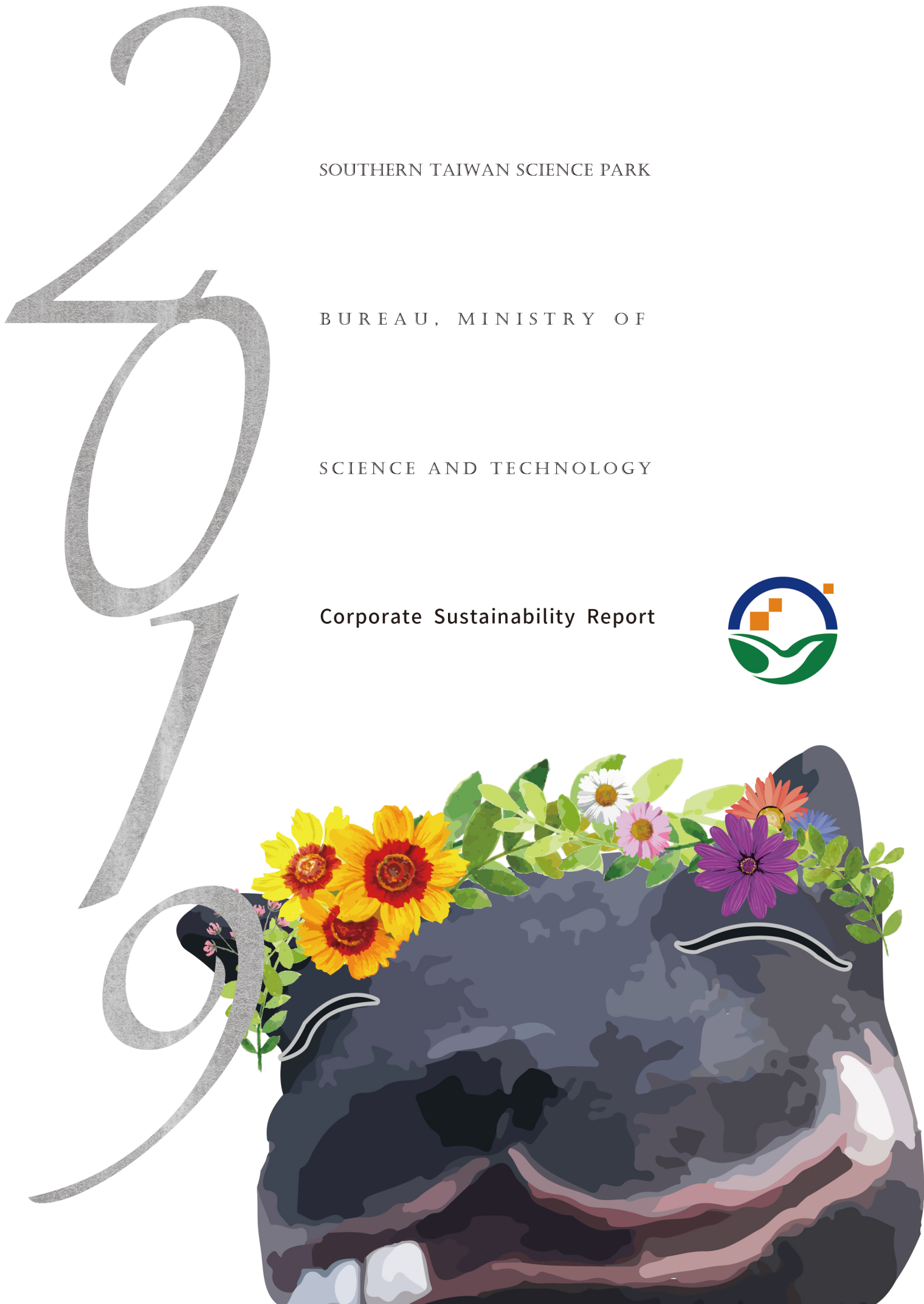


SOUTHERN TAIWAN SCIENCE PARK

BUREAU, MINISTRY OF

SCIENCE AND TECHNOLOGY

Corporate Sustainability Report





S o u t h e r n T a i w a n

S c i e n c e P a r k

B u r e a u , M i n i s t r y o f

S c i e n c e a n d T e c h n o l o g y

C o r p o r a t e S u s t a i n a b i l i t y R e p o r t





C O N T E N T S

Abstract 1
Message from the Director-General 3
Editing Guidelines 5
2019 Awards of STSP 7
ESG Performance and Goals 9
Special Column - Retrospection and Innovation 13

1

**Sustainable
Issues**

1.1 Stakeholders and Identification Process of the
Material Topics 19
1.2 Stakeholder Communication and Response 21
1.3 Management of Sustainability Issues 23
1.4 Value Chain and Goals of the Material Topics 25
1.5 Smooth Communication Channels 34

2

**Integrity
Governance**

2.1 About Southern Taiwan Science Park 37
2.2 Risk Control 43
2.3 Compliance 48
2.4 Management of Suppliers 51

3

**Right People in
the Right Place**

3.1 Human Resource Structure 53
3.2 Compensation and Benefits 57
3.3 Labor-Management Equality 59
3.4 Education and Training 60
3.5 Energy Conservation 61

4

**Services
that Touch
Your Heart**

4.1 Employment of Talent in the Science Park 67
4.2 Cultivation of Talent in the Science Park 71
4.3 Implementation of Labor Equality 75
4.4 Good Workplace for Park Businesses 78
Special Column -
Industrial Safety White Papers ·
Smart Innovation and Health Science Park 83



5

A Hub for New Ventures

5.1 Overview of the Park Development	95
5.2 International Exchanges	98
5.3 Industry-Government-University-Research-Medicine Project	104
5.4 Start-up Competition	114

6

Safeguarding Nature

Special Column - TCFD Smart Flood Prevention	121
6.1 Energy Resources Management at STSP	127
6.2 Counseling of Energy Conservation for Park Businesses	129
6.3 Pollution Control Measures of Park Businesses	132
6.4 Renewable Green Energy	139
6.5 Ecology Conservation at STSP	165

7

Beautiful STSP

7.1 Installation Art	147
7.2 Good-Neighborliness	148
Special Column - Exploration of Prehistoric Culture	152

8

New Phase of Prosperity 155

Appendix I: Global Reporting Initiative (GRI) Index	157
Appendix II : Sustainable Development Goals (SDGs) Index	165
Appendix III : ISO26000 Guidance on Social Responsibility	166
Appendix IV : United Nation Global Compact Index	168





Abstract

The missions of South Taiwan Science Park Bureau are to speed up the construction of the science park, strengthen the manufacturers' R&D capacities and attract investments from manufactures, aiming at constructing a high-value added industrial cluster with the integration of R&D, innovation and manufacturing to boost the industrial development and the employment rate. With the cores of "Technology" and "Innovation", the introduction of various innovative R&D businesses are accelerated, creating a base for the next generation of innovative industries to realize their dreams, reaching the purpose of innovation and transformation of the science park, promoting the development of science and innovative technology industries in the future.

To reach the goal of sustainable development, STSP Bureau has been actively providing assistance in industrial innovation and transformation to enhance the competitiveness of the manufacturers, making efforts in "guiding innovative transformation", "increasing industrial value", "expanding industries in the park", "constructing a platform for talents", "building a demonstration field" and "improving life functions" while taking into account environmental quality and the co-prosperity of the local society. Furthermore, by disclosing data in economic, social and environmental aspects, we have active dialogues with our stakeholders and present various policies, goals and management performance of STSP Bureau in a public and transparent manner.

This Report is the eighth CSR Report published by the Bureau. Looking back on the first Environmental Report, we have been making tireless efforts on the goal of sustainable development. This 2019 Corporate Sustainability Report discloses information on three major aspects of ESG (Environmental, Social and Corporate Governance), which are incorporated with the administrative goals of STSP Bureau, corresponding to 15 goals of the Sustainable Development Goals (SDGs). In addition, with the identification of 12 material topics, the implementation performance of STSP Bureau is fully disclosed in this Report.

In terms of the daily park operation, the Bureau monitors and manages internal administrative affairs through the internal control system and continues to advocate the “Ethics Directions for Civil Servants”, requiring our staffs to abide by various regulations for law-based administration. The Bureau also widely promotes anti-corruption education for the concept of honesty and integrity to take roots in people’s lives.

We know that genial services come from happy employees, so we attach great importance to the working environment, development, care for employees and labor rights. We have established multi-directional communication channels and provided all staff with equal treatment and respect, striving to create a safe workplace for our employees. The occupational disease rate, work injury rate and fatal accidents were all zero in 2019. To create a friendly and safe workplace, the Bureau conducts labor inspections, advocacy for human rights, talent recruitment events and talent cultivation subsidy programs on a regular basis to take care of the employees in the science park and attract more talents to join the big family of STSP.

With the existing industrial structure as the basis, we continue to expand the scale of the clusters in STSP and encourage the R&D of key technologies to promote industrial transformation while supporting start-ups by connecting various resources from the government-industry-university-institute alliance.

In the face of potential impacts of climate change, the Bureau has established a smart disaster prevention system while at the same time promotes climate change adaptation works and actively provides manufacturers with guidance to increase the efficiency of resources use. The Bureau makes regular environmental monitoring and maintenance of the ecology of the park to ensure the sustainable development of STSP. We have set “A livable STSP” as the policy goal. In addition to the maintenance of the ecological environment and hardware facilities in the park, we also organize late-spring art events, ball games and neighborly activities to create a living environment with comfort and cultural atmosphere.





Message from the Director-General

Realizing Dreams Step by Step Like Eagles Spreading Wings and Soaring

When Southern Taiwan Science Park was about to be established more than two decades ago, this place was full of sugarcane fields with an area of 638 hectares. Our partners in the park participated in the planning of the development, STSP started from scratch and has been developed into one covering Tainan, Kaohsiung and Ciaotou Science Parks. Currently, there are a total of 233 validly approved manufacturers with a cumulative investment of approximately NTD 4.18 billion.

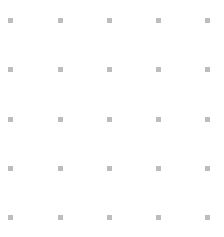
Looking back on the growth and development of STSP along the way, STSP Bureau has always regarded STSP as “home”. We have held events like late-spring art events, STSP Charity Month, ball games and others, embodying the people-oriented spirit. STSP has grown from a wasteland to a science park with more than 70,000 employees. It takes time and efforts to achieve what we have accomplished today. What is behind this is the careful planning and the resilience to adaptation to the times.

We have created employment opportunities and a livable environment for the new generation, attracting young people to return to their homeland to start families and business. We have created a sustainable park incorporated with history, culture, art and the environment, and enabled a great status of peaceful coexistence with nature. STSP is not only a science park that attracts manufacturers to build factories here, it is also a place for employees to return back to their hometown where three generations of the families can enjoy their family time. The spirit of sustainability of STSP lies not only in the environment but also in the hearts of people.

Now STSP starts to spread its wings and soar like an eagle to its promising future. It is going to realize the dreams together with every partner here in the science park.

Director-General

林威星





Editing Guidelines

This Report is the eighth CSR Report published by Southern Taiwan Science Park Bureau, Ministry of Science and Technology (hereinafter referred to as Southern Taiwan Science Park Bureau, STSP Bureau, the Bureau, or We). Since its development in early stages, STSP Bureau has been taking into account economic growth, environmental protection and cultural preservation to avoid or mitigate the impacts of development activities on the environment, supply chain and personnel as well as maintain the quality of the environment and life, constructing the science park into an international ecological park in the most environmentally friendly way. The 2019 Corporate Sustainability Report of Southern Taiwan Science Park Bureau, Ministry of Science and Technology shares the achievements the Bureau has accomplished in terms of communication and governance, fostering innovation and entrepreneurship, serving the science park and conducting local cultivation while stepping toward the sustainable operation of the science park.

Scope of the Report and Basis of Calculation

The reporting scope of this Report covers Southern Taiwan Science Park Bureau and the land under its jurisdiction (Tainan Science Park and Kaohsiung Science Park). The reporting period was between Jan. 1st and Dec. 31st, 2019. The Industrial Safety Section of Environment & Labor Affairs Division collected the information concerning the overview of the operation and the analysis as well as the evaluation of the Bureau's performance and results in environmental management and social and economic aspects. All test data required by law was tested or verified by a third impartial party, and all numbers were presented in the most common way of description. Exact figures were given in this Report. All the statistical data disclosed in this Report came from the internal statistics and investigation results, which, although have not been verified by a third party, were all through rigorous internal control and verification mechanisms for the enhancement of the transparency and reliability of the organizational report. Compared with the 2018 CSR Report, the re-editing of some data will be noted in the text of this 2019 Report.

Reporting Principles and Guidelines

The content framework of this Report complied with the core option criteria for the GRI (Global Reporting Initiative) Standards and the AA1000 Account Ability Principles (AA1000AP). The priorities of the sustainability considerations of the stakeholders' concern were identified through the substantive analysis model for the analysis of the strategic objectives of sustainable development, environmental protection issues, governance, labor

rights in the park and innovation and entrepreneurship to be disclosed in this Report, and the guidelines listed served as the compilation basis while the following relevant guidelines and initiatives were referred.

- GRI (Global Reporting Initiative) Sustainability Reporting Standards
- AA1000 AccountAbility Principles
- Sustainable Development Goals (SDGs)
- ISO 26000 Guidance on Social Responsibility
- The UN Global Compact

Publication of Report

STSP Bureau schedules to issue its Corporate Sustainability Report every year, and the content of the Report is simultaneously disclosed on its official website.

Latest edition: Issued in December, 2020

Previous edition: Issued in December, 2019

Contact Information

It is hoped that the endeavor and achievement of STSP Bureau in the promotion of sustainable management can be better understood by the general public and our stakeholders through this Report. Feedback from all walks of life will serve as the basis for our continuous improvement. Please contact us for any questions or suggestions of this 2019 CSR Report.

Tel: +886-6-505-1001

Fax: +886-6-505-1010

Contact person: Mr. Wei-Cheng Chou, Industrial Safety Section (Ext. 2345)

E-mail : choukk@stsp.gov.tw

STSP Bureau CSR Website



2019 Awards of STSP



Awarded the 2019 Unit of Merit for Environmental Protection of Self-management of Diesel Vehicle Exhaust by the Environmental Protection Bureau of Tainan City



STSP Resource Recycling Center was awarded the Titan Award of the First National Enterprise Environmental Protection Award”

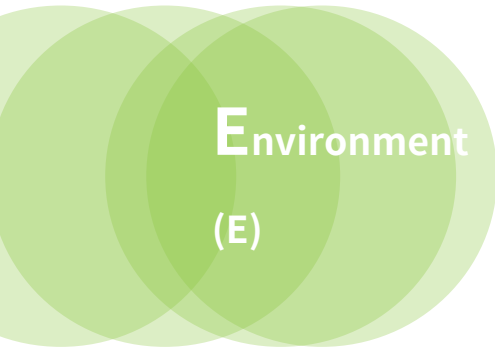


2019 Performance Evaluation of Labor Inspection Agencies: Outstanding Award



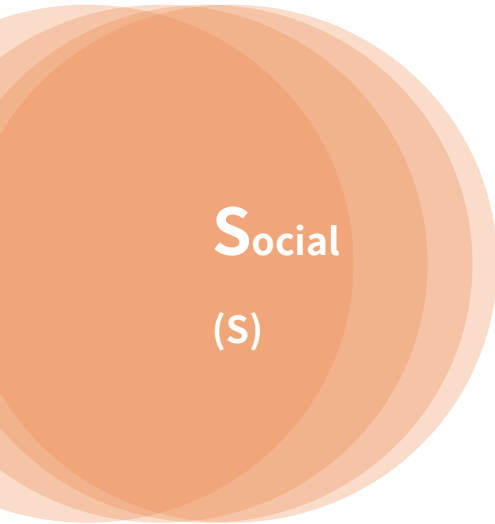
ESG Performance and Goals

ESG Aspects Corresponding SDGs 2019 Administrative Goals 2019 Material Topics



To construct a high-quality smart service environment

- Effluents and Waste
- Emissions
- Energy
- Water and Effluents



To promote an eco-friendly environment for the creation of a sustainable green park

- Customer Privacy
- Indirect Economic Impacts (Infrastructure in the Park)
- Local Communities
- Safe Working Environment



∴ 2019 Implementation Performance ∴

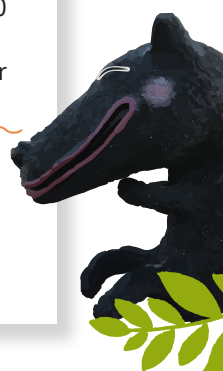
- ◆ In 2019, the reuse volume of the industrial waste in the science park reached 237,394.98 tons.
- ◆ In 2019, the activated sludge A/O treatment system was newly added.
- ◆ Regularly check various pollutants in accordance with the Air Pollution Control Act, and the emissions are all lower than the quota allocation of the EIA.
- ◆ Promoted the Self-management Program of Diesel Vehicle Exhaust, and a total (cumulative) 2,197 vehicles obtained the exhaust emission mark.
- ◆ Completed the counseling of energy conservation for 6 park manufacturers, saving approximately 69.322 million kWh in 2019.
- ◆ The solar power generation system helped reduce 25,294 tons of carbon dioxide emissions in 2019.
- ◆ In 2019, the e-shuttle bus averagely reduced the use of diesel by 154.5 liters per day.
- ◆ In 2019, the quality of the discharged water was 100% in line with the Effluent Standards.
- ◆ In 2019, counseling of water conservation for 5 park manufacturers were completed, saving about 34.96 million tons/year of water in total.
- ◆ In 2019, the total amount of water recovered in the whole park area was about 354,234 tons.

- ◆ Established the Information Communication Security Maintenance Plan.
- ◆ There was no leakage of information.

- ◆ Prepared for the establishment of Chiaotou Science Park, which was in the 2-stage EIA process.
- ◆ In charge of the second phase construction of the Traffic and Control Center Project, expecting to reduce the commuting time to STSP by 5%~10% upon completion.

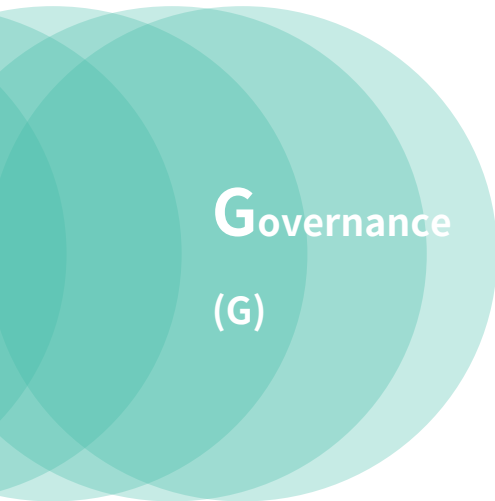
- ◆ Organized group wedding in 2019, offering blessings to 18 newly wedded couples.
- ◆ A total of NTD 9,517,896 was raised in STSP Charity Month in 2019.
- ◆ A total of 1,934 people benefited from the funds raised in STSP Charity Month in 2019.
- ◆ The rebates for good neighborly was NTD 3,376,176 in 2019.

- ◆ The cumulative subscribers of the Industrial Safety Newsletter reached 2,490 in 2019.
- ◆ The penetration rate of health care reached 99.15% in 2019.
- ◆ Promoted the “On-site Counseling of Occupational Safety and Health” in 2019 and 48 sessions have been organized in 2019.
- ◆ Organized 5 sessions of Prevention of Work-related Diseases in the Workplace in 2019.
- ◆ In 2019, 4 park manufacturers and 10 park employees were awarded the Excellent unit (personnel) of industrial security.
- ◆ In 2019, 531 labor inspections (including 411 occupational safety and health inspections and 120 labor condition inspections) were completed, with a total of achievement rate of 113%.
- ◆ In 2019, the occupational disaster rate per thousand people was 1.14, 24% lower than the 3-year average.



ESG Performance and Goals

: ESG Aspects : : Corresponding SDGs : : 2019 Administrative Goals : : 2019 Material Topics :



To cooperate with 5 Major Innovative Industries Policy to make up the gap in the industrial chain, creating momentum for the industrial innovation in the science park.



∴ 2019 Implementation Performance ∴

- ◆ The cumulative validly approved manufacturers reached 233 in 2019.
 - ◆ 20 manufactures (including 13 start-ups) were introduced to the park in 2019, with an investment amount of NTD 4.18 billion.
 - ◆ The overall trade volume in 2019 was NTD 619.1 billion.
-
- ◆ Information of 201 manufacturers in the science park has been registered into the Earthquake Early Warning and Smart Disaster Prevention System. There was information of 9,843 chemical items, and two domestic patents were obtained.
-
- ◆ Complied with the environmental protection laws and regulations and there were no major environmental pollution incidents.
-
- ◆ There were no incidents of corruption, law violation or political donations.



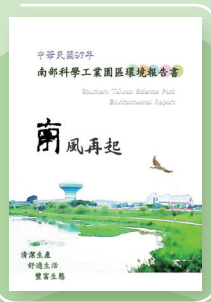


Special Column - Retrospection and Innovation

STSP Bureau started the issuance of the Environmental Reports in 2008, taking the lead in the preparation of the reports in accordance with Sustainability Reporting Guidelines (GRI Guidelines Version 3) released in 2006. In addition, an overall revision was made in the 2011 STSP Environmental Report in accordance with GRI 3.1, comprehensively organizing the results in the economic, environmental and social aspects, presenting the performance results to our stakeholders in a brand new look.

It has been almost a decade since the Bureau has regularly issued the CSR Report in 2011. As the general environment changes and the trends of corporate social responsibility switch, the Bureau has always embraced different challenges with a tough, stable, innovative and developmental attitude. The results of the governance, the promotion of the development of the park, the protection of humanities and arts and the harmony of the ecological environment that we have strived for are all displayed in every report we have issued.

STSP Bureau would like to express its gratitude to all the partners for accompanying us through the great era. In the future, we will continue to work together to create a new generation of the industries in southern Taiwan.



2008

- ✿ The STSP Tainan Science Park Resource Recycling Center obtained the OHSAS 18001 Certification.
- ✿ The STSP Tainan Science Park Resource Recycling Center obtained the OHSAS 18001 Certification.



2009

- ✿ The STSP Tainan Science Park Resource Recycling Center obtained the TOSHMS:2007 Certification.
- ✿ The 2009 Report was awarded Special Report of Sustainability Report in the NPO Category.



2010

- ✿ The report was compiled in accordance with the GRI Guidelines Version 3.
- ✿ The verification of the report was outsourced to an impartial third-party for the first time.



2011

- ✿ The title of the report was changed to “Corporate Social Responsibility Report.”
- ✿ This report was compiled in accordance with the GRI Guidelines Version 3.1.
- ✿ This report was awarded the Gold Award in the NPO Category of the 2012 Corporate Sustainability Report Award and Best Web-based CSR Information Disclosure Award.



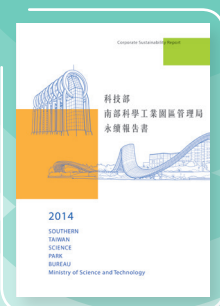
2012

- ✿ Tainan Science Park was awarded the first Green Building Mark of Diamond Class Eco-community (non-residential category) in Taiwan issued by the Ministry of Interior.
- ✿ Promoted the Whole Area Artistification Plan.



2013

- ✿ Changed the year of the report into common era and retitled it into “Corporate Sustainability Report”.
- ✿ This report was compiled in accordance with the GRI Guidelines Version 4.0.
- ✿ The report was awarded the Gold Award in the NPO Category of the 2014 Corporate Sustainability Report Award.
- ✿ The report was awarded the 2014 BSI GRC Award.



2014

- ✿ Kaohsiung Science Park obtained the Green Building Mark of Diamond Class Eco-community (non-residential category).
- ✿ Ground breaking of the National Museum of Archaeology, Tainan Branch.
- ✿ The report was awarded the BSI GRC Award.





2015

- ✿ The Management Approaches (MA) of the material aspects were disclosed for the first time in response to the GRI requirements.
- ✿ The report was awarded the Gold Award in the NPO Category and Social Inclusion Award of the 2016 Corporate Sustainability Report Award.
- ✿ The report was awarded the 2016 BSI GRC Green Sustainability Exemplary Award.



2016

- ✿ The management approaches were integrated with SDGs for disclosure in this report for the first time.
- ✿ Realized the “5-year Tree Planting Program” to double the trees in the park area.



2017

- ✿ This report was compiled in accordance with the GRI Standards.
- ✿ In response to the draft of Taiwan’s Sustainable Development Goals, relevant goals were included in the report for disclosure.
- ✿ Established the “Earthquake Early Warning and Smart Disaster Prevention System”.



2018

- ✿ The AI_ROBOT Base at STSP obtained the ISO 9001 certification.
- ✿ The public art project in the science park area was awarded the Public Participation Award and Art Creation Award in the 6th Public Art Awards.
- ✿ The performance of the occupational safety management in the science park won the Merit Award of the 2018 International Safety Awards (ISA) held by National Security Council.



2019

- ✿ The administrative goals of STSP are linked with ESG, SDGs and the material topics.
- ✿ The highlights of performance in 2019 are presented in the special columns.
- ✿ Introduced the governance actions of Climate-related Financial Disclosure (TCFD).
- ✿ Responded to the specific results of Phase Four of the Industrial Safety White Papers.



