular Agriculture and Animal Husbandry 4.3 Green Production	69 87
4.3	Climate change mitigation and adaptation	4.3 Green Production	87
4.4	Protection of the environment, biodiversity and restoration of natural habitats	4.2 Maintenance of Natural Resources	82
5.Fair Operating Practices			
5.1	Anti-corruption		
5.2	Responsible political involvement	2.3 Implementation of Integrity Management	54
5.3	Fair competition	6.4.2 Increase of Innovation Dynamics	146
5.4	Promoting social responsibility in the value chain		
5.5	Respect for property rights		

item	Article	Chapter and section	page
6.Consumer Issues			
6.1	Fair marketing, factual and unbiased information and fair contractual practices	7.3.3 Customer Relationship Management	158
6.2	Protecting consumers' health and safety		
6.3	Sustainable consumption		
6.4	Consumer service, support, and complaint and dispute resolution		
6.5	Consumer data protection and privacy		
6.6	Access to essential services		
6.7	Education and awareness		
7.Community Involvement and Development			
7.1	Community involvement	5.4 Community Care and Services	117
7.2	Education and culture		
7.3	Employment creation and skills development	5.2 Product Health and Food Safety	108
7.4	Technology development and access		
7.5	Wealth and income creation		
7.6	Health	5.2.1 Controlling the Quality for Food Safety	108
7.7	Social investment	5.4 Community Care and Services	117
		5.2 Product Health and Food Safety	108



## Appendix V: Sustainable Development Goals (SDGs) Index

Item	Sustainable Development Goals	Chapter and section	page
Goal 1	End poverty in all its forms everywhere	1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture.	3.2 High-value Recycling of Waste	66
		5.2.1 Controlling the Quality for Food Safety	108
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 3	Ensure healthy lives and promote well-being for all at all ages	1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	6.1 Optimization of Talent and Organization	123
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 6	Ensure availability and sustainable management of water and sanitation for all.	4.3.4 Water Pollution Control	97
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all.	3.3 Circular Agriculture and Animal Husbandry	69
		4.3 Green Production	87
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	2.3 Implementation of Integrity Management	54
		6.1 Optimization of Talent and Organization	123
		6.2 Labor Relations	129
		7.3 Sustainable Management of the Value Chain	151
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 9	Build resilient infrastructure, promote inclusive and Sustainable industrialization and foster innovation.	3.3 Circular Agriculture and Animal Husbandry	69
		5.3 Land Activation and Utilization	113
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable.	4.1 Cultural Preservation and Added Value	76
		5.3 Land Activation and Utilization	113
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 12	Ensure sustainable consumption and production patterns.	3 Circular Economy	62
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 13	Take urgent action to combat climate change and its impacts.	4.3 Green Production	87
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	4.2 Maintenance of Natural Resources	82
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	2.3 Implementation of Integrity Management	54
		7.3 Sustainable Management of the Value Chain	151
		1.4 Implementation of Sustainable Development Goals (SDGs)	29
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	7 Investment and External Cooperation	148
		1.4 Implementation of Sustainable Development Goals (SDGs)	29



## INDEPENDENT ASSURANCE OPINION STATEMENT

### Taiwan Sugar Corporation 2020 Sustainability Report

The British Standards Institution is independent to Taiwan Sugar Corporation (hereafter referred to as Taiwan Sugar in this statement) and has no financial interest in the operation of Taiwan Sugar other than for the assessment and verification of the sustainability statements contained in this report.

This independent assurance opinion statement has been prepared for the stakeholders of Taiwan Sugar only for the purposes of assuring its statements relating to its corporate social responsibility (CSR), more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by Taiwan Sugar. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to Taiwan Sugar only.

#### Scope

The scope of engagement agreed upon with Taiwan Sugar includes the followings:

1. The assurance scope is consistent with the description of Taiwan Sugar Corporation 2020 Sustainability Report.
2. The evaluation of the nature and extent of the Taiwan Sugar's adherence to AA1000 AccountAbility Principles (2018) and the reliability of specified sustainability performance information in this report as conducted in accordance with type 1/type 2 of AA1000 Assurance Standard (2008) with 2018 Addendum sustainability assurance engagement and therefore, the information/data disclosed in the report is not verified through the verification process except for food industry specific management approach and performance indicators concerning the aspects of supply chain management and procurement practices, protection of customer health and safety, product and service labeling and legal compliance.

This statement was prepared in English and translated into Chinese for reference only.