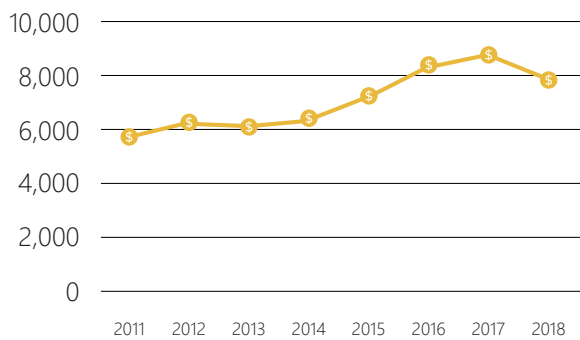


Special Column - Retrospection and Innovation

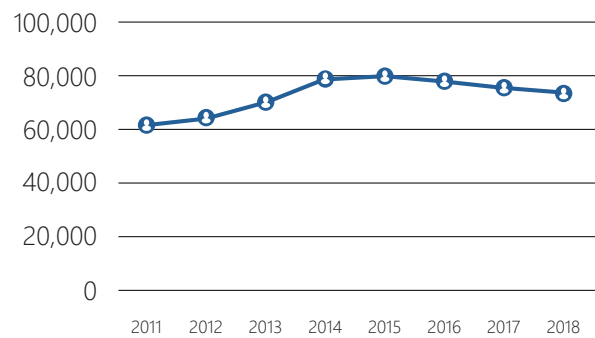
Looking back on the past decade, STSP has successfully boosted the development of local industries and been dedicated to the fulfillment of the mission of building a high-tech industrial cluster. The annual turnover has increased by 37% (2011~2018) while the number of employees in the science park has also increased by 20% (2011~2018). Moreover, to maintain the safety of employees in the science park, the Bureau has actively promoted on-site counseling at places with high occupational disaster risks. The major occupational disaster rate per one million workers has been reduced to zero.

Item	2011	2012	2013	2014	2015	2016	2017	2018
Major occupational disaster rate per one million workers	65	15	29	13	13	38	0	0
Occupational injury incidence rate(%)	1.31	1.40	1.29	1.52	1.58	1.39	1.6	1.39

∴ Turnovers over the years (NTD 100 million) ∴

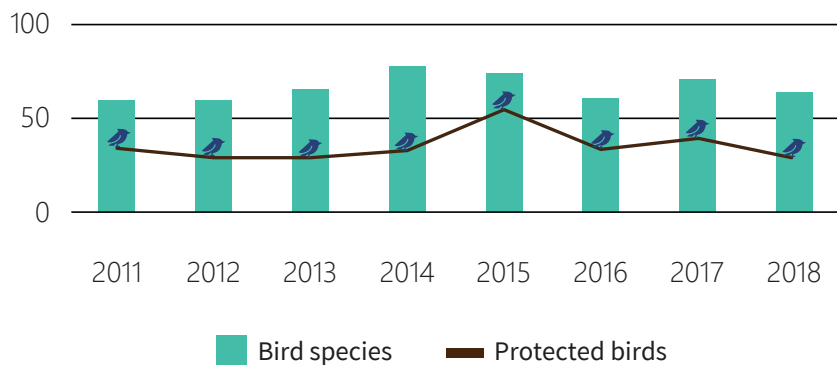


∴ Number of employees over the years ∴

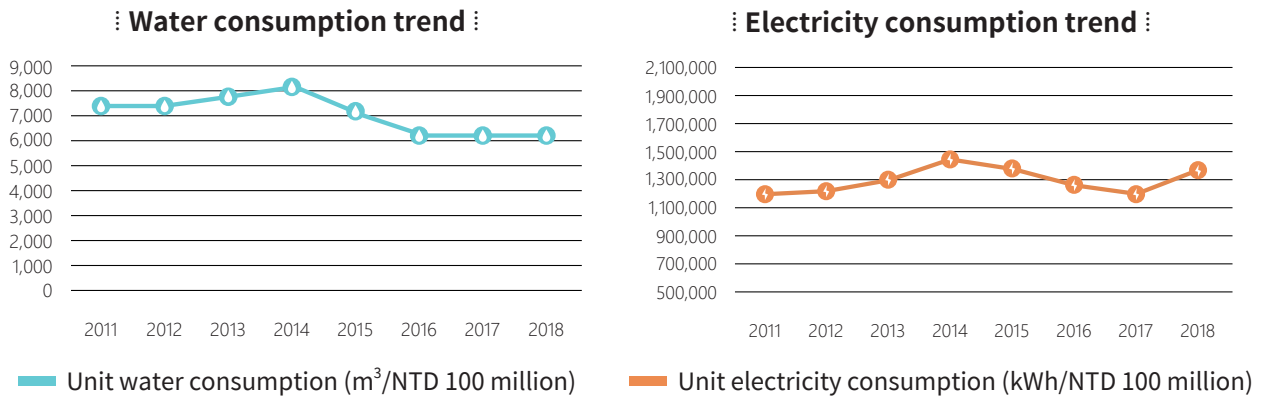


In view of the potential impacts of economic activities on the environment, a 30-hectare ecological conservation area has been established in the science park at the initial stage. Compared with an area with one single plant (sugarcane field) before the development of STSP, now the biodiversity in the science park has been greatly increased and a stable status has been maintained for a long time.

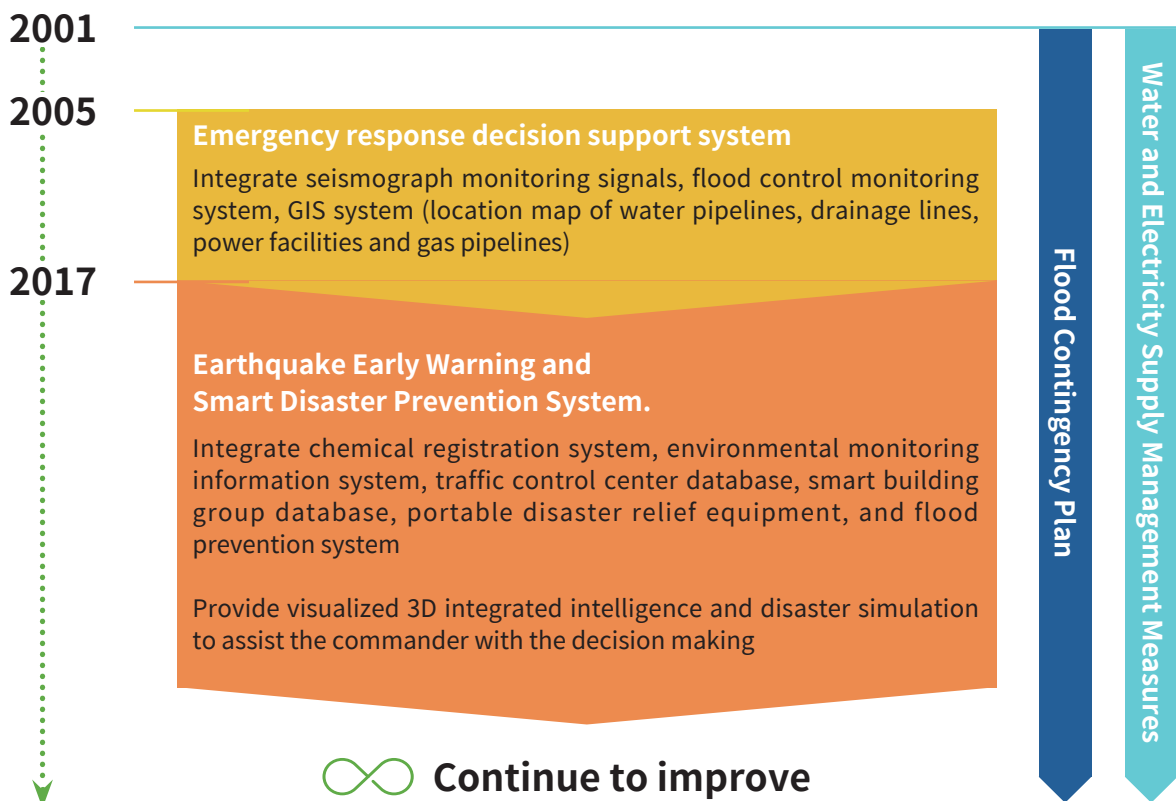
∴ Bird Survey ∴



As the scale of the park operation and the number of park manufacturers increased, the overall water and electricity consumption of STSP inevitably increased. Every year, the Bureau assists park manufacturers to increase the resource use efficiency through the counseling of water conservation and electricity saving every year, enabling the overall water and electricity consumption in the whole science park maintained stable over the past decade.



In the face of the increasingly severe climate change risks, the Bureau has successively established various software and hardware systems and integrated them to reinforce the response capacity to compound disasters to achieve the goal of sustainable management of the science park. In addition, in response to the advancement of information communication technology, we will continue to maintain and update the integrated functions of the disaster prevention system.





Sustainable Issues

- 1.1 Stakeholders and Identification Process of the Material Topics
- 1.2 Stakeholder Communication and Response
- 1.3 Management of Sustainability Issues
- 1.4 Value Chain and Goals of the Material Topics
- 1.5 Smooth Communication Channels

1.1 Stakeholders and Identification Process of the Material Topics

To implement sustainable operations and to promise the determination of value creation for our stakeholders, the Bureau has established a complete mechanism for sustainable management that echoes the 17 Sustainable Development Goals (SDGs) to create the greatest benefit of sustainability for all our stakeholders. STSP Bureau continues to communicate with the stakeholders and grasps the sustainability issues of concern. Through internal discussions with the unit heads and by referring to the stakeholders identified in the same industry and other benchmark enterprises, a total of seven categories of stakeholders are identified based on the AA1000 SES (Stakeholder Engagement Standards), including Employees of the Bureau, Park Businesses, Trade Associations, Community Residents, Academic Institutions/Non-profit Organizations, Suppliers and Media.

Substantive analysis was introduced in the compilation of this Sustainability Report and the issues of the stakeholders' concern were identified through a systematic analysis model, serving as the reference basis of information disclosure of this Report. Analysis of the material topics of this report was divided into the following five steps.

1 Identification of stakeholders

Through internal discussions with the unit heads and by referring to the stakeholders identified in the same industry and other benchmark enterprises, a total of seven categories of stakeholders were identified.

2 Collection and deduction of sustainability topics

The sources for the topic collection were based on the 33 topics of the GRI Standards and the topics, indicators, norms, agreements, declaration and so on proposed in the SDGs were also referred to. After internal discussion, a total of 38 topics were summarized as the guideline for questionnaire design. Questionnaire survey on the stakeholders' level of concern (influential factors for the stakeholders' evaluation and decision-making) was conducted as the reference for the prioritization of these topics.

3 Survey on the level of concern and level of impact of the material topics

In 2019, STSP Bureau distributed the questionnaire for the level of concern to its stakeholders and the company's executives. The weight value of the evaluation criteria was determined based on the analysis results of the questionnaire. A total of 138 copies of the CSR questionnaire were returned in 2019.

4 Analysis and identification of materiality analysis

After analysis, the Bureau considered the scoring and weighing of these topics under different evaluation criteria and the level of impact to sustainable management to executives for the calculation of the risk priority number of each topic. Those averagely scoring 4 and above were identified as material topics. Discussions were made with high-level executives for the adjustment and determination of the disclosure priority. A total of 12 material topics were identified.

5 Review and discussion

After analysis of the material topics, the value chain is used as the element for boundary analysis, serving as the reference basis of the material topics of CTSP Bureau. Effective management approaches were then established for the material topics, and relevant information was disclosed in the CSR Report.


Stakeholders and Identification Process of the Material Topics





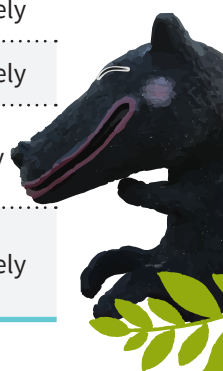
1.2 Stakeholder Communication and Response

STSP Bureau’s 7 major stakeholders include the employees of the Bureau, Park Businesses, Trade Associations, Community Residents, Academic Institutions/Non-

Category	Issues of Concern	Issues of Concern
 Employees of the Bureau	<ul style="list-style-type: none"> ◆ Anti-Corruption ◆ Market Presence (Level of Wage) ◆ Safe Working Environment ◆ Investment Promotion ◆ Employee Diversity and Equal Opportunity 	<p>It refers to all the official staff in the STSP Bureau. With these employees, the Bureau is then able to handle various businesses. Therefore, the priority of the Bureau is to understand their needs.</p>
 Park Businesses	<ul style="list-style-type: none"> ◆ Effluents and Waste ◆ Water and Effluents ◆ Environmental Compliance ◆ Emissions ◆ Customer Health and Safety 	<p>The Park businesses are an important factor for the Bureau to exist. All the services the Bureau provides have to refer to the opinions of these park businesses for the formulation of the policy guidelines.</p>
 Trade Associations	<ul style="list-style-type: none"> ◆ Investment Promotion ◆ AI for Industries ◆ Safe Working Environment ◆ Climate Change ◆ Circular Economy 	<p>The Allied Association for Science Park Industries is the bridge of communication between the STSP Bureau and various industries. Listening to the voice of the trade associations enable the Bureau to better understand the demands of the grassroots laborers and to better protect labor rights.</p>
 Suppliers	<ul style="list-style-type: none"> ◆ Investment Promotion ◆ Water and Effluents ◆ AI for Industries ◆ Water and Effluents ◆ Circular Economy 	<p>STSP Bureau’s suppliers are divided into three categories, Financial, Engineering and Labor Suppliers. To enable smooth completion of various businesses and construction projects, the communication with these suppliers are extremely important.</p>
 Academic Institutions/ Non-profit Organizations	<ul style="list-style-type: none"> ◆ AI for Industries ◆ Climate Change ◆ Safe Working Environment ◆ Investment Promotion ◆ Circular Economy 	<p>Through the linkage of academic research institutions, academic research can be introduced into physical application in the industries, which can help the upgrade of the park businesses.</p>
 Community Residents	<ul style="list-style-type: none"> ◆ Investment Promotion ◆ Safe Working Environment ◆ AI for Industries ◆ Climate Change ◆ Environmental Compliance 	<p>Based on the philosophy of taking it from society, giving it back to society, the Bureau should take care of the surrounding residents while operating to bring positive impacts on local society.</p>
 Media	<ul style="list-style-type: none"> ◆ Safe Working Environment ◆ Effluents and Waste ◆ Emissions ◆ Circular Economy ◆ Investment Promotion 	<p>To maintain the image of STSP Bureau, we strive to achieve effective communication with the media to avoid severe damage to the public’s impression on STSP Bureau due to minor incidents.</p>

profit Organizations, Suppliers and Media. Corresponding and smooth communication channels and platforms are established in accordance with the attributes and needs of the stakeholders to understand their needs and expectations of the development of Southern Taiwan Science Park so as to plan the sustainability policy for the whole science park.

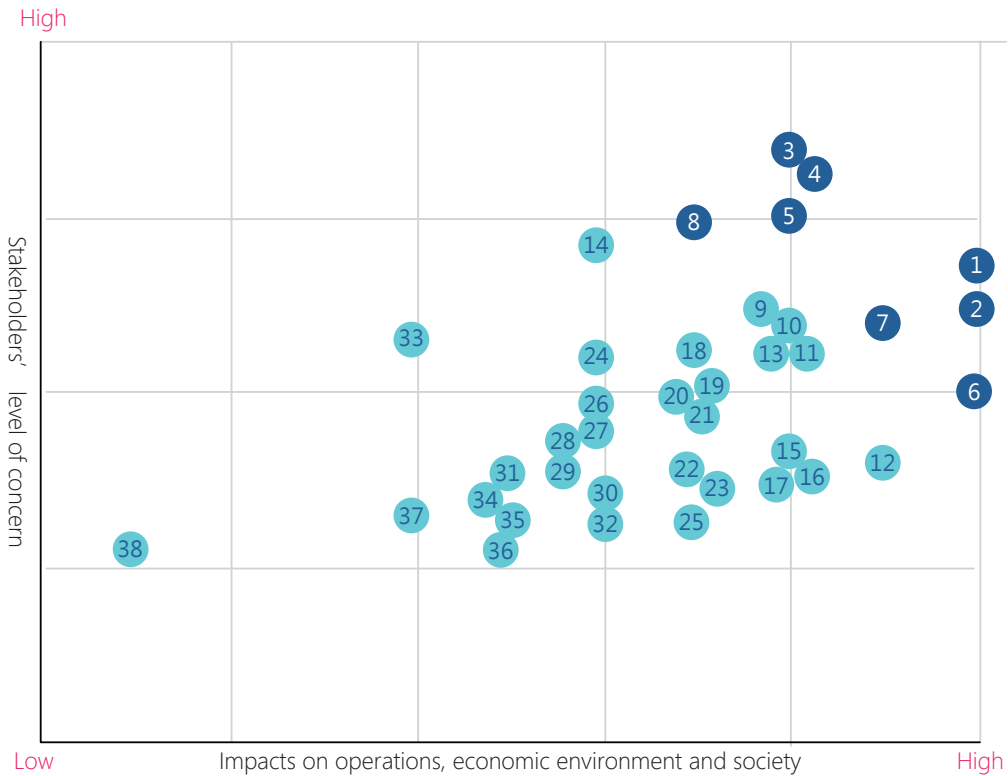
Definition of Stakeholders	Frequency
CSR questionnaire, annual satisfaction survey, annual report	Annually
Monthly report	Monthly
Director-General's mailbox, Employee opinion survey	Immediately
CSR questionnaire, annual satisfaction survey	Annually
Director-General's mailbox, Official Website of the Bureau, grievance channels	Immediately
Through auditing and counseling activities, labor training, and the nanny system	Immediately
CSR questionnaire	Annually
Director-General's mailbox, official documents, regular meeting of the trade associations, organization of activities	Immediately
CSR questionnaire	Annually
Director-General's mailbox, Official Website of the Bureau	Immediately
Audit counseling, investment service mechanism	Immediately
CSR questionnaire	Annually
Director-General's mailbox	Immediately
Course training, subsidy program, free visit activities	Immediately
CSR questionnaire	Annually
Director-General's mailbox, Official Website of the Bureau	Immediately
Club organization activities, charity activities	Immediately
CSR questionnaire	Annually
Director-General's mailbox, Official Website of the Bureau, spokesman	Immediately





1.3 Management of Sustainability Issues

Based on the analysis results of the questionnaire and the results of discussions with our stakeholders over the years, STSP Bureau’s CSR Editing Team has identified a total of 12 material topics. The scatter diagram of 2019 material topics is made in accordance with the “stakeholders’ level of concern” and “level of impact on operations”. The analysis results are shown in the following.



■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■

❖ Prioritization of material topics

*1 Effluents and Waste	*11 Environmental Compliance	21 Forced and Compulsory Labor	31 Freedom of Association and
*2 Emissions	*12 Socioeconomic Compliance	22 Training and Education	32 Marketing and Labeling
*3 Investment Promotion	13 Circular Economy	23 Child Labor	33 Raw Materials
*4 Safe Working Environment	14 Anti-corruption	24 Market Presence (Level of Wage)	34 Non-discrimination
*5 Climate Change	15 AI for Industries	25 Human Rights Assessment	35 Employment and Labor Relations
*6 Customer Privacy	16 Supplier Environmental Assessment	26 Procurement Practices	36 Indigenous Rights
*7 Energy	17 Customer Health and Safety	27 Employee Diversity and Equal Opportunity	37 Security Practices
*8 Indirect Economic Impacts (Infrastructure in the Park)	18 Biodiversity	28 Occupational Health and Safety	38 Public Policy
*9 Water and Effluents	19 Anti-competitive Behavior	29 Supplier Social Assessment	
*10 Local Communities	20 Economic Performance (Industrial Upgrading)	30 Labor Management Relations in the Park	

Note: Material topics are marked with *

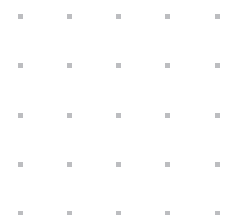




1.4 Value Chain and Goals of the Material Topics

The Bureau summarized the sustainability issues into four aspects, including Integrity, Climate Action, Environmental Protection and Symbiosis and Co-prosperity, with the value chain serving as the element for boundary analysis. In the future, STSP Bureau will continue to strengthen management and disclose relevant information in the CSR Report.

Aspect of Sustainability	GRI Topics/ Custom Topics	Value Chain Impact Boundary	Corresponding Sections and Chapters
Integrity	Safe Working Environment, Environmental Compliance, Socioeconomic Compliance	STSP Bureau, Employees of the Bureau, Park Businesses, Suppliers, Media	1.4 Value Chain and Goals of the Material Topics
Climate Action	Investment Promotion, Climate Change, Energy, Water and Effluents	STSP Bureau, Park Businesses, Suppliers, Community Residents	
Environmental Protection	Effluents and Waste, Emissions	STSP Bureau, Park Businesses, Suppliers, Community Residents	
Symbiosis and Co-prosperity	Indirect Economic Impact (Infrastructure in the Park), Local Communities	STSP Bureau, Employees of the Bureau, Park Businesses, Community Residents	



Management of the Objectives of the Material Topics

Material Topics	Short-term Objectives	Long-term Objectives
Effluents and Waste	All the pollution sources should be compliant with relevant regulations, and autonomous management should be carried out to meet people's expectations.	To comply with the conclusions of the EIA reports and reviews to effectively prevent and control pollution and discharge, striving to reduce the environmental impact to the minimum.
Emissions	To strengthen the guidance and inspections of the compliance of regulations in terms of industrial exhaust, discharge of wastewater and waste disposal.	To reduce energy consumption, emissions of CO ₂ while creating economic benefits to achieve the goal of a green science park.
Investment Promotion	To integrate the industrial clusters and set up investment promotion strategies annually to introduce more manufacturers to enter the science park.	To continue to visit park manufacturers to understand their needs for future layout and development and at the same time analyze the gap in the industry chain and introduce key manufacturers into the science park.
Safety Working Environment	To establish a great working environment and implement various labor laws and regulations.	To construct a sustainable and disaster-free working environment and maintain 100% of award coverage rate of excellent industrial units (personnel).
Climate Change	To introduce Task Force on Climate-related Financial Disclosures (TCFD).	To combine information and communication technology and continue to maintain the management of intelligent flood control in the science park.
Customer Privacy	To provide employees and contractors annual information security advocacy and education training.	To implement the inspections of the data center safety management certification and regularly submit results to the competent authorities.
Indirect Economic Impacts (Infrastructure in the Park)	To set up hardware and software facilities in the science park to improve the service quality.	To implement a sustainable green science park and maintain an eco-friendly environment.
Energy, Water and Effluents	To advocate energy and water conservation, provide counseling of energy conservation and carbon reduction measures to implement environmental education.	To continue the handling of relevant energy saving business so as to achieve the most appropriate allocation under the limited resources to reach the goal of stabilizing water and electricity supply in the science park.
Local Communities	To regularly interact and communicate with the community residents through the neighborly activities to give back to the local communities.	To continue the review and improvement of the implementation results of various social participation activities and evaluate the influence STSP Bureau has on local communities.
Environmental Compliance	To handle relevant business in accordance with environmental and socioeconomic regulations.	To fulfill our corporate social responsibility, observe environmental related laws and regulations, reduce operational risks and provide park manufacturers relevant education and training concerning decree updates.





Management Approaches of Material Topics

Corresponding material topics	Safe Working Environment, Customer Privacy, Socioeconomic Compliance, Environmental Compliance
Major cause	The Bureau should observe all laws and regulations and disclose information in an open and transparent manner, setting integrity and law abiding its top priority.
Purpose of Management	To ensure all actions taken by the Bureau are compliant with social, economic and environmental policies and regulations so as to maintain the normal operation of the science park.
Goals and Targets	<ul style="list-style-type: none"> · To create a workplace in which all workers can work at ease. · To continue to observe all relevant laws and regulations to avoid accidental violations of laws. · To stop all corruption cases, implement an internal control system and enhance the friendly and fresh image of the Bureau with enthusiastic services. · To implement inspections of the data center certification so as to improve the level of safety certification, and the results are regularly submitted to the competent authorities.
Responsible Units	Civil Service Ethics Office, Environment and Labor Affair Division and various Divisions and Offices in the Bureau
Resources Invested	<ul style="list-style-type: none"> · Responsible units are in charge of legal identification to establish corresponding management measures which will be advocated and implemented by relevant units. · Conduct annual legal training of the employees in terms of social, economic, anti-corruption and ethics related laws and regulations. · The Environment and Labor Affair Division conducts environmental regulation promotion meetings on an occasional basis and provides the manufacturers with consulting services regarding environmental protection business. · The Environment and Labor Affair Division conducts occupational safety and health promotion and guidance to manufacturers on a regular basis.

Management Approach of Integrity



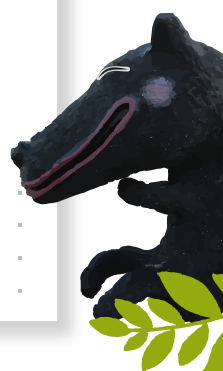
Assessment and Management

- Formulate relevant handling procedures in accordance with the Civil Servant Work Act and Ethics Directions for Civil Servants.
- Comply with relevant regulations, such as Act of Gender Equality in Employment, Labor Standards Act and other relevant government regulations.
- Conduct the internal audit of information security once a year.
- Conduct on-site inspection and track the labor inspections of park manufacturers targeting on the content of the Environmental Permit on an occasional basis.

Performance

- As of 2019, the subscribers of the Industrial Safety Newsletter accumulated to 2,490.
- The penetration rate of health care has reached 99.15%.
- Conducted a total of 48 sessions of On-site Counseling of Occupational Safety and Health in 2019.
- Conducted a total of 5 sessions of workplace related disease prevention activities in 2019.
- A total of 4 manufacturers were awarded the Excellent Industrial Safety Unit (Personnel) and 10 employees in the science park won the award in 2019.
- Completed a total of 531 sessions of labor inspections (including 411 sessions of occupational safety and health inspections and 120 labor condition inspections) in 2019, with the achievement rate of 113%.
- In 2019, the occupational disaster rate per thousand people was 1.14, 24% lower than the 3-year average.
- There was no incident of information leakage in 2019.
- In 2019, there was no use of child labor, no violation of freedom of association, no violation of labor rights, no forced or compulsory labor and no violation of indigenous right.
- In 2019, there were no major leaks, arbitrary dumping incidents or fines imposed due to waste.

Management Approach of Integrity





Management Approaches of Material Topics

Corresponding material topics	Investment Promotion, Climate Change, Energy, Water and Effluents
Major cause	The risk of global climate change is deteriorating, and heavy rain or water shortage could occur, which may have impacts on the production and operation of park manufacturers, impacting the willingness of potential new entrants to enter the science park.
Purpose of Management	To ensure the science park operates normally and reduce the concerns of the park manufacturers.
Goals and Targets	<ul style="list-style-type: none"> · To improve the science park's resistance to extreme weather. · To ensure the resilience during drought and flood periods. · Continue to expand the industrial clusters.
Responsible Units	Environment and Labor Affair Division, Construction Management Division, Industrial Safety Division, Secretariat Office
Resources Invested	<ul style="list-style-type: none"> · Established various disaster prevention software and hardware systems. · Promoted the installation of solar power generation equipment. · Continue to promote energy and water conservation and provide guidance for energy conservation and carbon reduction. · Regularly organize overseas visits or investment attraction activities.
Assessment and Management	<ul style="list-style-type: none"> · Collect monthly statistics of water and electricity consumption of park manufacturers. · Convene Water, Power and Gas Supply Committee to discuss response measures when water supply is tight. · Cooperate with the MOST's Smart Sustainable Development Project for Science Parks and continue to review as well as introduce information communication technology to improve various management systems. · Prepare monthly statistics of newly added investment amount of the park manufacturers and the list of new entrants.



Management Approach of Climate Action

Performance

- There were cumulative 223 validly approved manufacturers as of 2019.
- In 2019, 20 manufacturers (including 13 start-ups) were introduced into the science park, with an investment amount reaching approximately NTD 4.18 billion.
- The total trade volume in 2019 amounted to NTD 619.1 billion.
- A total of 201 manufacturers and 9,843 chemical records have been registered in the Earthquake Early Warning and Smart Disaster Prevention System, and two domestic patents were obtained.
- Completed the guidance for energy conservation for 6 manufacturers, and the energy saved among all park manufacturers was approximately 69.322 million kWh in 2019.
- In 2019, the solar power system helped reduce 25,294 tons of carbon emissions.
- In 2019, the e-shuttle bus averagely saved approximately 154.5 liters of diesel every day.
- In 2019, water conservation guidance was provided to 5 park manufacturers, saving about 34.96 million tons of water/year.
- In 2019, the total amount of water recovery within the science park amounted to 354,234 tons.



Management Approach of Climate Action



Management Approaches of Material Topics

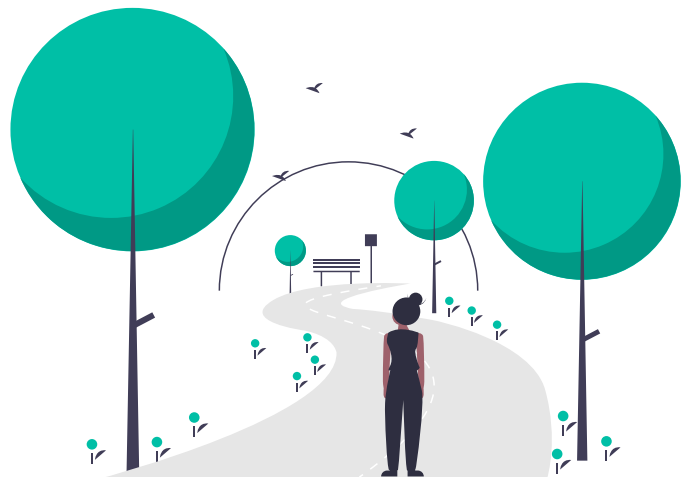
Corresponding material topics	Effluents and Waste, Emissions
Major cause	Environmental impact assessment (EIA) has to be passed before the development of the science park, and the actual operation also has to meet the cap of the total volume control.
Purpose of Management	To avoid the science park operations from exceeding the environmental load.
Goals and Targets	<ul style="list-style-type: none"> · To comply with the conclusions of the EIA reports and reviews to effectively prevent and control pollution and discharge, striving to reduce the environmental impact to the minimum. · All the pollution sources are compliant with relevant regulations, and autonomous management is carried out to meet people's expectations. · To reduce energy consumption and emissions of CO2 while creating economic benefits to achieve the goal of a green science park. · To fulfill our corporate social responsibility, observe environmental related laws and regulations and reduce operational risks.
Responsible Units	Environment and Labor Affair Division
Resources Invested	<ul style="list-style-type: none"> · The Environment and Labor Affair Division implements the review of the Environmental Permit before the manufacturers enter the science park for the implementation of the total volume control. · Set up the wastewater treatment plant and the Resource Recycling Center and entrust professional providers for the operations.
Assessment and Management	<ul style="list-style-type: none"> · Regularly conduct environmental monitoring and continue to check the pollution discharge and emissions of park manufacturers in accordance with Water Pollution Control Act and Waste Disposal Act .

Management Approach of Environmental Protection



Performance

- The volume of industrial waste reuse in the science park amounted to 237,394.98 tons in 2019.
- The activated sludge method A/O treatment system was newly added in 2019.
- Regularly inspect various pollutants in accordance with the Air Pollution Control Act, and the emissions should be lower than the EIA allocated amount.
- Promoted the Self-management Program of Diesel Vehicle Exhaust, and a total (cumulative) 2,197 vehicles obtained the exhaust emission mark.



Management Approach of Environmental Protection





Management Approaches of Material Topics

Corresponding material topics	Indirect Economic Impact (Infrastructure in the Park), Local Communities
Major cause	Impacts on the community have to be considered for the park operation, and balance should be reached among economic growth, environmental protection and social harmony.
Purpose of Management	To continue the implementation of good-neighborly work.
Goals and Targets	<ul style="list-style-type: none"> To implement an ecological park and create an interactive environment for community integration.
Responsible Units	All Divisions and Offices
Resources Invested	<ul style="list-style-type: none"> The vacant land should be greened except for necessary artificial facilities. The green land system includes road landscape and the greening of the detention pond and the park. Establish a green transportation system. Hold social welfare activities annually and continue to organize the STSP Charity Month.
Assessment and Management	<ul style="list-style-type: none"> Annual administrative goals of the STSP Bureau
Performance	<ul style="list-style-type: none"> Prepared for the establishment of Chiaotou Science Park, which was in the 2-stage EIA process. In charge of the second phase construction of the Traffic and Control Center Project, expecting to reduce the commuting time by 5%~10% upon completion. Organized group wedding in 2019, offering blessings to 18 newly wedded couples. A total of NTD 9,517,896 was raised in STSP Charity Month in 2019. A total of 1,934 people benefited from the funds raised in STSP Charity Month in 2019. The rebates for good neighborly was NTD 3,376,176 in 2019.

Management Approach of Symbiosis and Co-prosperity



1.5 Smooth Communication Channels

STSP Bureau attaches great importance to the communication with stakeholders. Through the establishment of various websites and the issuance of various publications and propaganda and the use of charts and simple texts, readers can understand more easily the expectations, efforts, direction and performance of the corporate social responsibility in different fields while providing real-time as well as correct information of the science park to the stakeholders.

With the rapid dissemination of information, the Bureau releases major information and news on the Southern Taiwan Science Park Official Website on both a regular and an occasional basis, providing related publications for the stakeholders to download and read. In addition, the Bureau has also established the STSP 543 Fanpage to share information in the science park, bringing our stakeholders closer with STSP.



STSP official website



STSP's CSR website



STSP Annual Report



STSP Newsletter



Sustainable Green LOHAS Website



Industrial Safety Newsletter



STSP 543 Facebook Fanpage



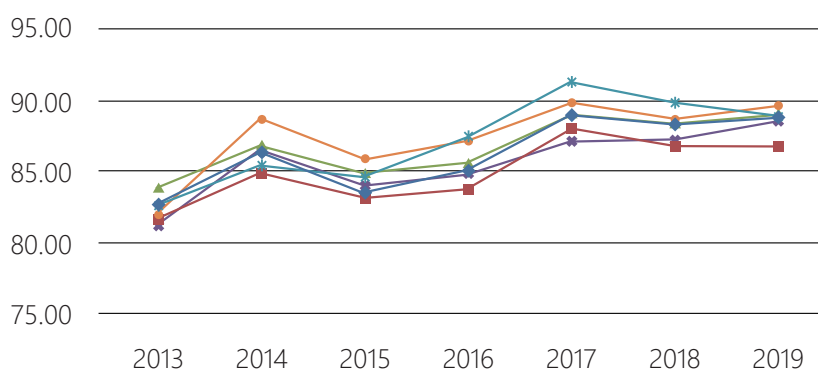
STSP Cultural Art Map





❖ Satisfaction Survey of the STSP

TSP Bureau conducts a satisfaction survey on the park manufacturers ever year focusing on 6 major aspects, including park image, resources for park development, park service quality, overall satisfaction, complaint handling and loyalty and trust. According to the survey results in 2019, the overall satisfaction of STSP was 88.58 points, the highest among those over the years, indicating that the services provided in the science park are becoming more complete and recognized by mark manufacturers.



❖ Satisfaction Survey of the STSP ❖

	2013	2014	2015	2016	2017	2018	2019
◆ Park image	82.74	86.45	83.56	85.21	89.07	88.51	89.07
■ Resources for park development	81.95	85.04	83.23	83.85	88.10	86.95	86.84
▲ Park service quality	83.94	86.91	85.04	85.73	89.22	88.46	89.31
✖ Overall satisfaction	81.29	86.61	84.06	84.84	87.28	87.38	88.58
* Complaint handling	82.71	85.47	84.68	87.46	91.32	89.94	89.13
● Complaint handling	82.17	88.77	86.01	87.23	89.87	88.84	89.72

❖ Grievance Channels

To listen to the voices of the stakeholders, the Bureau has established grievance channels. Among them, the Director-General’s mailbox is the one most people used for complaints, accounting for nearly 80% among all. When a complaint is received, classification is immediately made, and based on different business scope, the corresponding units have to respond to and handle it. All the letters from the public will be responded by the corresponding unit within three days, and the handling situation has to be reported to the first-level executives every month.

In accordance with the prescriptions stipulated in the “Major Points of the Executive Yuan and its Subordinate Organs for Handling People’s Petition Cases”, when it requires interviews, hearings or investigations in the handling of general petition cases, it shall not take more than 30 days. According to the statistics between January and December in 2019, there were a total of 250 petition cases, among which, 214 cases were handled through the Director-General’s mailbox while 36 were through external complaint letters. All of the complaints were fully responded and solved.

- Tel: +886-6-5051-001 (Tainan Science Park);
+886-7-607-5545(Kaohsiung Science Park)
- Director’s email: service@stsp.gov.tw
- STSP Bureau Addresses : No. 22, Nanke 3rd Rd., Xinshi Dist., Tainan City ;
No.23, Luke 5th Rd., Luzhu Dist., Kaohsiung City
- Accessible environment complaint hotline: +886-7-607-5545ext:7123 ;
Contact person: Wen-Chien Chang

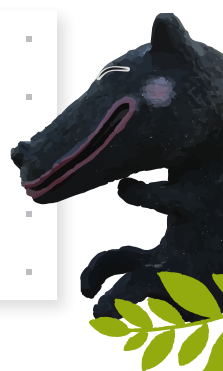
2019	Construction Management Division	Environment & Labor Affairs Division	Business Division	Secretariat	Planning Division
Number of complaints received	82	105	17	3	8

2019	Land Development Division	Investment Services Division	Personnel Office	Civil Service Ethics Office	Total
Number of complaints received	20	13	1	1	250

❖ Report of Public Integrity Incidents

Tel : +886-6-5051001#3005 (Civil Service Ethics Office)
Email: ethics@stsp.gov.tw

.
.
.
.
.





2

Integrity Governance

- 2.1 About Southern Taiwan Science Park
- 2.2 Risk Control
- 2.3 Compliance
- 2.4 Management of Suppliers

2.1 About Southern Taiwan Science Park

⌘ Geographical Location

The establishment of Southern Taiwan Science Park (STSP) was approved in May, 1995, unveiling the development of the high-tech industries in Southern Taiwan. Complete software and hardware facilities have been built to provide a high-quality investment environment to attract domestic and foreign manufacturers to station here at STSP. Currently, Tainan Science Park and Kaohsiung Science Park within STSP are the ones providing services. Both the parks are devoted to building STSP into a safe, healthy and perfect place to pursue dreams, start businesses and even to start a family.

Tainan Science Park is located among Xinshi, Shabhua and Anding Districts, with an area of 1,043 hectares. The main industries include optoelectronics, integrated circuits, precision machinery, biotechnology and green energy industries. The existing green energy manufacturers in the park and the surrounding academic institutions, the industry and academic circles are all linked together with Shalun Smart Green Energy Science City to create an Innovative Industry Ecosystem of Green Energy Technology.



Tainan Science Park



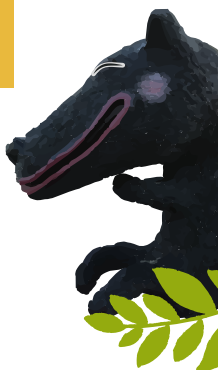
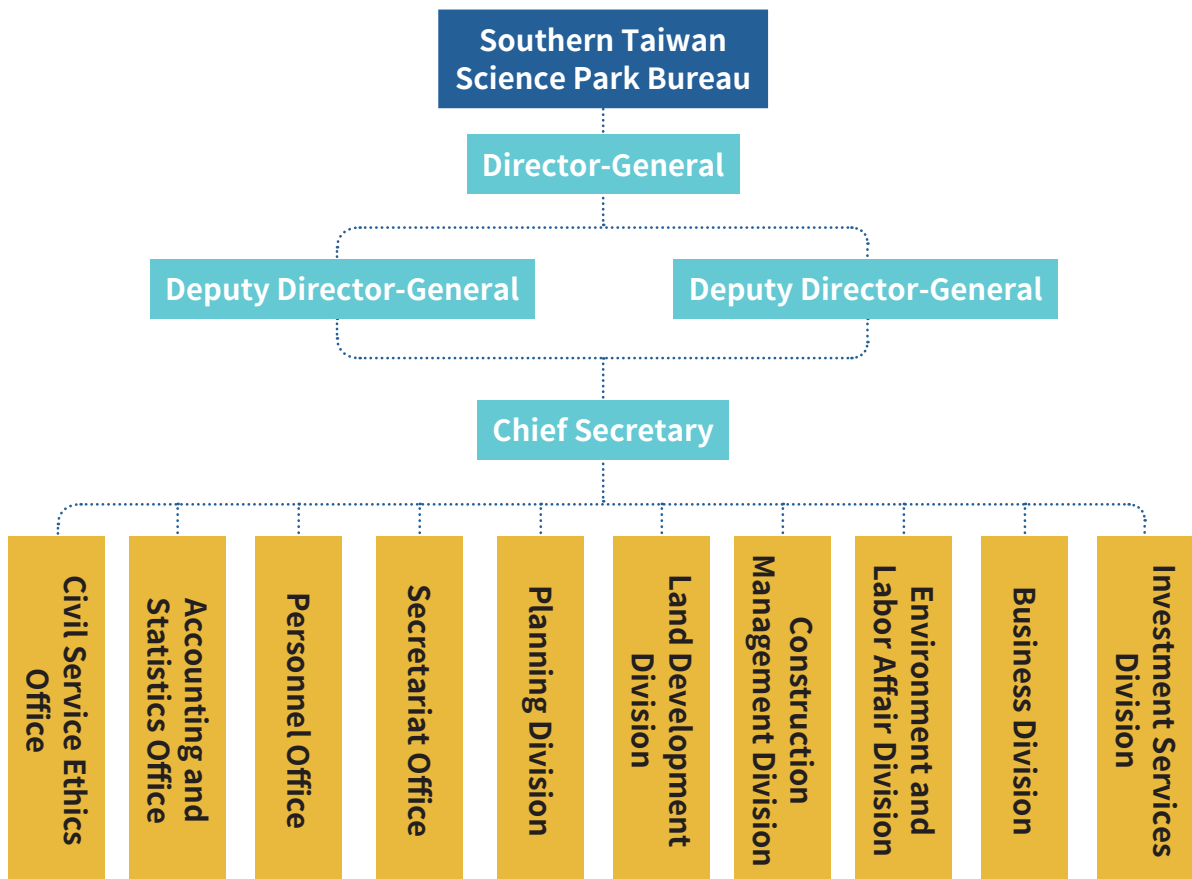
Kaohsiung Science Park

Kaohsiung Science Park is located among Luzhu, Gangshan and Yong'an Districts, with an area of 567 hectares. The main industries are optoelectronics, medical equipment and aerospace industries.

Organizational Structure

The Bureau is a public agency. To operate in coordination with the amendment of Act for Establishment and Administration of Science Parks announced on June 6, 2018, the word “industrial” was taken away from the original “Science Industrial Park”. On Dec. 11, 2019, the amendment of the Organization Act of the Southern Taiwan Science Park Bureau, Ministry of Science and Technology was announced.

The organizational structure of the Southern Taiwan Science Park is composed of the Director-General, Deputy Director-General, Chief Secretary and 10 divisions and offices, including the Investment Services Division, Business Division, Environment and Labor Affairs Division, Construction Management Division, Land Development Division, Planning Division, Secretariat Office, Personnel Office, Accounting and Statistics Office and Civil Service Ethics Office, and the functions of the divisions and offices cover all the affairs in the science park.



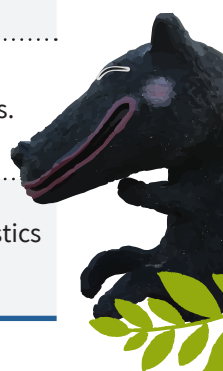


STSP Service Items

The following divisions and offices are set up under the Bureau and are in charge of the following affairs.

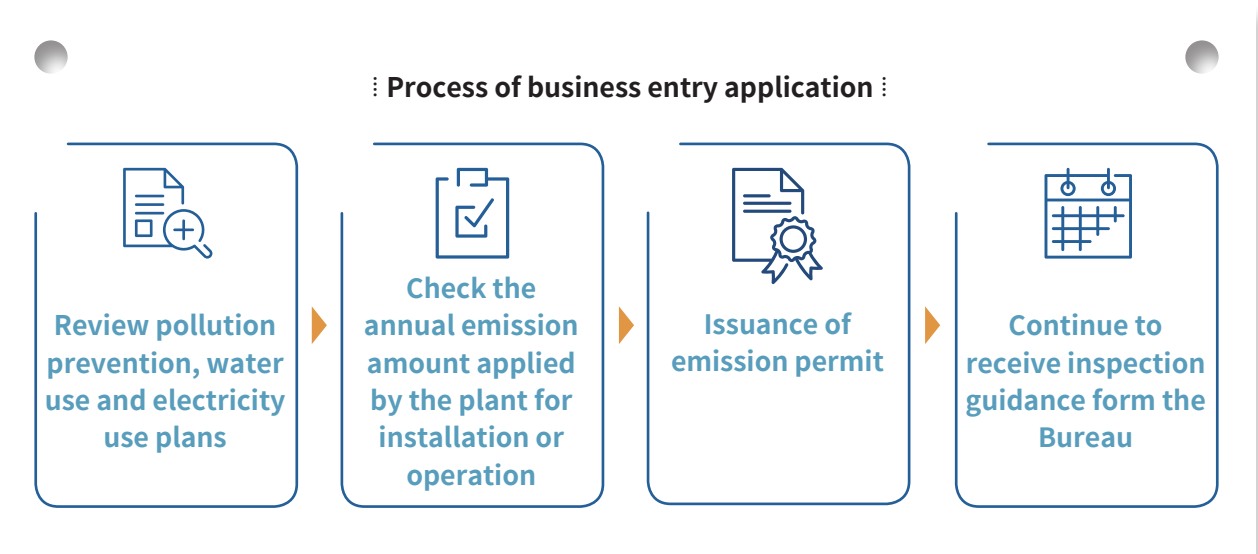
Division/ Office	Description of Service
Planning Division	Planning Section: In charge of the planning and promotion of park innovation, the entrepreneurial environment and important research on the development of science parks at home and abroad.
	Evaluation Section: In charge of the promotion of the administrative innovation and the service quality and the planning and management of the park development goals and strategies.
	Financial Planning Section: In charge of the research and comprehensive planning of the public affairs and estimates of operating funds, and the management and financial analysis of the park operating funds.
Investment Services Division	Investment Affairs Section: In charge of the planning and promotion of the attraction of the investment in the science park, the incubation center and the preparation and approval of the application of units to be stationed in the science park.
	Industry-Academic Research and Development Section: In charge of the research and development of industry-academia cooperation in the science park and the promotion and contact affairs of talent training and cultivation as well as the business review of the grants of the R&D of innovative technology projects.
	Investment Promotion Section: In charge of the planning and promotion of the park image and the promotion of the exchanges and cooperation with international science parks and related organizations.
Environment and Labor Affair Division	Industry Safety Section: In charge of the planning and coordination of the disaster prevention and emergency response affairs in the science park, the operation management of the 24-hour emergency response center in the science park, the business guidance of the industrial safety promotion association, and the promotion of the health promotion in the workplace within the science park.
	Labor Relations Section: In charge of the counseling and assisting/inspection of labor relations in the science park and the handling of labor disputes.
	Environmental Protection Section: In charge of the planning and promotion of the environmental protection work in the science park, the monitoring and test, analysis and information management of the environment quality of the science park.

Division/ Office	Description of Service
Business Division	Industrial and Commercial Services Section: In charge of the planning and implementation of the industrial and commercial registration of the park manufacturers (including company registration, factory registration and registration of chattel secured transactions), the liberation and counseling management of the industrial and commercial services entering the science park.
	Foreign Trade Section: The research and draft of the laws and regulations of the trade/ bond and the collection of the park business management fees and the deliberation and counseling management of the life service industries entering the science park.
Construction Management Division	Civil Engineering Section: In charge of the medium-to long-term annual budgeting of public construction projects and the establishment of park land development projects.
	Water, Electrical & Traffic Section: In charge of the management and rules of park transportation facilities maintenance, the overall planning, coordination and management of water and electricity in the science park, and the review of water and electricity plans as well as the issuance of electric technology license.
	Facility Maintenance Section: Maintenance and management of park/green landscape planting and the establishment and maintenance of the geographic information system (GIS) of the science park.
Land Development Division	Land Planning and Construction Management Section: In charge of the review and change of the urban planning in the park, the review and revision of non-urban land, and the planning, development and management of the ecological protection area in the science park.
	Land Acquisition and Rental Services Section: The acquisition, expropriation, appropriation, cooperative development and land management of the land in the science park.
	Architectural Section: The establishment and management of the public art in the science park.
Others	Secretariat Office: In charge of receiving and sending of official documents, the file application and procurement affairs services.
	Personal Office: In charge of personnel administration related affairs.
	Civil Service Ethics Office: In charge of the integrity services and other related affairs.
	Accounting and Statistics Office: In charge of annual budget, accounting, and statistics affairs.



❖ Entry Application Services

STSP Bureau plays the role of a keeper to maintain the sustainable environment of the science park. In addition to knowing whether all business units actually fulfill the content of the permit, the Bureau also needs to conduct on-site inspections and follow-up the improvement so as to further review the blind spots of the system. By regulating all business units to operate in accordance with the content of the permit through feasible methods, the Bureau can thus implement the management of permits and promotion of the cap control of various types of pollution to promote favorable environmental quality and sustainability.



Concerning the various environmental protection facilities in the science park, in addition to the irregular inspection by the environmental protection authority and the internal random inspections in the Bureau, we also attach great importance to the complaints from the public, and even include them in the CSR Report as the material topics to respond to for the improvement of environmental regulations compliance.

We cooperate with the transformation of the government organizations and organize work related to information business and present our management quality and service efficiency with a sound information system and an integrated single portal in the hope of providing more convenient and friendlier services to the public.

Permit registration		Statistics
Review of permit	Review of application of construction permit and miscellaneous permit	189
	Usage permit (including change)	
	Interior renovation	

Permit registration		Statistics
Review of environmental permit	Stationary pollution source permit	334
	Water pollution permit	
	Waste permit	
Foreign trade visa	Waste recycling permit ¹	1,028
	Export permit (EP)	
	Import permit (IP)	
	Strategic High-tech Commodities (SHTC) Export Permit	
	Strategic High-tech Commodities International Import Certificate (IC)	
	General Certificate of Origin	
Industrial and commercial registration	ECFA Certificate of Origin	399
	Handling company, factory, completion certification, chattel secured transactions and so on.	

Scale of Budget

As a public agency, the funds needed for STSP Bureau to promote administrative affairs, perform official duties and maintain park operations. The budgets are from the national treasure and self-fundraising.

2019 Budget scale of STSP Bureau (NNIEHS excluded)

Item	Amount
The final amount of annual expenditure (Including final amount of personnel expenses ^{Note 1})	NTD 544 billion (NTD 153 billion)
The final account of expenditure of the total business revenues	NTD 4.813 billion
The final account of the total business costs	NTD 4.829 billion
The final account of the fixed assets construction improvement and expansion plans	NTD 1.239 billion
Business taxes paid	NTD 76,115,523

Notes:

- Personnel expenses include statutory remunerations for staff members, contracted employees and technicians and janitors, bonuses, other grants, overtime pay, retirement pension and insurance.
- All the budgets and final reports are disclosed on the official website of STSP in an open and transparent manner for all to download online.