#### Opinion Statement

We conclude that the Taiwan Sugar 2020 Sustainability Report provides a fair view of the Taiwan Sugar CSR programmes and performances during 2019. The CSR report subject to assurance is materially correct without voluntary omissions based upon testing within the limitations of the scope of the assurance, the information and data provided by the Taiwan Sugar and the sample taken. We believe that the 2019 economic, social and environmental performance information are correctly represented. The CSR performance information disclosed in the report demonstrate Taiwan Sugar's efforts recognized by its stakeholders.

Our work was carried out by a team of (CSR) report assurers in accordance with the AA1000AS (2008) with 2018 Addendum. We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that Taiwan Sugar's description of their approach to AA1000AS (2008) with 2018 Addendum and their self-declaration in accordance with GRI Standards: Core option were fairly stated.

#### Methodology

Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:

- a review of issues raised by external parties that could be relevant to Taiwan Sugar's policies to provide a check on the appropriateness of statements made in the report
- discussion with managers on Taiwan Sugar's approach to stakeholder engagement. However, we had no direct contact with external stakeholders.
- 12 interviews with staffs involved in sustainability management, report preparation and provision of report information were carried out
- review of key organizational developments
- review of the findings of internal audits
- the verification of performance data and claims made in the report through meeting with managers responsible for gathering data.
- review of supporting evidence for claims made in the reports
- an assessment of the organization's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality, Responsiveness and Impact as described in the AA1000AP (2018)

#### Conclusions

A detailed review against the Inclusivity, Materiality, Responsiveness and Impact of AA1000AP (2018) and sustainability performance information as well as GRI Standards is set out below:



## Appendix VI, British Standards Institution (BSI) Verification statement

### **Inclusivity**

In this report, it reflects that Taiwan Sugar has continually sought the engagement of its stakeholders and established material sustainability topics, as the participation of stakeholders has been conducted in developing and achieving an accountable and strategic response to sustainability. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the Taiwan Sugar's inclusivity issues and has demonstrated social responsible conduct supported by top management and implemented in all levels among organization.

### **Materiality**

The Taiwan Sugar publishes material topics that will substantively influence and impact the assessments, decisions, actions and performance of Taiwan Sugar and its stakeholders. The sustainability information disclosed enables its stakeholders to make informed judgements about the Taiwan Sugar's management and performance. In our professional opinion the report covers the Taiwan Sugar's material issues.

### **Responsiveness**

Taiwan Sugar has implemented the practice to respond to the expectations and perceptions of its stakeholders. An Ethical Policy for the Taiwan Sugar is developed and continually provides the opportunity to further enhance Taiwan Sugar's responsiveness to stakeholder concerns. Topics that stakeholder concern about have been responded timely. In our professional opinion the report covers the Taiwan Sugar's responsiveness issues.

### **Impact**

Taiwan Sugar has Identified and fairly represented impacts that were measured and disclosed in probably balanced and effective way. Taiwan Sugar has established processes to monitor, measure, evaluate and manage impacts that lead to more effective decision-making and results-based management within an organization. In our professional opinion the report covers the Taiwan Sugar's impact issues.

### **Performance information**

Based on our work described in this statement, specified sustainability performance information such as GRI Standards disclosures disclosed in this report, Taiwan Sugar and BSI have agreed upon to include in the scope. In our view, the data and information contained within 2020 Taiwan Sugar CSR Report are reliable based on procedures undertaken by means of vouching, re-tracking, re-computing and confirmation.

### **GRI Sustainability Reporting Standards (GRI Standards)**

Taiwan Sugar provided us with their self-declaration of in accordance with GRI Standards: Core option (For each material topic covered by a topic-specific GRI Standard, comply with all reporting requirements for at least one topic-specific disclosure). Based on our review, we confirm that social responsibility and sustainable development disclosures with reference to GRI Standards' disclosures are reported, partially reported or omitted. In our professional opinion the self-declaration covers the Taiwan Sugar's social responsibility and sustainability topics.

### **Assurance level**

The moderate and partial high level assurance provided is in accordance with AA1000AS (2008) with 2018 Addendum in our review, as defined by the scope and methodology described in this statement.

### **Responsibility**

This CSR report is the responsibility of the Taiwan Sugar's chairman as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

### **Competency and Independence**

The assurance team was composed of Lead auditors experienced in relevant sectors, and trained in a range of sustainability, environmental and social standards including AA1000AS, ISO 14001, ISO 45001, ISO 14064 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice

For and on behalf of BSI:



Peter Pu, Managing Director BSI Taiwan



Statement No: SRA-TW-2019019

2020-05-15

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