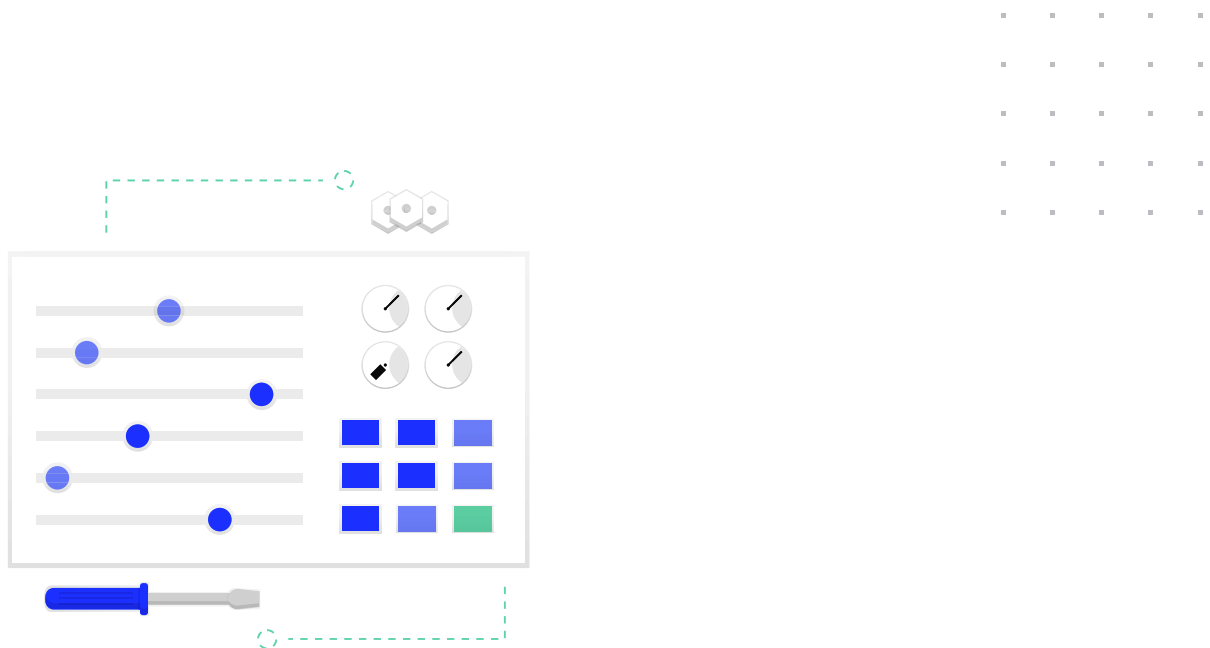


2.2 Risk Control

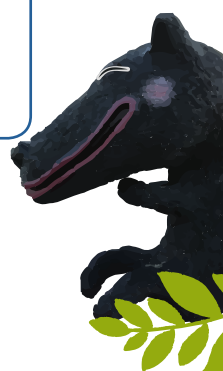
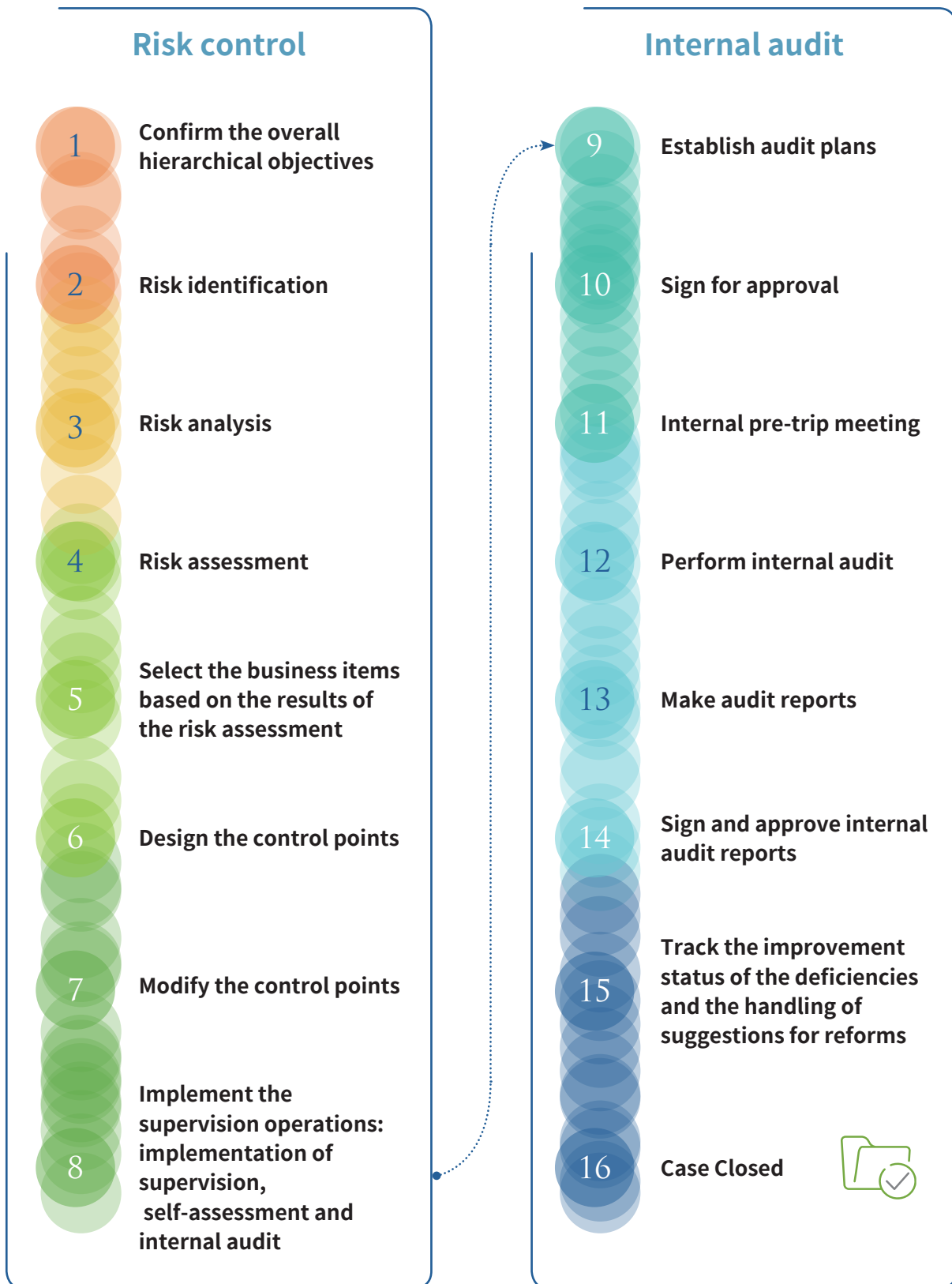
⌘ Internal Control Management

To enable the sustainable management of the science park, the Bureau has established an internal control system. The Internal Control Team conducts the assessment of the internal control environment, risk assessment, control operations, communication and supervision mechanisms of the Bureau every year to have substantial control over major risks that could have impacts. The self-assessment of the internal control was completed on December 30, 2019, and 17 items had the completion rate of 93% while 7% were not applicable (no major normative items were assessed during the assessment period).

In addition, to implement the control mechanism, the Internal Audit Team will help with the inspection of the actual status of the implementation of the internal control in an objective and just perspective and will provide timely suggestions for improvement. The internal audit for 2019 was completed on November 20, with a total of 8 audit items and 2 items for improvement. The internal audit report will be prepared, focusing the strengths and weakness found in the audit, the corresponding improvement measures and specific recommendations for reforms. This internal audit report will be submitted to the Director-General for approval, and will be sent to all units and departments for reference in terms of the implementation of the internal control system so as to reduce or avoid the impacts of risks and thus enhancing the operational performance and service satisfaction.



∴ Flow chart of the internal control system ∴



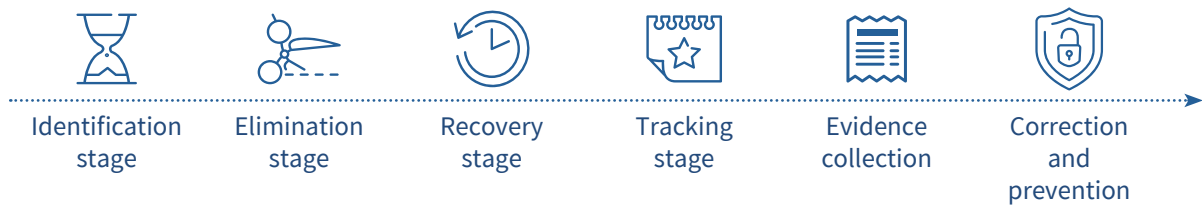


Information Security

To ensure the confidentiality, integrity and availability of the information assets of the Bureau so as to provide safe, stable and highly efficient information services overall, the plan for information and communication safety maintenance is thus established.

Item	Description
Information and Communication Safety Polity	To ensure the confidentiality, integrity and availability of the information assets of the Bureau so as to provide safe, stable and highly efficient information services overall.
Goals of Information Communication	The Bureau’s information communication statement is “No leakage of information, few information security incidents and uninterrupted services”.
Quantitative Goals	<ul style="list-style-type: none"> · The business of leasing systems will not be affected due to equipment or system abnormalities. · The maintenance availability of the data center reaches 99% and higher. · The occurrence of reported information communication incidents higher than level 3 should be less than twice.
Qualitative Goals	<ul style="list-style-type: none"> · Adjust the content of safety maintenance of information and communication properly in response to changes in regulations and technology to avoid unauthorized access, use, control, leakage, destruction, alteration, destruction or other infringements so as to ensure the confidentiality, integrity and availability. · Reach the requirements for the classification of information communication security responsibility and lower the threats of risks of information communication safety. · Enhance the staff’s awareness of information security protection, effective detection and prevention of external attacks.

STSP Bureau has passed ISO 27001 certification and is devoted to the maintenance of confidential information, physical security, employee safety, vendor security management and various hardware and software equipment, strengthening the classification and control process of confidential information. The information security control and management are compliant with the prescriptions in information security management documents. The handling process of information security incidents is as follows.



STSP Bureau implements the inspection of the data center safety management certification and relevant certification should be based on the international certification standards. By doing so, the safety certification levels can be improved, and the results are reported to the competent authorities on a regular basis.

Moreover, STSP Bureau is a Level-B agency for information security responsibility. In addition to complying with the Information Security Management Regulations of the Executive Yuan and its Affiliated Agency, the Bureau is also in charge of the following work to avoid potential threats to information security while on the other hand enhance the level of information security protection.

Information security advocacy and educational training is conducted to the employees and contractors annually. If the personnel violate the regulations of confidential information management, penalties and punishments will be given based on the severity of the circumstances after investigations. There were no incidents of information leakage in 2019.





<p>Classification of the information systems</p> <p>Check the levels of information systems for the corresponding requirements for information security protection.</p>	<p>Drill of business continuity operation</p> <p>Conduct the drill of continuity operation of the core information system once every other year.</p>	<p>Safety testing</p> <p>Conduct the testing of the website security vulnerability once a year, the system penetration testing every other year, and the checkup of information security every other year.</p>
<p>Promotion of ISMS</p> <p>Maintain the validity of the ISO 27001 information security certification.</p>	<p>Defense in depth</p> <ol style="list-style-type: none"> 1. Antivirus, firewall, mail filtering protection 2. IDS/IPS, WAF protection. 	<p>Educational training of information security</p> <ol style="list-style-type: none"> 1. The information security personnel have to receive at least 12 hours of professional course training of information security or information security function training annually. 2. General users and supervisors have to receive at least 3 hours of general education training of information security.
<p>Audit method</p> <p>The internal audit of the information security is conducted once a year.</p>	<p>Monitoring and management</p> <p>SOC monitoring and management</p>	<p>Professional certificates</p> <ol style="list-style-type: none"> 3. Maintain the validity of 2 or more professional certificates of international information security. 1. Maintain the validity of 2 or more professional certificates of information security function training.

Definition of terms:

- IDS/IPS- Intrusion Detection System/Intrusion Prevention System;
- WAF Protection-Web Application Firewall;
- SOC monitoring and management -Security Operation Center (Information Security Protection/Monitoring Center).

Security Guards and Safety Control

STSP Special Police Brigade and the Fire Brigade are set up in the science park for timely response to immediate danger or hazardous emergencies. The Bureau also has arranged security personnel who take basic as well as professional educational training courses every month as required to ensure that they can handle any emergencies to maintain the security in the science park.

2.3 Compliance

We abide by the Ethics Directions for Civil Servants prescribed by the Executive Yuan and ask the employees to conduct law-based administration when implementing their duties with integrity and impartiality. We also pay close attention to amendments to any domestic or foreign policies that can affect STSP. Relevant information is disclosed on the official website in an open and transparent manner.

Social Compliance

- ◆ No corruption.
- ◆ No incidents violating laws and regulations.
- ◆ No involvement in political contributions.

Environmental Compliance

- ◆ Compliance with environmental regulations.
- ◆ No major incidents of environmental pollution.
- ◆ Observation of voluntary environmental regulations.
- ◆ No violation of the Basel Convention.

Government Compliance

- ◆ Comply with the provisions of the Government Procurement Act, and there was no unfair competition.
- ◆ Observe the principle of administrative neutrality and there are no political contributions and lobbying incidents.

Service Responsibilities Compliance

- ◆ No violation of health and safety regulations.
- ◆ No violation of voluntary code during the process of providing services.
- ◆ No violation of laws and regulations.
- ◆ No violation of the Personal Data Protection Act.
- ◆ No major penalties.
- ◆ No over marketing.

Human Rights Compliance

- ◆ Abide by the Labor Standard Act.
- ◆ No discrimination.
- ◆ No use of child labor.
- ◆ No forced labor.
- ◆ No violation of indigenous rights.
- ◆ No human rights or labor complaints.

United Nations Convention against Corruption (UNCAC)

- ◆ Government agencies should strengthen systems that promote transparency and prevent conflicts of interest.
- ◆ Integrity, transparency, anti-corruption, honesty and responsibilities should be strengthened among public servants.
- ◆ Regularly publish anti-corruption reports that include analysis of corruption environment, risks and trends as well as the evaluation of the effectiveness of various anti-corruption policies and measures.





⚙️ **Advocacy of Integrity**

The Civil Service Ethics Office of STSP Bureau is in charge of the formulation and promotion of anti-corruption laws and regulations, corruption prevention and handling of reported items, property declarations and avoidance of conflicts of interests of public servants, safety maintenance of agencies, maintenance of official secrets and so on. Every year, the office organizes annual integrity risk assessments for internal units and for employees by referring to Risk Incidents and Types of Risks. After assessment, no high-risk units and personnel were listed in 2019.

2019 Campus Integrity Education Publicity Activity (National Nanke International Experimental High School)

Lectures of the concept of honesty and integrity, and explanation of cases to prevent juveniles from breaking the law. School teachers, parents and park businesses were also encouraged to support and participate in the integrity administration of the Bureau.



Number of Participants : 105

2019 Anti-corruption publicity activity combined with the event of the 16th anniversary of the Bureau

Fun games were provided to have interaction with the participants on the spot to strengthen the public's awareness and support of integrity and at the same time expand the aspects of social participation in anti-corruption.



Number of Participants : 385



- ① Prosecutor Jui-Chang Lou from Taiwan Tainan District Prosecutors Office was invited to give a lecture
- ② Enthusiastic reactions from students of NNIEHS



- ③ The public had enthusiastic participation in the integrity publicity activity
- ④ Propaganda of integrity to the public





2.4 Management of Suppliers

The procurement of STSP is divided into engineering, financial and labor procurement. The selection of the suppliers, contractors and business partners are all publicly tendered in accordance with the Government Procurement Act. All the bids have to go through qualification screening. If there is any violation of the criteria announced, the bid will not be accepted. Except for the joint supply contract allowing the use of nearby manufacturers, there will be no restriction or special selection of local manufacturers. The private manufacturers entrusted by the Environmental Protection Center, Resource Recycling Center and Kaohsiung Wastewater Treatment Plant are all handled in accordance with the operating model of a company.

The procurement contract is handled in accordance with the Government Procurement Act and the Regulations for Priority Procurement of Eco-Products. Provisions concerning human rights in the Labor Standards Act should be specified in the contract. The Bureau had 43 engineering procurement projects, 106 labor procurement projects and 35 financial procurement projects in 2019, and 100% of the bid winners are all local manufacturers in Taiwan. The amount of local procurement was approximately NTD 5,473,433,239.

The services provided by STSP Bureau through various upstream suppliers, combined with the Bureau's own integration and matching capabilities, help park manufacturers create sustainable operating profits. At the same time, we give back to the social communities and share the common prosperity with the partners in the value chain of STSP Bureau.

Financial suppliers

- * Agent
- * Dealer
- * Contractor



Engineering suppliers

- * Dealer
- * Contractor



Labor supplier

- * Production labor services
- * Life labor services
- * Cultural entertainment labor services

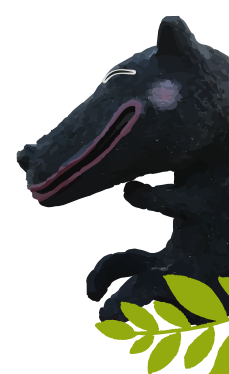
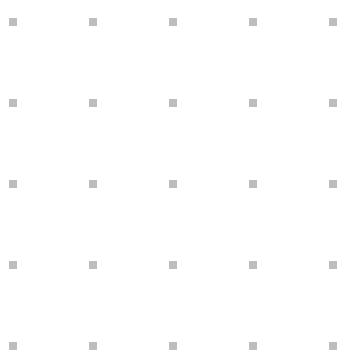


❖ Environmental Inspections of Contractors

The Bureau conducts inspections on the current status of the construction projects in the park on a monthly basis to check whether the construction sites are compliant with the Management Regulations for Construction Project Air Pollution Control Facilities and the Check List for the compliance with such Regulations are also in place. If inconsistency is found, the construction unit will be informed on the spot to cooperate with the improvement and follow-up inspections.

Inspections of the construction sites can effectively reduce the occurrence of penalties imposed for violating the Management Regulations for Construction Project Air Pollution Control Facilities. In addition, the fugitive dust in the construction site or the pollution of the surrounding road surface can also be reduced. In 2019, there were a total of 16 construction sites of public works and the construction projects of the park manufacturers in Tainan Science Park with a total of 120 inspections while 6 constructions sites were for the public works and park manufacturers' construction projects of Kaohsiung Science Park, with a total of 46 inspections.

Item	Tainan Science Park		Kaohsiung Science Park	
	Public works	Construction projects of manufacturers	Public works	Construction projects of manufacturers
Number of manufacturers inspected	4	12	1	5
Total number of inspections	24	96	6	40





3

Right People in the Right Place

- 3.1 Human Resource Structure
- 3.2 Compensation and Benefits
- 3.3 Labor-Management Equality
- 3.4 Education and Training
- 3.5 Energy Conservation



3.1 Human Resource Structure

We know that genial services come from happy employees, so we attach great importance to the working environment, development, care for employees and labor rights. We have established multi-directional communication channels and provided equal treatment and respect, striving to create a safe workplace for our employees. The recruitment of personnel is fully protected by laws and regulations, and the personnel’s due rights for appointment, rewards and promotion should not be affected due to differences in race, religion, skin color, political affiliation, age, gender, marriage status and physical and mental disabilities.

The total number of employees of STSP Bureau was 119 in 2019. The Director-General is appointed by the Executive Yuan to be in charge of the overall affairs of the Bureau. Two Deputy Director-Generals and one Chief Secretary are appointed by the Ministry of Science and Technology. There are 38 supervisors in total (no one from the minority groups and no foreign employees serve as supervisors). Among the employees, 107 are regular employees, 7 are employed employees and 5 are mechanics/ janitors. All the employees are residents in Taiwan, and no child labor under the age of 16 is hired. In addition, there are 27 non-employee workers in the Bureau.

In accordance with Article 38 of the People with Disabilities Rights Protection Act that “Any given government department (agency / organization) of individual levels, public school, or public business agency / organization / institution whose total number of employees is no less than 34 shall employ people with disabilities with capability to work and the number of employees with disabilities shall be no less than 3 percent of the total number of the employees”, STSP Bureau has actively employed employees with physical and mental disabilities and promoted measures for a friendly workplace. In 2019, the Bureau hired 2 employees with physical and mental disabilities (one is severely physically and mentally disabled; whereas a department or agency / organization / institution employs a person with severe disabilities, the person shall be calculated as 2).

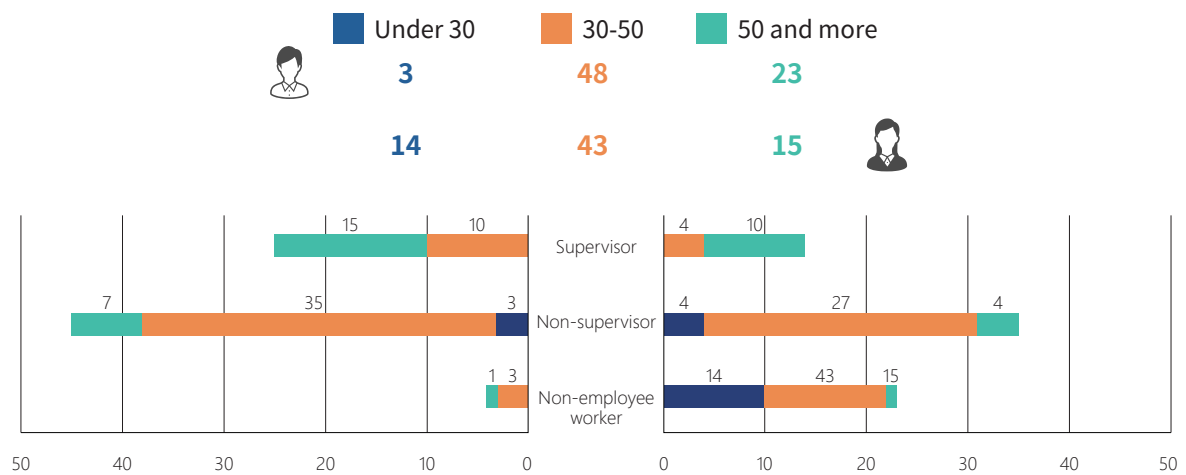
Staff Profile of STSP Bureau in 2019

Item	Female			Male			
	Age	Under 30	30-50	50 and more	Under 30	30-50	50 and more
Supervisor		0	4	10	0	10	15
Non-supervisor		4	27	4	3	35	7
Non-employee worker		10	12	1	0	3	1
Total		14	43	15	3	48	23

Notes:

1. There were no part-time employees in 2019.
2. No child labor was used as dispatched labor to perform heavy and dangerous work.

Staff Profile of STSP Bureau in 2019





❖ New Staff and Turnover

All the regular employees are civil servants and are protected by the Civil Service Protection Act and Civil Service Employment Act. When employees leave the position due to retirement, promotion or changes of the job positions, and when the supervisor of the unit or when the executive of the unit have arrangements for leave, change, retirement or resignation, the complementary relationship during the period should be handled in accordance with the “Directions for Agency in Duty in Government Agencies”. The contracted staff are hired on a yearly basis, and therefore do not apply to the minimum notice period stipulated in the Labor Standard Act.

❖ Ratio of new staff and labor turnover in 2019 ❖

Item	Age	Under 30		30~50		50 and more	
	Gender	Female	Male	Female	Male	Female	Male
New staff	Number of people	0	0	5	1	0	2
	Ratio	0%	0%	4.20%	0.84%	0	1.68%
Labor turnover	Number of people	0	1	4	4	1	2
	Ratio*	0%	0.84%	3.36%	3.36%	0.84%	1.68%

Notes:

1. Employment rate= Number of new staff/Total number of staff at the end of the current year.
2. Turnover rate= Turnover number/Total number of staff at the end of the current year.

❖ Safety in the Workplace

As a government agency, STSP Bureau is not regulated by the Labor Union Act and the Occupational Safety and Health regulations. There is no need to set up labor unions or the Labor Health and Safety Committee. In addition, there are no employees at high risks of occupational diseases. Relevant leave system is handled in accordance with the Civil Servant Leave Regulations. In 2019, there were zero occurrence of occupational disease, zero incident of work-related injuries, and zero incident of work-related deaths.

Parental Leave without Pay

In 2019, one employee applied for parental leave without pay (1 male) and one was reinstated (1 male) while three applied for parental leave without pay (2 females and 1 male) and two were reinstated (1 female and 1 male) in 2018. In 2017, no employee was reinstated after parental leave without pay.

Item	Year	2017		2018		2019		
		Gender	Female	Male	Female	Male	Female	Male
Number of employees meeting the qualification to apply for parental leave	Number of people		1	1	1	2	0	1
Number of employees who actually applied for parental leave without pay	Number of people		1	1	1	2	0	1
Number of employees expected to be reinstated after the parental leave without pay	Number of people		1	1	1	1	0	1
Number of employees who were actually reinstated after the the parental leave without pay	Number of people		0	0	1	1	0	1
Number of employees who were reinstated for one year after the parental leave without pay	Number of people		0	0	1	0	0	1
Reinstatement rate ¹			-	-	100%	100%	-	100%
Retention rate ²			0%	0	100%	0%	-	100%

Notes:

1. Reinstatement rate= The total number of employees who were actually reinstated/ the total number of employees who were expected to be reinstated *100%
2. Retention rate=The total number of employees who were actually reinstated and were still on service for one year/the total number of employees who were actually reinstated in the previous year *100%





3.2 Compensation and Benefits

In accordance with regulations, STSP Bureau shall provide employees with insurance benefits in the event of disability, old-age care, death, family funeral, childbirth and parental leave without pay. When the staff have needs to leave without pay, such as for childcare, parent care and further studies, applications can be made in accordance with Regulations for Retaining Civil Service Position without Pay and other related welfare regulations. In addition to protecting the due rights of the staff, various system assessments, subsidies for further education and advocacy of training are also in place to create an environment for continuous learning and growth. Furthermore, diverse and interesting visits, study groups and recreational clubs are also arranged for the staff to enjoy, aiming at building a harmonious workplace that takes into account both the physical and mental health of our staff so as to further provide quality services.

To listen to the staff's voices, STSP Bureau has set up various communication channels such as the Director-General's mailbox in the Secretariat Office and the complaint hotline (+886-6-505-0848) of the Personnel Office and other compliant channels. Meanwhile, through various programs and plans, we help our staff solve problems that could affect work efficiency and enhance their centripetal force and cohesion for the Bureau. Through various assistance measures, we create a warm and caring working environment and a corporate culture with great interaction to enhance the competitiveness of this organization.

❖ Remuneration and Performance Evaluation

The compensation of STSP Bureau does not differ due to difference in gender, and the salary is 100% higher than the minimum wage prescribed by the Labor Standard Act, and the adjustment ratio is in accordance with the regulations of the Public Functionaries Remuneration Act. In addition, the performance appraisal, year-end bonus and condolence payment are all handled in accordance with the Civil Service Performance Evaluation Act and the 2019 Guide Governing the Year-End Working Performance Bonus (condolence payments) to Military, School teachers and Staff.

Performance evaluation is conducted regularly in accordance with the Civil Service Performance Evaluation Act. Except for staff in the Personnel Office, Accounting and Statistics Office¹, Civil Service Ethics Office and those on leave without pay, all the staff² should receive year-end performance appraisal or appraisal review while hired personnel are assessed with performance appraisal notice.

Notes:

1. Staff in the Personnel Office, Civil Service Ethics Office and Accounting and Statistics Office directly reporting to the MOST (9 people in total) are regularly assessed by the Personnel Office, Civil Service Ethics Office and Accounting and Statistics Office of MOST.
2. In 2019, a total of 98 civil servants were assessed (excluding 9 staffs in the three offices mentioned above, 7 hired employees and 5 janitors/mechanics).

❖ Staff Benefits

STSP Bureau cares about every staff in the Bureau. Only staff with healthy body and mind can provide good service efficiency. In accordance with the stipulations of the Civil Servant Association Act, the staff's freedom of assembly and association is guaranteed. The Bureau also provides subsidies to cover cultural and recreational activities, actively encouraging our staff to establish clubs and hold leisure activities on holidays.

On Dragon Boat Festival (June 5th) in 2019, the Fruit Carving Competition was held to enhance the cohesion of our staff through group activities. In addition, the Table Tennis Club also organized the table tennis match on February 20th while the Hiking Club held the Hiking in Xiao Gang Shan on June 1st. Through these club activities, our staff are encouraged to form the habit of exercising, release stress at work and have emotional exchanges with their colleagues to enrich their lives.

In accordance with relevant stipulations of the Measures for Improvement of the Leave of Civil Servants of the Executive Yuan and Its Affiliated Agencies, the total number of staff applying for tourism subsidies and National Travel Cards, including hired employees and janitors totaled 119 in 2019. In addition, on the eve of the staff's birthdays, the Director-General personally signs on the birthday cards and sends the cards together with the birthday cash gifts. In 2019, there were no cases re-appealed and reviewed after being withdrawn by the Civil Service Protection & Training Commission.





3.3 Labor-Management Equality

Gender Equality and Human Rights

STSP Bureau supports and implements gender equality policy and does not limit one specific gender as a qualification. We also observe relevant laws and regulations in terms of recruitment and strictly require our suppliers to comply with relevant regulations. To create a friendly workplace with equal rights, we will increase the involvement of female staff in the decision-making process, eliminate occupational gender segregation and promote family-friendly policies to advocate the awareness of gender equality. Importance is also attached to the LGBT Group and to their rights to facilitate understanding, enabling friendliness and tolerance in the daily working environment.

The Bureau organized training courses of the Gender Mainstreaming Film & Book Club and Film & Book Club of Human Right Issues on March 13 and June 19 respectively in 2019 for the learning and understanding the concept of gender equality through diverse channels. The participation rate of these two training courses reached 100%.



∴ Film & Book Club of Human Right Issues ∴



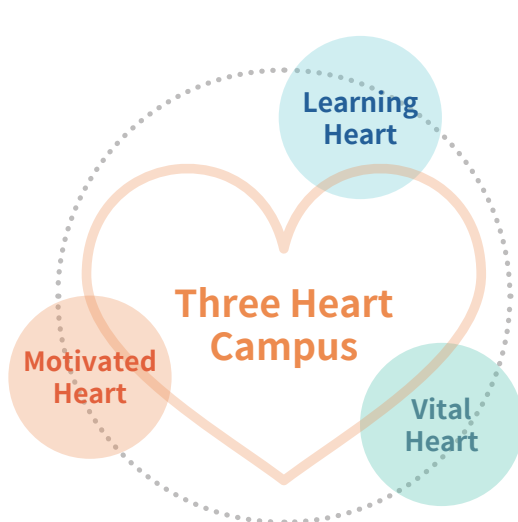
∴ Gender Mainstreaming Film & Book Club ∴

3.4 Education and Training

Staff Training

In 2019, the main planning of staff training is based on the annual schedules and goals, requiring all staff to receive more than 20 hours of training hours of business-related education and training every year (mechanics and janitors are not specifically required), which includes 10 hours of major national policy related training. Combined with the three core spirits in 2019, namely the Learning Heart, Vital Heart and Motivated Heart of the Three Heart Campus, a series of training activities were implemented. Through diversified learning channels, the staff can improve professionally and inject new vitality to their workplace, so as to enhance their work value and to achieve self-realization.

Core Spirits of Three Heart Campus



Learning Heart

Make oneself competent for the job through professional tools and keep learning and growing in the work, improving leadership and communication as well as coordination while at the same time strengthening the cohesion among colleagues.



Vital Heart

Continue to exercise and work out. Through participation with and motivation from colleagues, one can develop good living habits to jointly reach the goal of a healthy workplace.



Motivated Heart

Through the leisure and stress releasing courses, the staff can work hard and play hard to enjoy life.

2019 Statistics of personnel education & training at STSP Bureau

Employment Type	Supervisors		Non-supervisors	
	Female	Male	Female	Male
Number of people	13	25	36	40
Total training hours (hr)	569	1,055	2,139	2,669
Average training hours	44	42	59	67

Notes:

1. The number above does include those on a leave without pay.
2. Average training hours= Total training hours in the category/ total number of employees in the category



❖ Subsidy for Training and Education



To encourage our staff to apply for on-the-job education to enhance the overall competitiveness, STSP Bureau provided subsidies of NTD 20,000 at most per person per semester in accordance with the Main Points for Domestic Training and Education for Staff of Southern Taiwan Science Park Bureau of MOST. The subsidies were provided to 2 staffs in 2019.

3.5 Energy Conservation

❖ Management of Electricity Use

Through active response to and promotion of energy saving and carbon reduction policies, the Bureau effectively implements sustainable management through joint efforts through education and has integrated green management into daily operation. From 2017 to 2019, the electricity consumption has gradually decreased, indicating the effectiveness of the implementation of energy conservation measures.

Item	2017	2018	2019
Electricity consumption (kWh)	1,701,200	1,591,200	1,568,800
Energy consumption (GJ)	6,124.32	5,728.32	5,647.68
Floor area of STSP Bureau (m ²)	54,407.25	54,407.25	54,407.25
Energy intensity (GJ/floor area)	0.1126	0.1053	0.1038
GHG emission intensity (ton CO ₂ e/floor area)	0.0173	0.0156	0.0154

Notes:

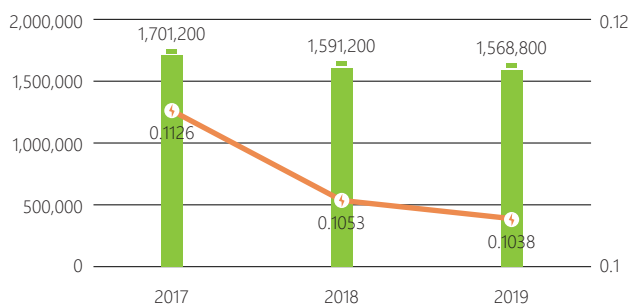
1. The total energy consumption within the organization is calculated in accordance with the GRI Standards with joule or its multiples as the unit.
2. Every 1 kilowatt-hour of electricity= 1kWh= 3,600 joules.
3. Energy intensity is calculated with the floor area of the administration building of the Bureau serving as the denominator.
4. The GHG emission intensity of the Bureau was calculated based on the EPA's Greenhouse Gas Emission Coefficient Management Table 6.0.4 version.

Water Conservation

We understand the importance of water resources, and STSP Bureau starts cherishing water by setting an example of promoting water conservation measures to improve the water consumption efficiency in all units and strengthen water management and water recovery to achieve the purpose of sustainable usage of water resources. Due to the fact that the average temperature in 2019 was 0.9 degree higher than 2018 and that there are relatively fewer rainy days, which increased water consumption for air conditioning. As a result, the water consumption of the administration building of the Bureau in 2019 increased slightly by 427 m³ compared with 2018.

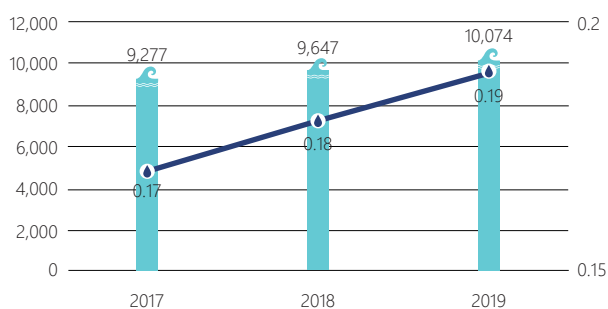
Item	2017	2018	2019
Water consumption (m ³)	9,277	9,647	10,074
Floor area of STSP Bureau (m ²)	54,407.25	54,407.25	54,407.25
Water intensity (m ³ /m ²)	0.17	0.18	0.19

Note: Water intensity is calculated with the floor area of the administration building of the Bureau serving as the denominator.



Management of Electricity Use

- Electricity consumption (kWh)
- Energy intensity (GJ/floor area)



Water Conservation

- Water consumption (m³)
- Water intensity (m³/m²)





❖ Energy Conservation and Carbon Reduction Measures

After years of the Bureau’s restless efforts in energy conservation and carbon reduction, the effectiveness of energy conservation achieved continues to accumulate. We spare no efforts to protect the environment, continue to ask our staff to abide by the energy and water saving measures and plan long-term and feasible measures. While operating the science park, the Bureau also strengthens counseling and inspections of air, wastewater discharge and waste disposal of the park manufacturers to ensure the compliance with environmental laws and regulations, aiming at stepping toward a low-carbon science park.

1. Make ice during the off-peak hours for the ice storage air conditioning system.
2. Promote the energy and electricity saving concept and adjust the air-conditioning supply time.
3. Make regular patrols and turn off power when not used at hand.
4. Encourage the staff to take the stairs, and the elevator is set to skip the 2nd floor of the administration building.
5. Make use of card insertion device for energy conservation to ensure complete cut of power.
6. Automatic lighting system is installed in some areas, and the air conditioners are all installed with variable-frequency device.



• • • • •
• • • • •
• • • • •
• • • • •
• • • • •

Green Procurement

To cooperate with the goal of the national green procurement policy, the Program for the Promotion of Green Procurement in Government Agencies, the environment performance is taken into consideration in the decision-making process of the procurement. In the Small Procurement System of the Bureau, there are green procurement options that remind and facilitate the statistics of green products so that priority can be given to products with of energy labels, water efficiency labels, energy star labels and other environmental protection labels. As of 2019, the total amount of green product procurement amounted to NTD 4,502,294, and among them, 48 procurement projects had 100% of the designated products procured with environmental protection or energy labels. Our annual performance evaluation rating of green procurement is “excellent” every year.



4

Services that Touch Your Heart

- 4.1 Employment of Talent in the Science Park
- 4.2 Cultivation of Talent in the Science Park
- 4.3 Implementation of Labor Equality
- 4.4 Good Workplace for Park Businesses

Real-time response: Epidemic Prevention Pioneer in the Science Park



▶ 南科園區醫療諮詢專線(防疫專線1922或南科聯合診所)(06)5050225
▶ 南科緊急應變中心(06)5051069

Due to the outbreak of the global pandemic at the end of 2019, STSP Bureau established the COVID-19 Response Team immediately to regularly report on the current status of the epidemic, the response measures to be taken and the countermeasures in the case of the spread of the epidemic.



Epidemic prevention in the science park :

- Self-health management of staff with symptoms- daily report from park manufactures.
- Evaluation of the impact on the industries- establishment of an industry impact evaluation form.
- Self-management and measurement of body temperature for personnel entering and existing the administration building in the science park.
- Apply for the masks for epidemic prevention from the Taiwan Centers for Disease Control and take inventories of the epidemic prevention materials of the park manufacturers.
- Advocacy of epidemic prevention and preparation for materials.
- Set up plans and drills for continuous operation.

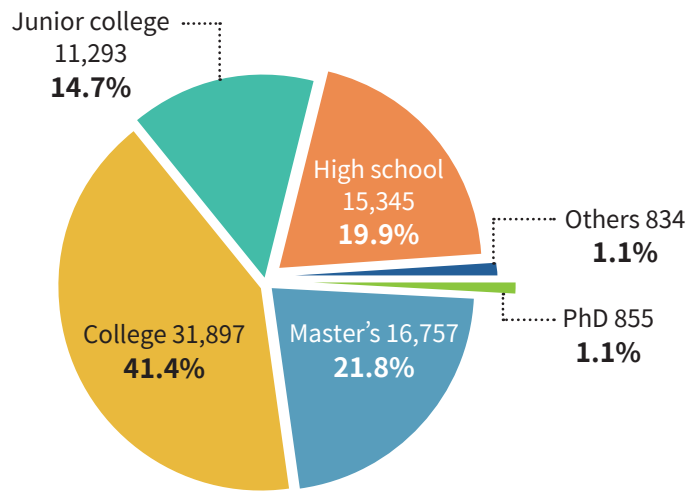
Forward-looking layout :

- Implement measures for adjustment to reduce cross-infection among staff, such as reducing business trips, applying work from home, holding video conferences and implementing quarantine.
- Promote business by making good use of digital tools to gain orders.
- For the production operation of manufacturers: divert the sources of raw materials and parts, allocate the production, flexibly adjust the production capacity, and implement industrial upgrading.
- Prepare the anti-epidemic materials: information transmission channels and process.
- Government assistance windows: MOEA relief funds application window for SMEs, Ministry of Labor, and Central Epidemic Command Center.
- Implement Business Continuity Plans (BCP).



4.1 Employment of Talent in the Science Park

The industrial clusters in STSP are thriving. To assist the park manufacturers in finding good talents and help the job seekers with employment opportunities, STSP Bureau works with the local government and other business units and organizes a number of talent recruitment activities every year. As of December, 2019, the total number of employees in STSP has reached 76,981. We hope to attract more excellent talents to join STSP and bring vitality to the science park.



∴ **Level of Education of Employees as of the end of 2019** ∴

STSP has organized recruitment activities with many units in the park, providing an opportunity for those who are away from home to return and work in their hometown. The activities organized are as follows.

∴ **Major Talent Matchmaking Event**

STSP Bureau and Cheng Kung University jointly organized a Major Talent Matchmaking Event in the lobby of the STSP Administration Building on May 31st, and a total of 16 heavyweight listed technology companies and the central research units commonly joined the event. Meanwhile, MOST's RAISE (Rebuild After PhD's Industrial Skill & Expertise) was combined on that day, providing the resumes of the doctoral talents to the manufacturers in advance for interviews. This event also attracted about 500 job-seekers. In addition to the manufacturers, many schools and graduates from graduate schools also participated in this event. A total of more than 500 resumes were received (including interviews), and 61 job applicants with the doctoral degree also contacted many manufacturers.



∴ **Group photo taken at the Talent Matchmaking Event** ∴

❖ Leaders in Future Trends O2O Conference

MOST started to promote the Leaders in Future Trends (LIFT) in 2017. The 2019 Leaders in Future Trends (LIFT 2.0) was held on the basis of LIFT 1.0 for the purpose of expanding overseas talent attraction. A platform was built and overseas scholars were arranged to participate in the Leaders in Future Trends O2O Conference for direct face-to-face exchanges with industries and academic and research institutions in Taiwan.

A total of 81 overseas talents participated in this conference, and among them, 73 were doctoral degree holders while the other 8 were masters with more than 3-year experience in AI related work.



❖ Group photo of distinguished guests and outstanding talents (LIFT 1.0) ❖



❖ Vice President, Chen Chien-Jen (6th from the left, 1st row) and the Minister of Ministry of Science of Technology, Liang-Gee Chen (7th from the left, 1st row) attended the Leaders in Future Trends O2O Conference of LIFT 2.0 ❖

❖ Local Employment, Double Happiness

STSP Bureau and the Kaohsiung City Government jointly organized the large-scale recruitment event, 2019 Local Employment, Double Happiness in Ciao-tou Elementary School on June 29. This year, the participating manufacturers from Kaohsiung Science Park included Huang Liang Biomedical, Taiwan Kodaka Technology, Winbond Electronics Corp., Synbio Tech, King Slide Works, Streber-Tech, Eagleburgmann Taiwan and so on, providing 295 job opportunities. Approximately 820 people participated in the event on that day, with an initial match rate of about 45%.

❖ The application form filling area is crowded with applicants ❖



❖ Summer Camp- A Visit to STSP

To increase the willingness of graduates to work in STSP, the Bureau has organized 2019 Summer Camp- A Visit to STSP in July and August, with eight sessions of one-day STSP Experience Tour Camp and one session of Two-Day Summer Camp, attracting students from 35 schools, including NTU, NTHU, NCTU and NCKU and other to participate. The summer camp enabled the participating students to be time travelers to witness the 4000-year history on this land. The Bureau introduced STSP from the sugarcane field period and the 20-year period for the construction of the science park with three functions (production, life and ecology). Special visits to highlight manufacturers, Hannstar, UMC and others were also arranged for the introduction of the company's philosophy, product application and so on. Senior supervisors also answered questions in the Q&A sessions, giving these students some directions when it comes to their employment in the future, triggering their willingness to work in STSP.



❖ A visit to the dormitory area in Kaohsiung Science Park ❖



❖ A visit to AI_ROBOT Base at STSP ❖



2019 Living and Working in Tainan Job Fair

STSP Bureau and Tainan City Government organized 4 sessions of 2019 Living and Working in Tainan Job Fairs to solve the problem of manpower shortage for enterprises and unemployment problems for the public.

A total of 75 manufacturers participated in the first session of job fair, providing more than 2,765 job opportunities. Among them, more than 462 job openings were in precision machinery, semi-conductor and biotechnology industries in the science park, providing the public with great job opportunities.



Opening ceremony of the Job Fair



4.2 Cultivation of Talent in the Science Park

Science Park Talent Cultivation Subsidy Program

To encourage the sustainable innovation and R&D of the manufacturers and assist the cultivation of high-tech professionals, STSP Bureau encourages the colleges and universities near the science park to organize professional module courses that are in line with high-tech industries to enhance the professional skills of the graduates-to-be. Furthermore, theoretical teaching and practical experience are combined through internships to shorten the gap between learning and application among talents in the technology industry to establish an effective industry-academia matching mechanism for the park manufacturers.

STSP Bureau organized the Science Park Talent Cultivation Subsidy Program and the application period was from January 16 to March 7 in 2019, with a total of 47 project applications from 33 schools. After the final review meeting convened on May 8, the Bureaus of three Science Parks approved a total of 38 projects from 28 colleges and universities, granting a total of NTD 27.811 million. In the 2019 academic year, STSP Bureau has confirmed 12 projects, with a total subsidy of NTD 8.225 million, hoping to improve the professional skills of the graduates-to-be for them to apply what they have learned when employed by the enterprises and thereby shortening the gap between theoretical knowledge and practical experience of talents in technology industries to establish an effective industry-academy matching mechanism for the park manufacturers.



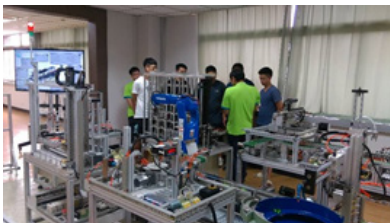
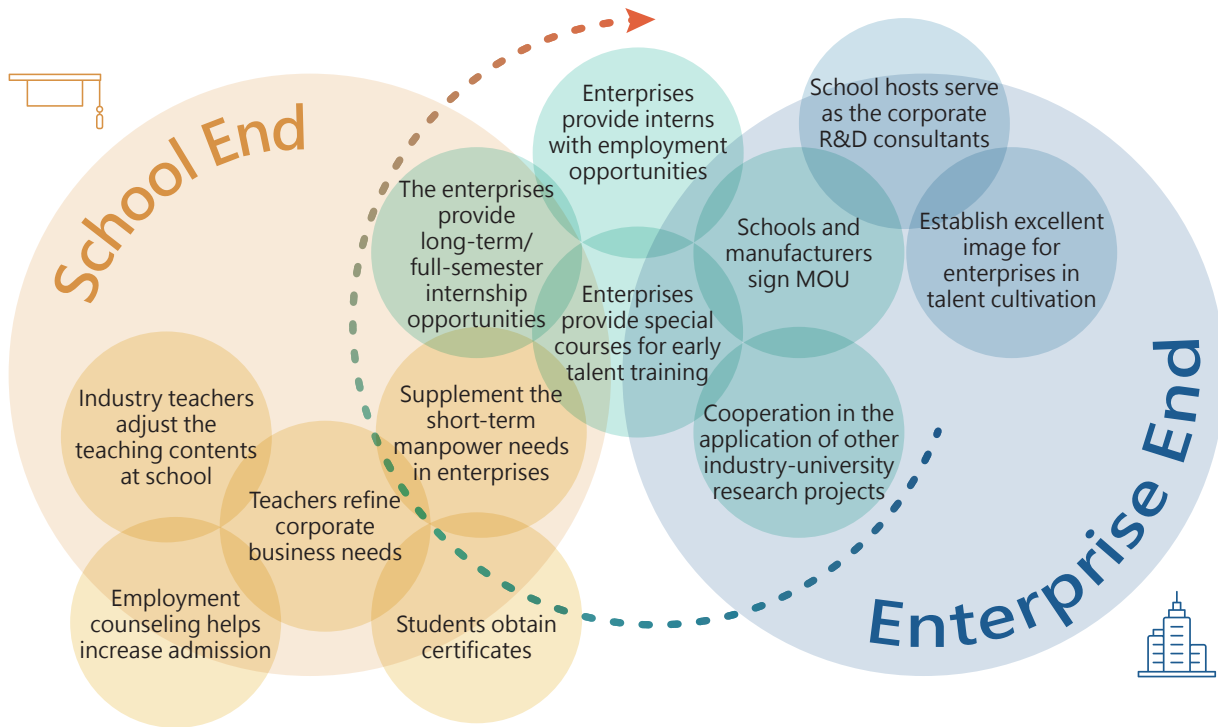
‡ Confirmed list of the 2019 Science Park Talent Cultivation Subsidy Programs ‡

學校	補助課程名稱	主持人	執行模式
正修學校財團法人正修科技大學	射頻元件與電磁相容實務模組課程	陳振聲	模組課程
高雄醫學大學	化學及生醫科技人才培育課程	張學偉	模組課程
高雄醫學大學	健康福祉產業研發人才培育模組	郭藍遠	模組課程
崑山科技大學	物聯網應用服務開發模組課程	李冠榮	模組課程
國立中正大學	先進光機電整合工程人才培育模組課程與企業實習	王祥辰	模組課程
國立中央大學	生技醫藥人才培育產業實習(二)	劉阜果	企業實習
國立高雄科技大學	智能化沖壓模具專業研發人才培育企業實習課程	林栢村	企業實習
國立高雄科技大學	生技保健食品產業專題實習	蔡志明	企業實習
國立高雄科技大學	生醫器材精密製造專業人才培育模組課程	楊玉森	模組課程
國立臺東大學	光學奈米薄膜設計、製造、分析	黃 弘	企業實習
國立屏東大學	光電材料檢測課程模組	許華書	模組課程
義守大學	智慧製造與管理企業實習	林煥章	企業實習
樹德科技大學	科學園區關港貿物流人才培育模組課程	林素莉	模組課程

This project enables the exchange opportunities between school teachers and the industries for exchanges and opportunities for industry-university collaborations. In addition to introducing professional resources in the industry from experts for professional courses, students can also have more field training in the industry to enhance their practical skills. On one hand, the operation of professional skills can be strengthened, and on the other, they can also experience and adapt to the life in the workplace in advance, shortening the adaptation time when they enter the workplace, reaching the goal of employment upon graduation. This can cultivate the professional knowledge and skills of the school graduates to increase the supply of talents suitable for technology industries to address the demands of park manufacturers for quality workforce while at the same time enhance the competitiveness of the domestic industries.

In 2019, a total of 9 schools actually implemented the talent cultivation projects, providing 11 module courses and corporate internship courses, cultivating 807 people. In addition, the cultivation results included 17 competitions, 14 categories of certification, 212 certificates, 8 sessions of results presentation, 61 participants receiving employment counseling, 7 industry-university collaboration projects and a total of 17 extended collaboration projects.





Practical implementation by students of the project in the intelligence center on campus



A visit to the Kaohsiung Factory of United Orthopedic Corporation



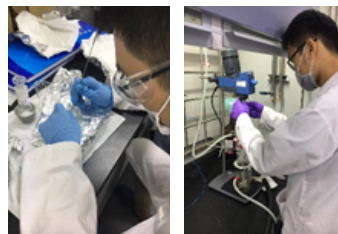
Class taught by the industry teacher of the project



News release concerning the internship in the Science Park-Tung Tai Cable Television



Internship in the Industrial Technology Research Institute



Synthesis, separation and stirring of drugs conducted by students in the project

Professional and Technical Talent Training

To facilitate smooth industrial development and upgrading, STSP Bureau has been working on the services of talent training for more than a decade, and has continued to promote the “Professional and Technical Talent Training Plans” through professional courses and lecturers. Top instructors are invited to give lectures on the latest R&D trends, and managers in the industry are invited to share their management experience, aiming at stimulating the innovative thinking among the talents. It is hoped that through the talent training plans, substantial help can be provided for the R&D and growth of the industries and talents can be cultivated for the preparation of the growth in the high-tech clusters.

In 2019, under the Professional and Technical Talent Training Plans & Promotion of Industry-University Collaboration Project”, 141 hours of corporate courses and 141 hours of open training, 36 new online courses and 127 courses were provided, with a total of 15,372 trainees.



∴ The industry teacher lead the practical group operation ∴



∴ Participants share cross-industry experience ∴



∴ The loop connective game enabled participants to think about how to deal with tasks ∴



4.3 Implementation of Labor Equality

Relevant measures concerning gender equality in employment are promoted through official documents, Facebook Fanpage, electronic bulletin board, emails and STSP Official Website as well as in large-scale events. In addition, the propaganda posters and materials are provided to actively encourage business units to participate in publicity meetings, coupled with Act of Gender Equality in Employment related quiz activities to improve the knowledge of business personnel, promote gender equality in employment and establish more stable working conditions and environment.

❖ Gender Discrimination Cases

To provide legal assistance for employees or job seekers who are in gender equality lawsuits, the Bureau has set a fund of NTD 50,000 for legal assistance in gender equality lawsuits and set up a review team for legal assistance of gender equality cases. The committee is composed of 7 committee members, with 3 female and 4 male representatives, including 4 external experts, and is in charge of reviewing relevant subsidies of lawsuits. There was no application for the fund in 2019.

In 2019, the Bureau convened 3 sessions of Gender Employment Equality and Employment Discrimination Review Committee to discuss issues concerning Act of Gender Equality in Employment, discrimination cases violating Employment Service Act and complaints of sexual harassment in the workplace as well relief channels to safeguard the rights and interests of the complainants. Among them, the reviewing process of 1 case of sexual harassment was completed. The Bureau used this case as the propaganda material to promote a friendly workplace and environment in the science park.

❖ Selection of the Excellent Business Unit

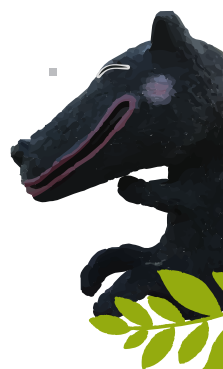
To safeguard labor rights, promote a friendly working environment, facilitate labor-management harmony and reduce labor disputes, STSP Bureau organizes the Award-Giving for Promotion of Work Equality in the Workplace for excellent business units to encourage enterprises to actively implement labor laws and regulations and construct a harmonious working environment. In 2019, a total of 65 excellent employees and 8 manufacturers promoting work equality in the workplace won the awards. Families of these award winners were invited to share the glorious moment with the award winners, and the senior executives of the winning companies also showed up to express their congratulations, showing the companies' emphasis on talents and their efforts in managing the companies.



We hope the talents at STSP can feel that their hard-working attitude and dedication to their work is emphasized and appreciated. Refreshments were prepared, and there was also a parent-child interaction area where employees at STSP could bring their family members to share their joy. Let us extend our respect and admiration to these practitioners in STSP.

❖ Advocacy on Gender Equality in Employment

To strengthen the park manufacturers' awareness and understanding of the Act of Gender Equality in Employment and prohibiting employment discrimination and to facilitate equal rights in the workplace, in 2019, STSP Bureau organized a workshop each in Tainan Science Park and Kaohsiung Science Park on May 16th and June 11th respectively. Attorney Shiu-Lan Huang from Chao Ming Law Firm and Judge Fu-Chiang Yang from Taiwan Ciaotou District Court were invited respectively to have lectures on Act of Gender Equality in Employment and case study of sexual harassment and employment discrimination in the workplace. It is hoped that the employees in the HR Department could find it useful in the handling of related issues in the future so as to further assist business units to construct a friendly workplace and promote labor-management harmony.



1. In 2019, the Cheering Station for Gender Equality in Employment was established in 2 sessions of large-scale events, and questionnaire was designed to interact with the public on the spot, coupled with explanations of laws and regulations concerning gender equality in employment and employment discrimination (approximately 800 and 500 copies of questionnaire were completed respectively).
2. The publicity slogans for gender equality in employment were shown on the electronic bulletin board in STSP from time to time.
3. In 2019, 12 sessions of playing the propaganda short film on gender equality were organized on STSP Movie Night, and the content of the short film included parental leave without pay, childcare allowance and CEDAW promotion to strengthen the promotion of the gender equality concept.
4. Made materials for the promotion of gender equality cases (including propaganda short film) to provide HR staff in the science park with materials for law propaganda targeting at labors and basic-level management for them to abide by the laws and regulations.
5. Published articles on gender equality in employment in the Southern Taiwan Science Park Newsletter.
6. We organized 2 sessions of “Workplace Equality and Sexual Harassment Prevention Seminar” with 44 representatives from 39 manufacturers participating. Attorneys and judges were invited to have lectures on relevant laws and sexual harassment prevention through case study, hoping to enhance these business personnel’s professional knowledge and facilitate equality in the workplace.



4.4 Good Workplace for Park Businesses

STSP Bureau promotes exercise and aims at creating a high-quality environment with high efficiency, safety, health and comfort to attract industries and talents. In addition to the annual STSP CUP community spirit ball games for basketball, badminton, table tennis, volleyball, softball and other exchange matches, the highly popular 3-on-3 basketball game as well as the monthly night run in Tainan/Kaohsiung Science Parks are also held. In 2019, the Bureau continued to organize the Exercise at STSP, a hiking event with thousands of participants. The professional badminton player, Tai Tzu-Ying was invited once again as the spokesperson, setting off a trend of exercise in the science park again. The Bureau is dedicated to promoting various sports in the science park, making the park a good place for starting business and families. The goal is to make STSP more than just a science park. We aim at creating a favorable living cycle integrated with the surroundings where there is home, dream and future that awaits all to join this big family together.

The Bureau is dedicated to creating a high-quality labor environment that provides park business units with real-time information of related publicity and focus of inspections. Topics such as labor, disaster prevention and health promotion are gathered, and the monthly electronic Industrial Safety Newsletter will be sent to subscribers. The compilation of the Industrial Safety E-paper allows the park manufacturers to obtain information of the latest activities, share disaster relief experience from links to Institute of Labor, Occupational Safety and Health of Ministry of Labor and other relevant websites to learn new knowledge. In addition, through the portal e-Bulletin Board, the effects of communication and propaganda can easily be reached, shaping a culture of emphasis on industrial safety and health in the science park.



❖ Deep Cultivation of Environmental Education

The activities of the Industrial Safety and Environmental Protection Month are in line with the goal of healthy exercise promotion for work stress relief and physical and mental well-being. Meanwhile, experts and scholars are also invited to have disaster relief related lectures while environmental education activities and health promoting events are also arranged. By holding a series of activities, our partners in the science park can release their stress at work and also make exchanges and learn from each other.

The Science Park has spared no effort in promoting the concepts and actions of nature conservation. Therefore, it is hoped that colorful ecological experience can be enjoyed without destroying the natural environment so that we can get to know the preciousness and fragility of the protected areas and the biodiversity in Taiwan and further to take concrete and feasible eco-friendly actions in our lives.



❖ Aogu Wetlands and Forest Park in Chiayi, Oct. 26, 2019 ❖

Amiable Services in the Science Park

The Bureau provides park manufacturers with faster and more convenient services. The 12 categories of industrial and commercial services in the science park include banking and finance, post office, securities, travel agency, accounting, law, equipment service providers, electronic material agency and sales, consultancy, telecommunications, inspection and verification and customs clearance services to address the needs of park manufacturers. In addition, to provide more complete life functions in the park, life service industries including food, shopping, sports, leisure, childcare and after school care centers are also introduced in the science park. Please check STSP official website for details.

Upgrade of STSP Shuttle Bus

From October 12, 2018, the number of runs of the STSP shuttle bus -HSR Line has been increased from 12 runs to 14 runs per day (averagely 1 run per hour), providing services to commuting passengers and also greatly improving the convenience for traveling business passengers.

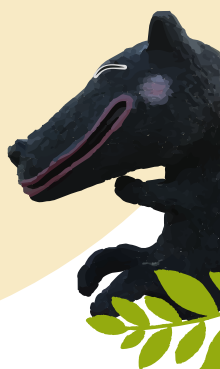
In response to the energy conservation and carbon reduction policy, the Green Shuttle Bus scheduled to travel between HSR Tainan Station and Tainan Science Park is provided at 10:10 every day. In addition, the STSP shuttle bus -HSR Line is open for appointment 1 hour in advance by phone for pickup service at the plant. The public is welcome to take the shuttle to construct a green life circle in STSP. It is recommended to download the APP, Science Park Action Wizard 2.0, and click on STSP for the real-time information of the STSP shuttle bus and other related riding information.



∴ iOS ∴



∴ Android ∴



❖ Childcare in the Science Park

The establishment of the childcare facilities is conducted in accordance with the amended Act for Establishment and Administration of Science Parks. It is open to childcare institutions outside the science park to establish appropriate childcare facilities in the science park. The Bureau provides the venue for rent at preferential rates for the childcare facilities to enable the employees to arrange child care so that they can concentrate on their work while working, achieving a balance between work and the family.

The Bureau also provides counseling for the park business units to provide childcare measures and breastfeeding rooms to implement a friendly workplace. A total of 38 park manufacturers received the counseling in 2019. In addition, subsidies for childcare facilities and measures are also budgeted every year to assist business units to handle these measures, encouraging them to create a safe workplace and family life for the workers at STSP. As of December, 2019, a total of 64 business units with 100 employees and more have provided childcare measures and breastfeeding rooms in accordance with regulations.



❖ Working-Out at the Gym Together

Owin 1 Fitness Center not only helps with the formation of the habit of exercising for health promotion among the employees in the science park, it also organized the 2019 Midsummer Baseball Night event on July 26, 2019, and a 300-inch large screen was prepared that day so that the participants could jointly watch the opening match of “Chinese Taipei V.S Cuba” in the 5th WBSC U-12 Baseball World Cup. More than 500 people participated in the event, which enabled the employees in the science park to have a good and proper way to relieve stress.



❖ Completion of the STSP Traffic Control Center

The 1-phase of the Traffic Control Center Project (hardware and traffic control network facilities) was completed in February, 2018. The main functions are to grasp the real-time traffic condition and relieve traffic congestion. During rush hours, the traffic condition is monitored and controlled, the travel time and traffic information can be released to the public to facilitate traffic diversion and improve the road service standards. In addition, the operation of the traffic signs is monitored and controlled by the center to effectively improve the timeless of maintenance. In 2019, the 2-phase of Traffic Control Center Project continued to establish roadside facilities needed for traffic monitoring and control, which is expected to reduce the commuting time at STSP by 5-10%, effectively reducing the traffic congestion and improving road use efficiency.



❖ The establishment of a Multi-functional Sports Park in Kaohsiung Science Park

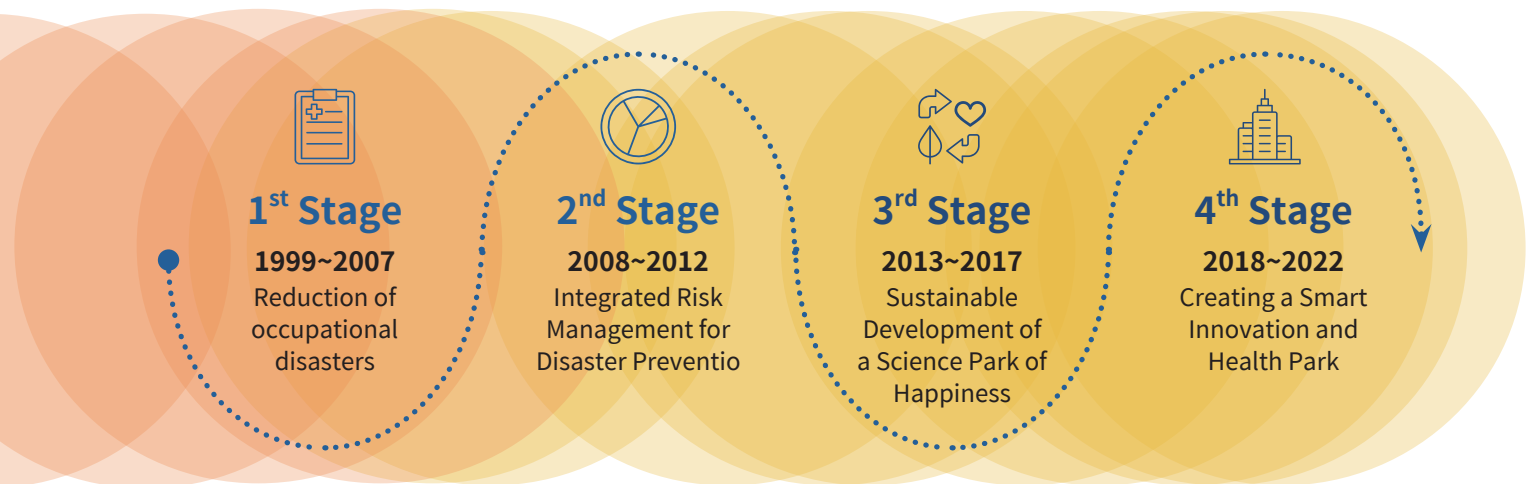
The Public Park No. 2 of the Kaohsiung Science Park has an area of 5.43 hectares, and it is a sports-oriented park, having 1 softball field, 3 basketball courts, 1 speed skate rink (200 meters for 1 lap) and children amusement facilities, providing the employees in the science park with a recreational space with multiple functions.



Phyllostachys makinoi, a Taiwan's native species, is chosen to be planted as the main scenic trees, with the public art work, "Stationed Bamboo - Bug from Heaven" installed in the central circular square, to create the image of forest insects in the recreational square in the park. The public restrooms in the park are conceived with paper airplanes and triangular folding panels are used to express the architectural image of freedom, vitality and flying, creating an image of white paper planes flying in the green woods. In addition, diverse plants are planted around the sports facilities and the different flower seasons will create stunning visual beauty in time series. Moreover, the children play area can also strengthen the affection and interaction between parents and children. Under the efforts of STSP Bureau, the living functions of the Kaohsiung Science Park has gradually improved. It will not take too long for Kaohsiung Science Park to be developed to the scale of Tainan Science Park in the future.

Special Column- Industrial Safety White Papers · Smart Innovation and Health Science Park

We have been devoted to creating a safe, healthy and happy science park as our core work, aiming at developing high-quality labor force and increasing the attention and efforts of occupational safety and health in the working environment among the employees. To work in line with the future prospects of STSP, we work on upgrading industrial clusters, enhancing the entrepreneurship and creating a green environment. In terms of occupational safety and health, we aim at creating a sustainable working environment for a healthy and safe smart park.



To implement the vision of a Smart Innovation and Health Park, STSP Bureau has developed 14 action plans, aiming at achieving the following 6 goals in 5 years (2018~2022). The 6 goals include Introducing smart and innovative technology into safety and health, increasing health care penetration rate to 100% (currently 92.5%), Chemical management exposure assessment and coverage rate of hierarchical management reaching 100% (implementation rate reaching 95%), Coverage rate of health autonomous management system reaching 100% (implementation rate reaching 95%), Award coverage rate of excellent industrial safety reaching 100% (currently 92.5%), and Death rate of major occupational disasters remaining at 20 and lower per million (reaching the level of Japan).

In 2019, the Bureau utilized the results of sustainable development to present the vision of STSP to strive for moving toward a smart innovation and health science park.



Introducing smart and innovative technology into safety and health (currently 92.5%)

To simplify the operation of the Earthquake Early Warning and Smart Disaster Prevention System, the Bureau integrates the Earthquake Early Warning System, the Monitoring System and the Environmental Monitoring System as well as the chemical management system, and through big data analysis, information can be presented in Geographic Information System (GIS) and 3-D realistic mode, making it possible to provide rapid and effective information and suggestions for decision-making to reduce damage caused by the disaster.



STSP Industrial Safety E-paper



QRcode of STSP Industrial Safety E-paper



STSP Bureau sends the STSP Industrial Safety E-paper to its subscribers to publicize related information on occupational safety in the park. As of September, 2020, a total of 220 issues of the e-newsletter have been published since the issuance, with a total of 2,490 subscribers. The content of the e-newsletters includes the monthly labor statistics, business promotion of the labor inspection center, industrial safety news and health promotion column for the real-time updates of news and activities.

Increase health care penetration rate to 100% (currently 92.5%)

The Employee Clinic of Southern Taiwan Science Park is the first medical service team from private medical center to be introduced among government-developed industrial zone and science parks, providing medical services and health consultation for employees of park manufacturers and the neighboring residents. The Employee Clinic of Southern Taiwan Science Park provides timely professional consultation and epidemic prevention guidance for park manufacturers from pulmonary tuberculosis in the past, to SARS, H1N1, H5N1 and even to the outbreak of the COVID-19 pandemic this year. It provides a full range of medical services, successfully playing the role of family physician in the big family of STSP.

The firstly established workplace ecosystem in the health park combines the strengthening of workplace safety and health of the Occupational Safety and Health Administration of Ministry of Labor, the Healthy Workplace Certification of the Health Promotion Administration of Ministry of Health and Welfare, and Sports Enterprise Certification of the Sports Administration of Ministry of Education. In 2018, the “Health Park, The First Year of Sports” was promoted to establish a healthy workplace ecosystem in the science park. We invited Tai Tzu-Ying as the spokesperson for the year 2019 and 2020, and organized neighborly ball games and a monthly night run to create a healthy and sporty atmosphere at STSP.

We organize workplace health promotion counseling and established the STSP Safety and Health Counseling Team, which is composed of the physicians of the Employee Clinic of STSP, senior nurses of the park manufacturers and experts in the academic circle to provide on-site counseling on physical and mental management and protection of the workers in manufacturing and construction industries.

Regarding the Article 22 of the Occupational Safety and Health Act, medical personnel shall be employed or contracted in accordance with law to conduct health management, occupational disease prevention, health promotion, and other activities to ensure the health and protection of laborers

Statistics on the number of counseling in the plants for the past 3 years reached 200 (69 sessions for manufacturing safety and health, 90 for construction industry, 41 for health promotion projects). In addition, according to the statistics of the Labor Health and Protection Management Reporting Information System of the Health Administration of Occupational Safety and Health Administration of Ministry of Labor (as of the end of September, 2020), the overall health service rate of the science parks within STSP has reached 99.15% (the number of manufacturers that should employ or contract medical personnel was 90 to serve a total of 79,419 employees. Among them, 87 manufactures completed system filing, serving 72,979 employees. The service rate $72,979/73,419 = 99.40\%$).





100% coverage rate of chemical management exposure assessment and hierarchical management system (implementation rate reaching 95%)

According to statistics, as of 2020, the number of reported manufacturers was 233, and the reporting rate of chemicals amounted to 6,911 types. The management of chemicals are explained as follows.

- (1) When a business unit in the science park introduces investment, advocacy and review of occupational safety and health related matters are implemented. When the business unit has the plant building and land releasing meeting, the Bureau will remind the matters to be noted concerning construction safety and health before the construction. During the time after plant construction and before the commencement of mass production, propaganda, inspection, counseling, and joint inspections will be carried out to have a supervision and care in the entire process of the life cycle of the plant in the science park.
- (2) We have established the Chemical Management Reporting Platform and the Earthquake Early Warning and Smart Disaster Prevention System to control the chemicals of the park manufacturers and to enhance our disaster response capabilities.
 1. The Chemical Management Reporting Platform quickly grasps the location of storage, quantity and types of the chemicals comprehensively from the source, and there is a built-in CCB chemical graded management software to implement graded risk management and hazard prevention.
 2. The Earthquake Early Warning and Smart Disaster Prevention System integrates the environmental monitoring and chemical management systems, and by integrating the big data analysis of the monitoring of all systems, the disaster response capabilities of the science park can be improved.

(3) Follow-up Supervision Measures:

1. Implement labor inspections and cooperate with the fire brigade in the science park to implement joint inspection of public hazardous materials to compare the list of hazardous chemicals of the park manufacturers and the information registered in the Smart Disaster Prevention System. The deadline of information correction will be notified for inconsistencies found.
2. Every season, there will be dedicated personnel to hasten the registration of chemicals and verification. In addition, external experts and scholars are also appointed to provide counseling to manufacturers on chemical storage and supervision methods.
3. In the future, it will combine with functions of the IoT for automatic registry and the flow of chemicals.





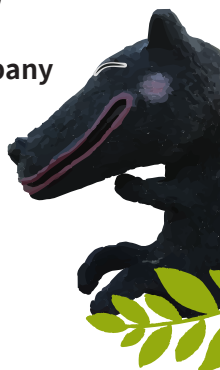
100% coverage rate of the self-management system of safety and health (implementation rate reaching 95%) and on-site counseling for the improvement of the safety of the working environment

Since the development of the Southern Taiwan Science Park, it has played a key position in the high-tech industry in southern Taiwan. As a result, STSP Bureau has been devoted to the disaster prevention and relief work through actively counseling and on-site inspection of the park manufacturers, which will effectively reduce the occurrence of occupational disasters and will be of great help in the protection of the life, safety and health of the employees in the science park. On-site counseling mainly targets at the key points in the construction and manufacturing industry in the science park. The more business units that are stationed in the science park, the more plants that are going to be built. Therefore, the construction companies are the focus of the counseling. Through on-site counseling and advocacy, we hope to reduce the occurrence of occupational disasters and to help with the establishment of contractor management. As for the manufacturing industry, business units with high risks or high frequency of occupational disasters will be targeted for the counseling of improvement to enable the park business units to attach importance to the improvement of the working environment and the safety and health.

In 2019, in response to the high frequency of occupational disaster in places with high risks, such as Class A and C dangerous workplaces and the construction sites in the park, we started to promote the “On-site Counseling of Occupational Safety and Health” by integrating resources in the industry, government and academia to form an Industrial Safety Counseling Team to assist with the implementation of self-management of occupational safety and health at high-risk places to reduce the occurrence of occupational disasters, with a total of 48 sessions of counseling in total, among which, 29 sessions were in the construction industry, 11 in manufacturing industry, 5 in labor physical and mental health management and protection, and 3 in 5-year reevaluation of Class A and C dangerous workplaces.



- ① Manufacturing industry/ Pan Asia Corp.
(Counseling on labor physical and mental health management and protection)
- ② Manufacturing industry/ TSMC F18 P3 Project
- ③ Phase 2 Plant construction project of Advanced Wireless Semiconductor Company
- ④ Phase 1 12-inch wafer plant of Winbond Electronics in Kaohsiung
- ⑤ Phase 3 plant construction project of Delta Electronics Inc.





4 | Services that Touch Your Heart

A total of 5 sessions of propaganda meetings were held, focusing on not only the explanation of the key points of on-site counseling but also the education and training concerning the amended ISO 45001, prevention of labor heat hazard of high-temperature that often occur in construction factories, regulations and prevention of confined space operations, how to implement health management within the business units and so on.

It is hoped that through the comprehensive propaganda meetings, the quality of the business units and the employees in the science park can be enhanced, their self-health management can be improved and the occupational disasters in the science park can be reduced, reaching a win-win-win situation.

The Bureau works together with the Public Health Bureau of Tainan City Government, Southern District Workers' Health Services Center, STSP Industrial Safety Promotion Association and other organizations to organize various health promotion activities, case counseling and prevention of infections diseases to ensure the health of the workers in the science park and the prevention of occupational diseases. In 2019, a total of 5 sessions training, seminars or related activities concerning work-related disease prevention and labor health were held.



∴ **Presentation of results of on-site counseling of the construction industry and seminar on common deficiencies** ∴



∴ **Presentation of results of health promotion in the workplace and discussion on the difference in occupational health nursing** ∴



∴ **On-site counseling of the results in each discussion group and suggestions for the future (comprehensive discussion)** ∴





Award coverage rate of excellent industrial safety reaching 100% (currently 92.5%)

The Bureau promotes occupational safety and health in the science park through advocacy, guidance and implementation of labor inspections to effectively improve the safety and health standards in the science park. Through the pre-assessment mechanism, the business units' self-management can be enhanced and the full participation mechanism can be expanded to promote the efficiency of the labor health and labor inspection, so as to construct a safe, healthy and humanized working environment. To publicly commend the business units and employees with excellent occupational safety and health management to encourage the improvement of workplace safety standards and promote labor health and safety so as to carry forward the diligent and sociable spirit and the excellent tradition of moral character, we commend excellent employees and business units every year. In 2019, 4 manufacturers and 10 employees in the science park won the award.



∴ Excellent business units and employees of national safety and health ∴



∴ Excellent business units of national safety and health implementation ∴



∴ Excellent employees of national safety and health implementation ∴



∴ Certificate of appreciation issued to manufacturers helping with the promotion of occupational safety and health related work ∴





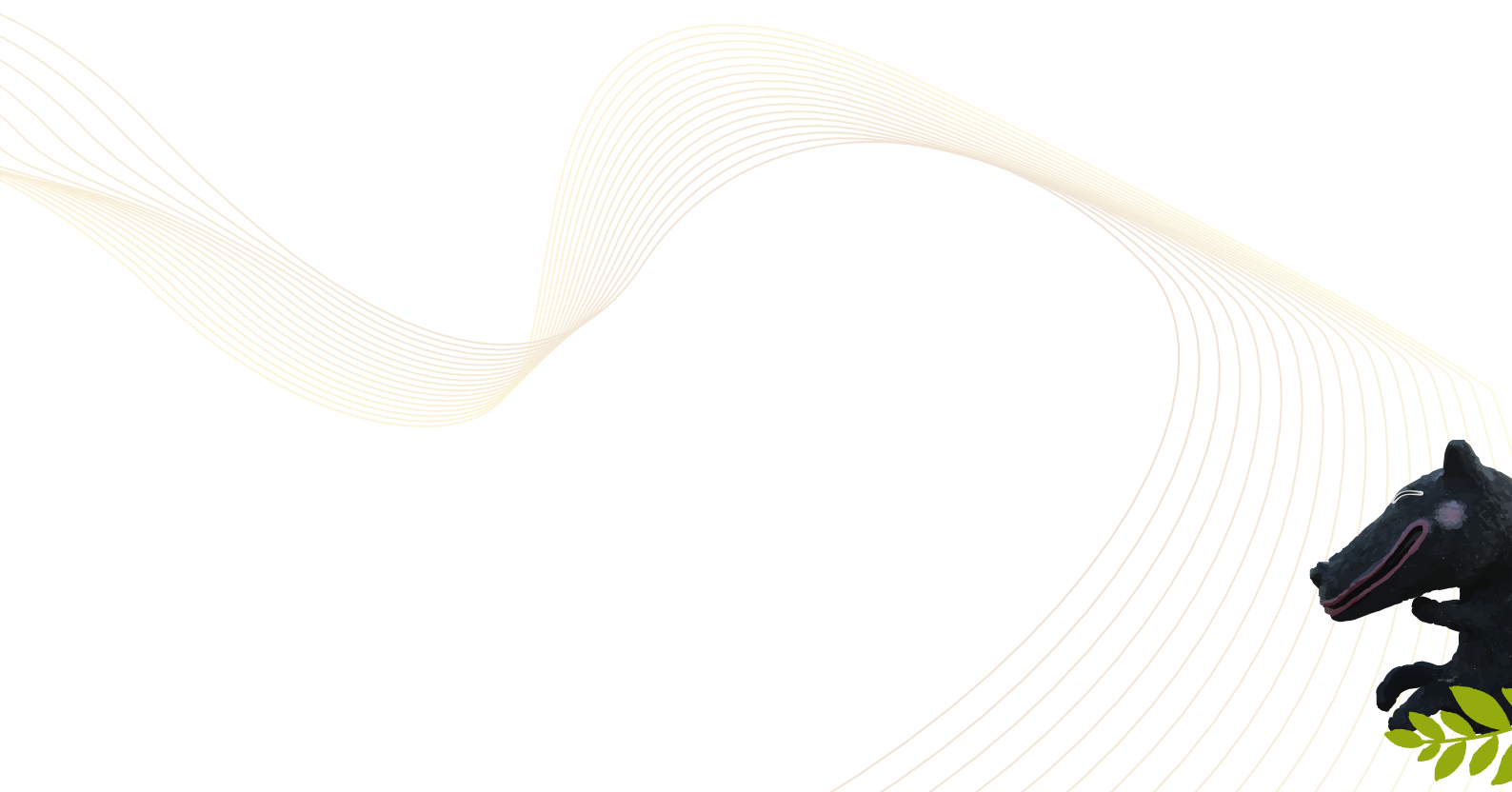
The death rate per million workers in major occupational disasters remains at 20 (reaching Japanese standards)

We have been devoted to the promotion of various disaster reduction plans and investigations to have thorough grasp of the high-risk places in the science park and advocate the importance of occupational disease prevention. To ensure the occupational safety of the workers, we further help the construction sites implement the establishment of self-management, which effectively reduces the potential disasters in the park while on the other hand improves the industrial safety standards in the science park.

In 2019, a total of 531 labor inspections were completed (including 411 sessions of occupational safety and health inspections and 120 sessions of labor condition inspections), with the achieving rate reaching 113%. The occupational disaster rate per thousand people in the science park in 2019 was 1.14, 24% lower than the 3-year average, reaching the target of disaster reduction.

Item	2016	2017	2018	2019
Occupational disaster rate (per thousand people)	1.39	1.6	1.39	1.14
Death rate of major occupational disaster (per million people)	38	0	0	39







5

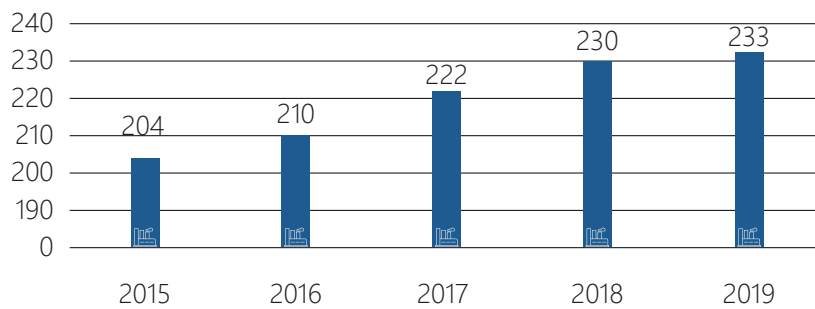
A Hub for New Ventures

- 5.1 Overview of the Park Development
- 5.2 International Exchanges
- 5.3 Industry-Government-University-Research-Medicine Project
- 5.4 Start-up Competition

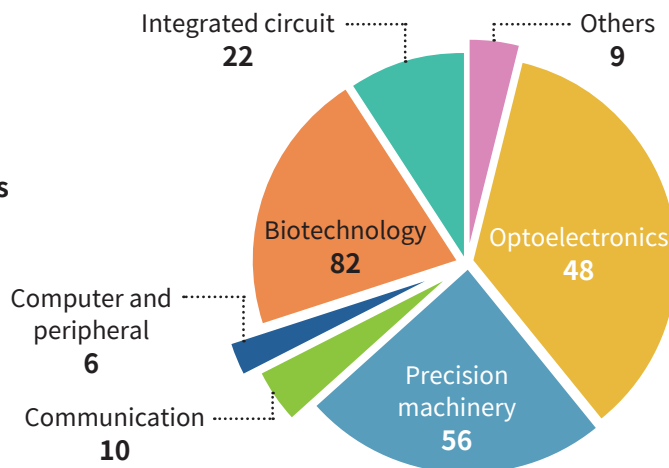
5.1 Overview of the Park Development

The high-quality environment of STSP attracts manufacturers at home and abroad. In 2019, 20 manufacturers (including 13 start-up companies) were introduced into STSP, with an investment amount of approximately NTD 4.18 billion. There were 16 plant construction projects in the same year. The cumulative number of validly approved manufacturers as of 2019 reached 233, showing that the investment attraction power of STSP continues to grow.

Number of validly approved manufacturers

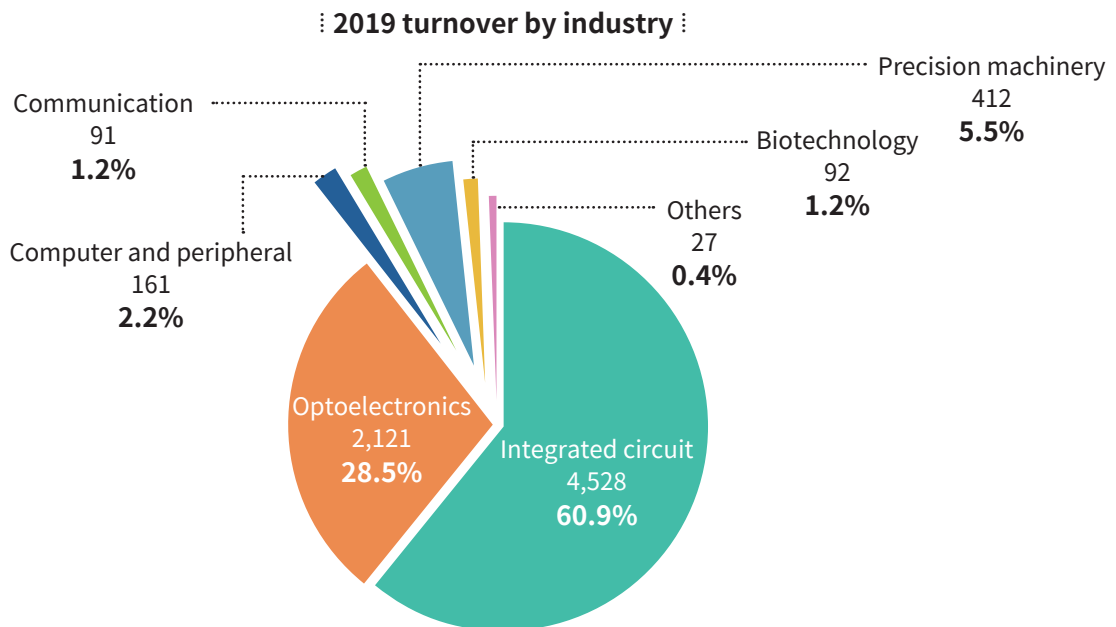


Number of validly approved manufacturers in 2019 by industry



The turnover of STSP in 2019 amounted to NTD 743.24 billion, a 6.59% decrease compared with the NTD 795.64 billion in 2018. This was because of the conversion of the clients' product manufacturing processes in the integrated circuit industry and the lack of large-scale expansion of new production capacity in the science park, leading to the slight decline in turnover.

The integrated circuit industry at STSP is internationally competitive for its advanced manufacturing technology, and the turnover of the integrated circuit industry accounts for the most ratio, amounting to NTD 452.8 billion, followed by the NTD 212 billion of the optoelectronics industry. The panel manufacturers are actively developing high-end technologies, focusing on the niche market and exploring niche products such as in-vehicle and X-ray flat panel detector and others to increase the gross margin.



Moreover, due to the US-China trade war, Taiwanese business people returned to Taiwan for investment, and some panel manufacturers also moved their TV module production lines back to Taiwan and applied automated production to enhance their competitiveness. Network & Communication Industry has increased production in Taiwan while the Computer and Peripheral industry had the most growth in turnover by 764.75%, followed by the 67.87% of the Communication Industry.

The annual import volume of STSP in 2019 reached NTD 194 billion, a 77% growth compared with the previous year while that of export reached NTD 425 billion, a slight increase of 2%. The total trade volume amounted to NTD 619.1 billion, increased by 17.7% compared with the previous year, with the annual surplus totaling NTD 231 billion.



Expansion of the Park Area

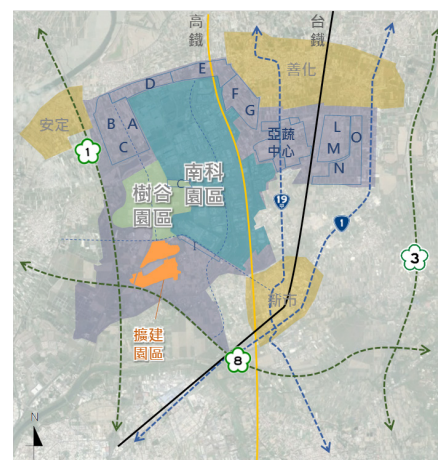
According to the land lease statistics, as of December, 2019, the lease rate of Tainan Science Park was 93.76% while that of Kaohsiung Science Park was 89.86%. To cope with the challenges of industrial development, the Bureau has prepared the industrial layout in advance to prepare land for industrial development and gather resources for industrial development.

The total area for Ciaotou Science Park development totals 262.39 hectares, and the land area for manufacturers to set up plants and production service facilities is approximately 164.27 hectares. This project is now in the 2-stage EIA process, and it is expected to allow potential investors to check out land and register in the second half of 2021. After the land is handed over by the Construction and Planning Agency in June, 2025, manufacturers will be able to enter the science park to establish plants. After the completion of construction, the annual output is estimated to be NTD 100~180 billion, providing 7,500~11,000 job opportunities.

In addition, the 3-phase expansion plan of Tainan Science Park is also launched, with a total area of 92.24 hectares, which can provide 46.46 hectares for plant establishment. Currently, the environmental assessment and changes in urban planning are being handled. The land is expected to be provided for manufacturers to enter and set up plants in 2023. After the completion of the construction, the output of the park is estimated to increase from NTD 7.6 billion in the initial stage to NTD 46.5 billion, with an annual output of NTD 42 billion averagely, providing 5,250 job opportunities.



¶ Vision map of Kaohsiung Ciaotou Science Park ¶



¶ Schematic diagram of the expansion of Tainan Science Park ¶

5.2 International Exchanges

STSP Bureau received 110 visiting groups from home and abroad and more than 3,000 important guests in 2019. The visiting groups included Japanese Junior Chamber of Commerce, Kaohsiung Office of Japan-Taiwan Exchange Association, Chinese Enterprise Economic and Trade Exchange Association, delegation of Sent Company from South Korea, CONCAMIN, FPT University from Vietnam, and Chung Cheng University, showing that STSP has become a very important stop for the clusters of technology industries in southern Taiwan and is highly recognized by all circles for its technological strength.

🌐 Visiting Groups

Jan.

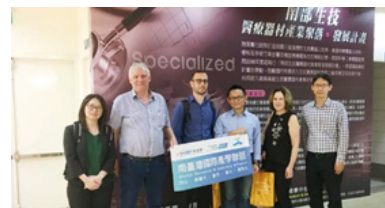
The visiting group of Japanese Junior Chamber of Commerce was led by Shen Fu-Mei, the General manager of Premier Restaurant in STSP.



Group photo of Japanese Junior Chamber of Commerce and Liang Yu-Ling, Section Chief of Investment Affairs Section (4th from left in the front row)

Feb.

The visiting group of Directors and Secretaries of Science and Technology Divisions was led by Hsu Hui-Huang, Director of Science and Technology Division, TECO in Hanoi, Vietnam.



Group photo of the visiting group of National Sun Yat-sen University Industrial Liaison Office (NSYSUILO) and the BaseCamp from Israel and Guo Ben-Cheng, Section Chief of STSP Industry-Academic Research and Development Section (1st from right)

Mar.

The visiting group of Canadian Trade Office in Taipei was led by the the Executive Director, Jordan Reeves.

The visiting group of International Business and Information Management Schools of University of Missouri was led by the Assistant Teaching Professor, Dr. Michael Wizniak.



Apr.

Visited by Vincent Chin-Hsiang Yao, Director-General, Department of North American Affairs, Ministry of Foreign Affairs.



Richard Chang, Director of Science and Technology Division, Taipei Economic and Cultural Office in Los Angeles (5th from right), Albert Liu, CEO of Kneron (4th from left), and STSP Bureau Director-General, Lin Wei-Cheng (5th from left)

May

Visited by Richard Chang, Director of Science and Technology Division, Taipei Economic and Cultural Office in Los Angeles and Albert Liu, CEO of Kneron.

The visiting group of Kaohsiung Office of Japan-Taiwan Exchange Association was led by the the Director General, Mr. Kato Eiji.



Group photo of the Special Talent Class on Resilient City: 2019 Taiwan-Thailand Resilient City Project and STSP Bureau Director-General, Lin Wei-Cheng

June

A visit to Chinese Enterprise Economic and Trade Exchange Association led by Miao Ai-Jun, the Deputy Director-General of Men Tou Gou Qu Trade and Investment Promotion Agency.

Kangshan Agricultural & Industrial Vocational Senior High School and the friendship visiting group of Palestinian Enterprises was led by NADER S. S. KHATIB, Chairman of Dead Sea Pearls

July

The visiting group of Directors and Secretaries of Science and Technology Divisions was led by Tsai Chin-Chun, Director of Science and Technology Division Taipei Representative Office in the EU and Belgium.

The visiting group of Sent Company from South Korea was led by Lin Xiong-Lie, the chairperson of the company.

Aug.

The visiting group of Leaders of the Assembly of the State of Florida and Puerto Rico was led by Eagle Dane, the majority leader of Florida House of Representatives and Vice-Chair of Committee on Appropriations.



Group photo of visiting group of leaders of the Assembly of the State of Florida and Puerto Rico and STSP Bureau Deputy Director-General, Su Chen-Kang (5th from right)

Visited by the Lithuanian and Latvian Parliamentary Committee on Foreign Affairs led by Egidijus VAREIKIS, the Vice-Chair of Lithuanian Parliamentary Committee on Foreign Affairs.

Visited by the European Economic and Trade Office led by the Deputy Director-General, Thomas Jürgensen.

Sep.

Visited by American Institute in Taiwan led by Dannielle Andrews, the Economic Section Chief at AIT.

Visited by Anhui Investigation in Taiwan led by Xu Gang, the expert from Dept. Of Human Resources and Social Security of Anhui Province and Vice Director of International Talent Exchange Service Center.



Visited by Christlich Demokratische Union Deutschlands from Schleswig-Holstein Parliament led by the Chairperson of the party, Tobias Koch.

Oct.

Visiting group of FPT University of Vietnam and Chung Cheng University (CCU) led by Dr. Chun-Ping Jen, the Director of the Division of International Development of CCU Office of International Affairs.

Visited by Vietnam Economic and Cultural Office in Taipei led by Director Mr. Nguyen Anh Dung.

Nov.

Visited by the Silesian Technical University from Poland led by the president, Mr. Arkadiusz Mezyk.

Science and Culture Tour in STSP by members of ASPA 2019.

Visiting group of Taiwanese Investment in Thailand led by Kuo Hsiu-Min, Vice President of Thai-Taiwan Business Association.



Group photo of the visiting group of Taiwanese Investment in Thailand and the STSP Bureau Deputy Director-General, Su Chen-Kang

Visiting group of Canadian political and economic leaders of 2019 led by Edward Tao, Direction Chief of Taipei Economic and Cultural Office in Canada.

Visited by Israel Economic and Cultural Office in Taipei led by the representative Omar Caspi.

Dec.

Visiting group of Croatian Congress led by Congressman Mario Habek.

Visiting group of CONCAMIN led by the Vice President Manuel Perez Cardenas.

Visiting group of the Republican Party from Arizona State led by the Chairperson Keili Ward.





Investment Attraction

To continue the promotion of the development of high-tech industries in Taiwan, STSP has been devoted to attracting domestic and foreign investments and jointly made Joint Investment Promotion Briefing to promote Taiwan’s high-quality investment environment to expand business opportunities for Taiwan.



Press conference (from left to right): Tu Chun-Yi, Deputy Director General of MOST, Lin Wei-Cheng, STSP Bureau Director-General, Chen Jiun-Rong, Chief of Science and Technology Division, Hsu Yu-Chin, Deputy Minister of MOST, Wang Yong-Zhuang, Director-General of Hsinchu Science Park Bureau, and Chen Ming-Huang, Director-General of CTSP Bureau

Investment Promotions Briefings in Japan by Three Science Parks Led by Ministry of Science and Technology (MOST)

Deputy Minister of MOST, Hsu Yu-Chin, led the Bureaus of Hsinchu Science Park, Central Taiwan Science Park and Southern Taiwan Science Park to Japan during Jan. 21 and 26 in 2019 to attract investment. During the period, visits were paid to 6 semiconductor material suppliers and 1 biotechnology manufacturer, and 1 session of investment promotion briefing in Tokyo and Osaka each were held, attracting more than 180 manufactures with more than 300 participants. During the trip in Japan, visits were also paid to the following international semiconductor materials and biotechnology manufacturers in Japan.



● JSR Corporation

The company applies its original macro-molecule technology and expands it to semiconductor, display, optics and other industries. The information and electronic materials are the core of the company's growth.

● Asahi Kasei Corporation

The company's electronic business includes Asahi Kasei Microdevices Corp, supplying semiconductor-related materials and parts to large enterprises.

● Mitsubishi Chemical Corporation

Mainly produces materials and cleaning solutions needed for the production in the upstream process of semiconductor industries and also supporting materials for LCD panels.

● Sumitomo Bakelite Co., Ltd.

Provides the key semiconductor packaging materials for the world's largest professional chemical trading company.

● Nagase & Co., Ltd.

Provides Epoxy Molding Compound for the largest manufacturer in Japan and also provides semiconductor wafer processing materials.

● Nitto Denko Corporation

With the basis of polymer materials, the company applies it to displays, semiconductors, transportation, biotechnology and water treatment. It is also committed to the next generation of information transmission and research and development of more high value-added products.

● Sysmex Corporation

A global prestigious clinical laboratory equipment and comprehensive solution provider that develops in vitro diagnosis and genetic testing technology for cancer treatment.



● The Initiation of Investment Promotion of Ciaotou Science Park

Ciaotou Science Park Investment Promotion Briefing and Industry-University Collaboration Results Presentation was organized on Dec. 25, 2019, participated by 25 universities, 56 manufacturers and more than 200 participants. Vice Premier, Chen Chi-Mai and Deputy Minister of MOST, Hsu Yu-Chin, also attended this event. The investment promotion was officially launched in this event, and representatives of manufacturers, including ASE Group, YAGEO, Brogent Technologies Inc., Wah Hong Industrial Corp., ThinTech Materials Technology Co., Ltd, Top High Image Corp., and Longwalk Biotech Co., Ltd. jointly signed the Letter of Intent for Investment.

There was also an interactive theme pavilion, showing the results of 15 industry-university-research collaborations, allowing the participants to experience the capacity gathered from the industry, university and research institutes and to feel the potential for future development. Ciaotou Science Park will drive a new wave of investment, expecting to create an annual turnover of NTD 180 billion and 11,000 excellent employment opportunities, driving the upgrade of local industries and clustering effects. Currently, STSP Bureau has been actively planning the layout of investment attraction. The Academia-Industry Consortium of the Ciaotou Science Park established by NSYSU will work closely with the Bureau for investment attraction operations, creating a technology corridor from Tainan to Kaohsiung, making STSP the locomotive of the industrial development in southern Taiwan.



∴ Signing of Letter of Intent for Investment by renowned enterprises ∴

5.3 Industry-Government-University-Research-Medicine Project

STSP Smart Biotech Medical Cluster

After a decade of active operation of the cluster of medical device industry at STSP, the products of the medical device manufactures have successively passed the TFDA and GMP certifications from Ministry of Health and Welfare, CFDA from China, FDA and CE certifications from abroad. To support the manufacturers to take root and have steady growth locally and to lead the medical device cluster to step toward the international stage, it is imperative that we help manufacturers implement strategies to break through the difficulties in marketing.

Objectives of the project

- To construct a STSP-centered medical device cluster with characteristics
- To develop innovative technologies or products focusing on smart biomedicine
- To promote trust- based clinical experience
- To establish an integrated industrial alliance- based marketing model

STSP

- ◆ ACRO Biomedical- Artificial cornea
- ◆ Dermacare- Bipolar electrosurgical unit
- ◆ InnoCare Optoelectronics Corp.- X-ray machine
- ◆ Viarich Biotechnology- PRP (platelet-rich plasma) blood collection tube
- ◆ Ducolege Biotechnology- Biomedical grade collagen
- ◆ Lemen Bioscientific- Fludeoxyglucose F18 Injection
- ◆ SIDSCO Biomedical- Commissioned preclinical experiment

Academic research corporation

- ◆ Metal Industries Research & Development Centre- TransMedx Accelerator
- ◆ National Yang Ming University – Digital Dentist Teaching Demonstration Center
- ◆ Taipei Medical University- Education and Training Center for Dental Medical Devices
- ◆ Kaohsiung Medical University- IRB Clinical Trial Operations
- ◆ Kaohsiung Medical University Hospital- Asia Orthopedic Industry and Research Training Center



Specialty

- ◆ Kaohsiung Veterans General Hospital- 3D printing medical device experience visiting

To facilitate the development of STSP Smart Biotech Medical Cluster, the Bureau continues to promote the development plan for the STSP Smart Biotech Medical Cluster. In 2019, there were 44 applications and among them, 24 were chosen and subsidized, and the total amount of subsidies approved amounted to NTD 106,700 thousand. At the end of 2019, there were 82 manufacturers in total, with the turnover reaching NTD 9.186 billion. It is planned for park manufacturers to participate in events and exhibitions, and through cross-boundary cooperation among industry, academia, research and medical cluster, key resources can be integrated with increased technological momentum, accelerating the commercialization of medical devices. In addition, featured teaching centers are also used to establish trust in domestic medical devices.



∴ Signing ceremony between Tri-Service General Hospital and ACRO Biomedical Co. Ltd. ∴



∴ Opening ceremony of the Digital Dentist Teaching Demonstration Center of National Yang Ming University ∴



∴ Cooperation agreement signing ceremony of the 3D printing medical device experience visiting ∴



∴ Group photo of distinguished guests in TransMedx Accelerator Forum ∴

❖ Opening of iBIOMED FLAGSHIP HALL in STSP

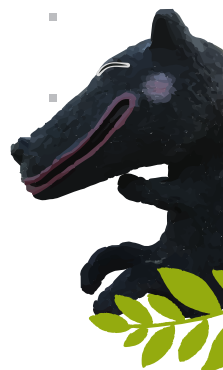
The grand opening of the iBIOMED FLAGSHIP HALL built by STSP Bureau was held in the Kaohsiung Science Park on Dec. 17, 2019. With a decade of development, the biomedical industry started the planning and integrated the software and hardware since October and has established this iBIOMED FLAGSHIP HALL to show the achievements of the cluster while assisting the manufacturers in the promotion of the latest products. Different from the previous Showroom of Medical Devices a decade ago, the newly added History Area, Interactive Projection Area of



❖ The opening of iBIOMED FLAGSHIP HALL in STSP ❖

the Manufacturers Directory System, Smart Biomedical Theme Display Area and Business Negotiation Area in the new display space make the entire space more interactive and fuller of diversity.

In addition, there will no longer be restrictions on the exhibit setup. Through the combination with other units and park manufacturers, a series of small-scale exhibition can be organized in the Theme Area, facilitating the match-making exchanges between manufacturers and the research and medical circles, enabling more manufacturers, physicians, professors and VIPs to jointly use this space together. After the grand opening, different themes will be exhibited at iBIOMED FLAGSHIP HALL, such as AI smart healthcare, regenerated medicine, minimally invasive surgery and other latest elements in the medical technology in Taiwan as the result presentation venue for all fields.



❖ Subsidy Program for AI_Robot Base at STSP

To encourage new ventures, academic and research institutions and companies in southern Taiwan to invest in the AI robot related product technology development, self-manufacturing and innovation and entrepreneurship activities, STSP Bureau officially initiated the 2019 Subsidy Program for AI Robot Base at STSP and held the project application briefing session. The highest subsidy was up to NTD 2 million for new ventures and NTD 5 million for academic and research institutions, aiming at linking the facilities and resources of AI_Robot Base at STSP to facilitate the development of innovation and the commercialization of AI_Robot related achievements, bringing in more AI talents and industrial development.



- ❶ Project application briefing session in Taichung, May 8, 2019
- ❷ Project application briefing session in Taipei, May 13, 2019
- ❸ Project application briefing session in Tainan, May 15, 2019

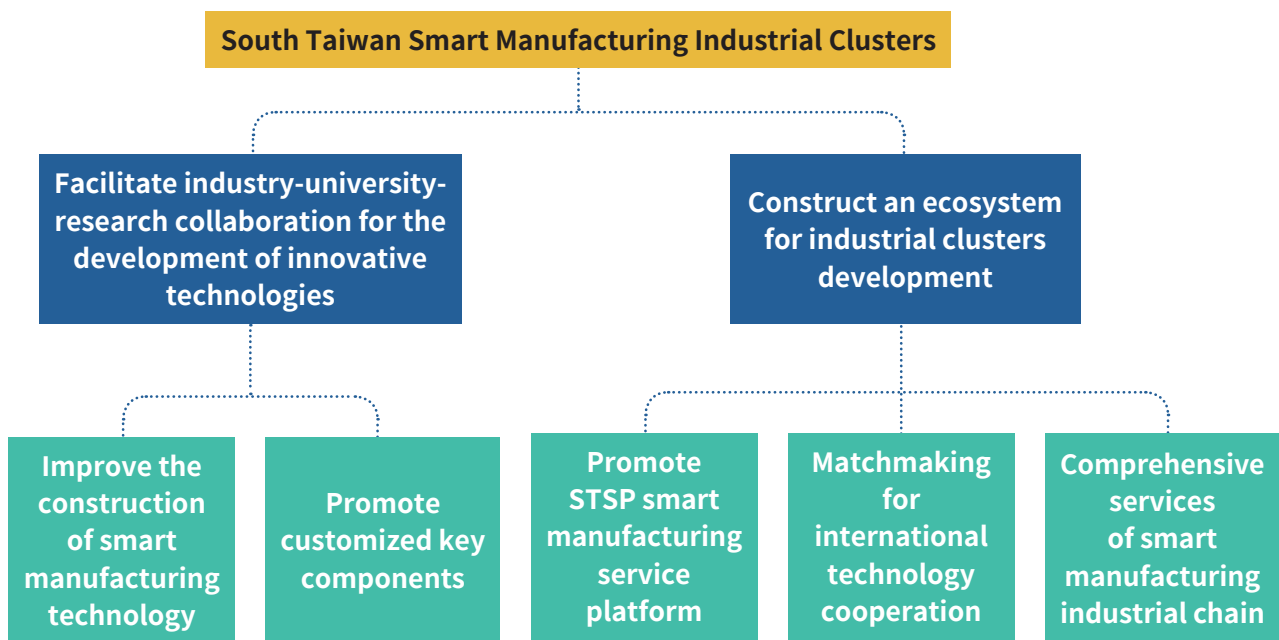
The scope of the subsidy program in 2019 included smart biomedicine, smart manufacturing, drones, Fintech, smart agriculture, AIoT, AR/VR or other fields related to AI or robotics. There are 2 types of subsidies, and the execution period of this program is scheduled to be half a year.

∴ 2019 results of approved subsidies ∴

Type of subsidy	Number of recipients	Total amount of subsidy
Academic research institutions	5	NTD 15 million
New ventures	17	NTD 29.069 million

∴ South Taiwan Smart Manufacturing Industrial Clusters

STSP Bureau started to promote the South Taiwan Smart Manufacturing Industrial Clusters Project in 2017, focusing on assisting the production line of park manufacturers to step toward Smart Automation. By integrating the virtual and actual manufacturing resources to provide comprehensive services, we aim at assisting park manufacturers with the upgrade of smart manufacturing to attract advanced smart manufacturing industrial chain to STSP, forming a cluster of smart manufacturing at STSP.





5 | A Hub for New Ventures

When we build smart manufacturing, importance should also be attached to the method of strengthening the information security of IIoT. In view of this, STSP Bureau, Taiwan CIO Association (CIO) and Economic Development Bureau of Tainan City Government jointly organized the 2019 Manufacture CIO Forum on November 29, and NCKU Intelligent Manufacturing Research Center, Precision Machinery Research & Development Center, Nutanix, Solomon, ASUS, Aruba and others from the industrial and academic institutions from home and abroad were invited to share relevant solutions for Industry. 4.0 and Smart Manufacturing and the information security issues of its IIoT to enable the participating manufacturers to understand how to accelerate upgrade and transformation of high-tech industries by using smart manufacturing technology, and how to take into account the security threats it may bring.

In the future, Taiwan CIO Association will continue to organize the Manufacture CIO Forum in southern Taiwan. We hope that by strengthening the smart manufacturing and the information security technologies of the industries in the south, Taiwan can become an R&D and manufacturing center for key components of smart machinery and high-end equipment. We also hope that this can further help promote the overall industrial upgrading and transformation of Taiwan, enabling it to step toward smart manufacturing.

The Bureau encourages industry-university-research collaboration for innovative technology development in the south through the subsidy program of the “South Taiwan Smart Manufacturing Industrial Clusters”. In addition, through the smart manufacturing service platform, we help those who are in need to get ideas from the concept so as to accelerate product development of manufacturers and construct an ecosystem for the development of industrial clusters. In 2019, there were 4 subsidy programs in total, with the total subsidy amounting to NTD 14.658 million.

∴ List of subsidy projects of 2019 South Taiwan Smart Manufacturing Industrial Clusters program ∴

Type	Name of Institution	Name of project
R&D	Chung Yo Materials Co., Ltd.	Application of smart manufacturing technology to improve the yield and productivity of 3D printing metal power process
	Realbone Technology Co., Ltd.	Smart manufacturing and monitoring technology development project for key process of resorbable injectable bone graft substitutes
	AsiaGen Corporation	Smart automation upgrade project for the packaging process of cassette-type dengue fever rapid test kits
Type	Industrial Technology Research Institute (ITRI)	Factory of Intelligent Additive Manufacturing Medical Devices (FoiAM-MD)



⌋ Smart manufacturing equipment for cassette-type dengue fever rapid test kits ⌋



⌋ FoiAM-MD ⌋

⌋ Technology Upgrade Promotion Program for Aerospace Critical System in STSP

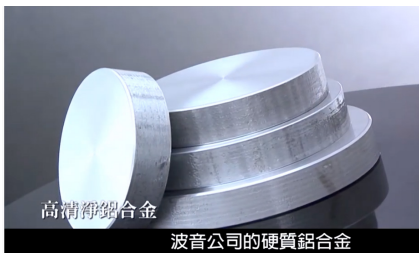
Southern Taiwan is an important town for domestic aerospace industry development. However, the aerospace industry has been developing silently under the light of the technology industries. To connect the momentum of the aerospace industry in the south for the formation of the aerospace industry cluster, the Bureau has visited the industry to listen to opinions, striven for budgets and sought support from various units. In 2017, we successfully secured a 4-year flashflag project, the very first and only project dedicated to the aerospace industry in Taiwan, encouraging manufacturers to invest in independent research and development of aerospace technology so as to construct a great academic and research environment and integrate the R&D energy in the academia so as to establish a R&D platform to foster professional talents and further to enhance our competitiveness in aerospace industry to develop an aerospace industry cluster.

In 2019, the total amount of subsidies amounted to NTD 36.66 million, and the subsidies were provided to manufacturers for the upgrade of key system technologies and aviation certification. A briefing was held to call for projects on Jan. 15, 2019, and the result presentation was held on Apr. 16 the same year at STSP Bureau, with a total of 16 manufacturers gathering together to present outstanding results. In such a lively event, STSP Bureau also announced its cooperation plan with Kaohsiung-Pingtung-Penhu-Taitung Regional Branch of Workforce Development Agency to jointly cultivate talents in the aerospace industry.



5 | A Hub for New Ventures

Since the promotion of the program, we have facilitated the upgrade of technological level of 12 aerospace manufacturers, the entry to the science park for 3 manufacturers and plant expansion for 3 manufacturers. We have facilitated NTD 3.06 billion of investment in total, an increase of NTD 1.63 billion in the output value, helped obtained 106 certificates and contributed to a number of international collaborations, industry-university cooperation and internships in aerospace enterprises. The development of Taiwan's aerospace industry is promising. STSP Bureau will seize this crucial opportunity to cooperate with our corporate partners to jointly establish a supply chain of the aerospace industry in southern Taiwan to strive to get a share in the global aerospace market.



‡ Taiwan Hodaka Technology enters Boeing Company's supply chain of aluminum alloy materials ‡

🌐 Taiwan Hodaka Technology

Through the project and with the assistance of the Boeing Company, it has obtained the qualification of Boeing's raw material supplier in just 2 years, making it the very first aluminum alloy material manufacturer in Taiwan to officially enter Boeing Company's supply chain. Assistance for the application for NADCAP, accreditation for special processes in the aerospace industry, will also be provided.



‡ Assisted Gudeng to enter the supply chain of aerospace actuators for the American manufacturer, Parker Hannifin ‡

🌐 Gudeng Precision

Gudeng Precision has long been cultivating in the US semiconductor market. Because of the contact with the major US manufacturer, Parker Hannifin, it was found that the core technical capabilities of Gudeng could be utilized in aerospace industry. This project helped Gudeng Precision apply for AS9100 certification, and assistance for the application for NADCAP, accreditation for special processes in the aerospace industry, will also be provided.

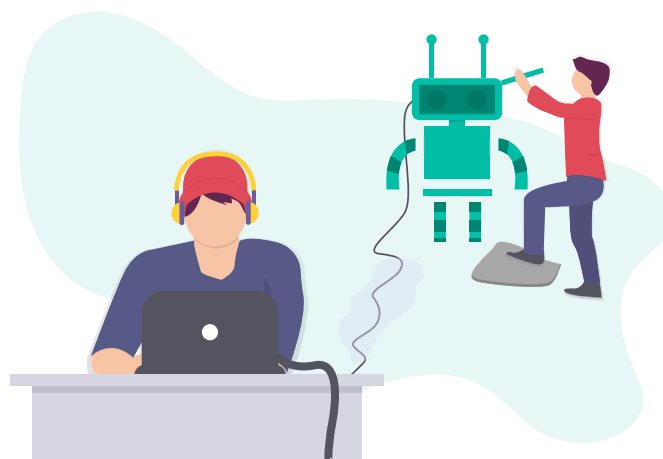
❖ R&D Piloting Cooperation Projects between Industries and Academia at STSP

STSP actively encourages the park manufacturers to work with academic research institutions, and through the integration of industry-university resources, joint investment can be made in heterogeneous industrial integration and research of key technologies to accelerate the cross-domain integration of industries and the formation of industrial clusters, stimulate industrial differentiation and high added value of the science park as well as cultivate high-quality R&D talents required by the industry.

The deadline of the application for the 2019 R&D Piloting Cooperation Projects between Industries and Academia at STSP was April 30, 2019. After rigorous, open and fair review operations of qualification review, written document review, briefing review, and the resolution review meetings, the final decision was made to approve subsidies to the R&D projects of 6 manufacturers in biotechnology, optoelectronics and precision machinery, with a total subsidy amount of NTD 28.17 million.

❖ Approved subsidies of the 2019 South Taiwan Smart Manufacturing Industrial Clusters program ❖

Name of manufacturer	Name of academic research institution
ACRO Biomedical	National Defense Medical Center
Synbio Tech	National Cheng Kung University
Innolux Corporation	National Sun Tat-sen University
InnoCare Optoelectronics Corporation	National Chiao Tung University
Taiwan Aerogel Technology Materials Co., Ltd.	Kun Shan University
Control Technology Co., Ltd.	National Kaohsiung University of Science and Technology

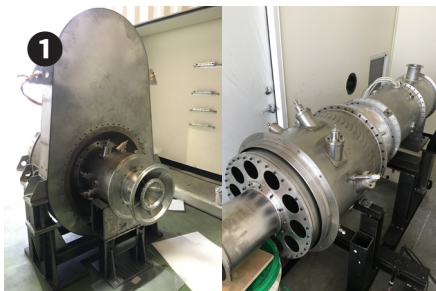




❖ The Promotion of the Green Energy Flagships Project to Integrate the Industry-Academia-Research R&D Alliance

The Bureau plans to promote the Green Energy Flagships Project to Integrate the Industry-Academia-Research R&D Alliance, focusing on the fields of energy generation, energy conservation, storage and system integration to encourage local industries to lead the R&D alliance and facilitate the integration of the midstream and downstream of the supply chain, linking the existing R&D results of academic circles and research institutions for the promotion of the upgrade of key technologies to modular or systemized products, so as to increase the usage rate of new energy in Taiwan and enhance our competitiveness of the green energy industries.

A total of 51 systematically integrated items were produced in this project, creating 555 jobs, driving an investment of more than NTD 1.18 billion, increasing the output value by more than NTD 580 million, obtaining 29 papers and 15 patents, contributing to 5 first technologies domestically, and introducing products of 6 manufacturers into the international market.



- ❶ Gongin Precision Ind. Co., Ltd. has become one of the suppliers of the low-orbit satellite components of Space X.
- ❷ Enlitech has upgraded its technology to Class 3A+, the international first-class technology of solar simulator, and its products have been marketed to the U.S. and China.



5.4 Start-up Competition

Realizing Dreams at AI_ROBOT Base at STSP

Since MOST's promotion of AI policy in 2017, STSP has combined the advantages of the industrial clusters to build the AI_ROBOT Base at STSP to deepen, upgrade and expand strategies for joint efforts in professional talent cultivation and the development of smart technology. In addition, we also introduced an accelerator to promote Taiwan AI x Robotics Accelerator (TAIRA), provide experiment fields and services of counseling resources, business model planning and matchmaking of investments. In 2019, we counseled 25 start-up teams and cooperated with 12 big corporations, and we also continuously helped start-ups expand channels and match business opportunities. We successfully assisted these start-up companies in obtaining orders from STSP manufacturers, facilitating investment of a total of NTD 60.90 million from investment institutions and angel investors.



Smart Manufacturing Battle Alliance



Drone training

From IP to IPO Program (FITI)

STSP Bureau established the Start-up Workshop in 2013 to actively assist and train the start-up teams to participate in From IP to IPO (FITI), focusing on areas of biomedicine, innovative technology and design and information application and services, and each session is 6-month long. It is hoped to link the entrepreneurial counseling resources at home and abroad to help the young generation of students to start the path toward innovation and entrepreneurship through 6 months of systematic training, which can further boost the entrepreneurship trend in Taiwan. As of the end of 2019, a total of 215 start-up teams received the counseling, 83 teams established start-up companies, 9 teams entered the Incubation Center of STSP, and 14 teams entered the scientific industry in the science park, gradually expanding the innovation and R&D capacity at STSP.



The first session ended on June 21, 2019, and 5 teams receiving the counseling in STSP Start-up Workshop were selected the finalists. Among the 5 teams, “The CEOs” won the Excellent Entrepreneur Award and NTD 2 million of entrepreneurial grants. The other 4 teams, including “Lalalocker”, “IEM Systems”, “Gus Technology (GT)” and “Kaviiland” won the Entrepreneurial Potential Award.

∴ 2019 FITI winning teams in the first session ∴

Excellent Entrepreneur Award

The CEOs come from National Cheng Kung University. They researched and developed microalgae biological preparations that can decompose organic matters in wastewater when added into industrial and livestock wastewater to remove suspended solids, oil, organic pollutants and so on. Algae bacteria can also be developed for value-added applications such as biomass fuel, liquid fertilizers, feed additives and so on. It is hoped that this innovative green energy water technology can lead the world to step toward a new generation of green gold.

Lalalocker can help those travelers having difficulties finding a locker to store their luggage to locate a place to put their luggage. Users just have to tap on the APP to find the nearby chick-in point, fill in the reservation and pay online, the inconvenience of dragging the luggage can be solved, enabling travelers to travel empty-handed and at ease.

IEM systems is from the team of creative gaming system in National Kaohsiung University of Science and Technology, and developed drones to provide search and rescue services in the event of natural disasters. Assistance services can be provided for regional safety after the disaster. Drones can also automatically report the location and information of the victims which can be tracked day and night, increasing the rescue efficiency and greatly reducing the costs of air rescue.

Entrepreneurial Potential Award

Gus Technology (GT) is composed of a team of doctors from Academia Sinica. GT has developed 40Ah nickel-rich and lithium-rich manganese soft-packed lithium battery cells, characterized by its high safety, high discharge rate and long life cycle. The energy density of the battery cell can reach 250Wh/kg. The team targets at the niche electric vehicles and energy storage market, and it is expected to move toward high-end high power lithium battery market in the future.

Kaviiland specializes in the sales and processing of fresh fruits in Taiwan. The fruit purees available in the market are mostly Asian fruits exported to Europe for processing and then imported back to Taiwan, which not only are expensive but also contain chemical additives. Kaviiland directly selects and processes fruits at the place of production. Its own cold chain technology is used to retain the aroma and flavor of the fruits and then the fruits can be processed to make fresh fruit raw materials, aiming at making Taiwan, the “Kingdom of Fruit” famous for another name of “Kingdom of Purees”.



∴ Group photo of STSP's 5 award-winning teams in FITI ∴

The top 5 of the second session of 2019 FITI was finalized on Nov. 29, and 8 teams from STSP were listed among the top 18, presenting great results. Among them, 5 teams of STSP even won the Excellent Entrepreneur Award and the entrepreneurial bonus of NTD 2.75 million.

∴ 2019 FITI winning teams in the second session ∴



GoodLock is from Kaohsiung Medical University. It has developed a universal antibody lock that can improve the side effects of antibodies by using the “Hinge” structure of the antibody itself to function as the lock. In normal tissues, the activity of antibody-drug will be inhibited by the antibody lock, and this lock can only be unlocked and removed when encountering the unlocking tool, a unique enzyme in the diseased area, and the antibody-drug will restore its original efficacy, and thereby, reducing the side effects of the antibody-drug and improving the safety of the patients’ medications.

Fun Lead Change has adhered the concept of “leading reforms with fun and redefining waste resources”. Its ECOCO brand uses OT technology to combine online and offline services. Through innovative and intelligent high-tech recycling technology and through environmental education and interesting user experience, the literacy of environmental protection of the public can be effectively improved, upgrading the current resource recycling model.

The APP 7Cplay started from the games market in Taiwan and it has built an APP of matchmaking platform for e-sports players, enabling every player who wants to play games to find online partners to form a team or to play the games with. This model is expected to be expanded to Southeast Asia and the United States.

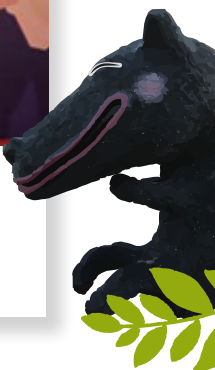
GI Ranger established the brand “Dr. Andrew” for healthy pet food. The highly efficient herbal formulation of GI Ranger is specially for diarrhea in dogs and cats. Since 2019, GI Ranger has cooperated with Professor Lin Chen-Si of School of Veterinary Medicine of National Taiwan University for clinical case studies, and the diarrhea improvement effects on dogs and cats have been proven by more than 10 clinical cases with no hepatic toxin, showing good effects on the maintenance of intestinal health. The goal of the team is to develop products for pet intestinal health and functional feed additives.



∴ GoodLock won the Excellent Entrepreneur Award ∴



∴ ECOCO won the Entrepreneurial Potential Award ∴



STSP Bureau, STSP Start-up Workshop, National Cheng Kung University and other major universities in southern Taiwan have established cooperative partnerships over the years. Through the resources for innovation incubation, new start-up teams were cultivated from 0 to 1. In addition, by combining the resources of the AI_Robot Base at STSP, establishing a mechanism of entrepreneurial guidance, introducing product trial production resources, assisting in the commercialization of innovative ideas of the teams, linking large park manufacturers with the start-up teams for technical guidance, and exploring market demands and product cooperation development, the vigorous development for start-ups is jointly promoted.



❖ Stunning Performance of STSP Start-up Teams at Consumer Electronics Show (CES)

Consumer Electronics Show is not only an arena for technology but also a great stage for exposure of start-up teams. STSP Bureau provided guidance to 3 teams to go on the international stage of CES on Jan. 9, 2019, presenting their innovative technologies in this pilgrimage event for technology industries in the world.



🌐 Brilliant Optronics

With the novel smart window technology, Brilliant Optronics took the initiative in developing versatile and multi-stable smart window technology. In addition, there was also a breakthrough in the process technology to combine Roll to Roll processing of flexible substrate, greatly reducing the costs while increasing its competitiveness. It showcases larger smart buildings based on the 40*50cm film to attract more resources and investment for the next development.

❖ Brilliant Optronics CEO, Cheng-Chang Li, explains the multi-stable smart window film to a visitor at CES ❖

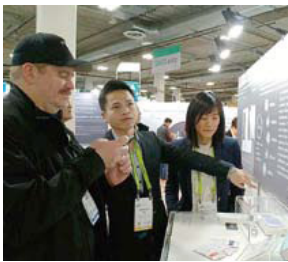




FlipWeb

FlipWeb is a marketplace for buying and selling digital and online assets, such as websites, APPs, e-commerce, major network platform accounts, and IPs. Different introductions of different online assets are created to meet the different needs of customers.

FlipWeb CEO, Ke-Wei Lin (Right) explains to a foreign buyer how the platform works.



Taiwan User-Friendly Sensor & Tech

IoT of Food Allergen Detector, the food allergen detection device developed is combined with the APP system, allergen extraction kit, sensor chip and allergen signal reading device. It uses the feature of IoT to rapidly establish a network for food safety that allows the users to carry with them when going out. It can quickly and accurately detect within 10 minutes, allowing those who are allergic to food to eat at ease.

Taiwan User-Friendly Sensor & Tech Co-founder & Consultant, Chen-Han Huang (middle) explains the technology of the IoT of Food Allergen Detector.

STSP Bureau established the Start-up Workshop in 2013, providing a field for start-up companies and investing new resources for entrepreneurial counseling. This time, with the start-up teams exhibiting products at the Consumer Electronics Show, start-ups counseled by STSP Bureau could have this great opportunity to step onto the international stage to enhance the international links and understand the trend in the international market.



The Start-up teams led by MOST displayed their products in the Taiwan Tech Arena of Eureka Park at CES.





❖ Taking Roots and Supporting FIRST Robotics Competition (FRC) Teams

FRC, FIRST Robotics Competition, is one of the most famous and difficult robotics competitions in the world. The qualifications of participants are limited to students aged between 14 and 19, and the competition is mainly held to encourage students to investigate and research in scientific ways and to design robots by themselves. The results of the FRC competition are even used as reference for admission by Ivy League Schools in the United States.

Through international competitions, communities and courses held at AI_ROBOT Base at STSP, the software and hardware integration and innovative application are integrated to accelerate the cultivation of talents needed in smart robot related industries in Taiwan to enhance our international competitiveness. In March, 2019, the Global Regional FIRST Robotics Competition started one after another, more than 3,000 teams, 9,000 students from 33 countries participated in this grand event. The number of participating teams in Taiwan increased from 3 in 2017 to 20 in 2019. The Flag Presentation Ceremony and Farewell Party for 2020 FRC in Southern Taiwan was held on March 3, which was participated by more than 100 students and teachers of 7 teams cultivated in AI_ROBOT Base at STSP. The General-Director of STSP Bureau, Lin Wei-Cheng, personally handed the flag to encourage the students to exert teamwork and go for it to win the championship. STSP Bureau helps domestic students to strive for great results in international competitions, aiming at boosting the learning trend of robotics among teenagers to successfully combine the excitement of sports with science and technology.

When the theme for competition in 2019 was announced, the Base provided various components based on the need of each team. Participating schools also went to Australia, Hawaii, California and other places in accordance with their plans to participate in the regional competitions in March, 2019. Among them, The FRC teams from National Nanke International Experimental High School (NNKIEH) and Chenggong High School participated in FRC Hawaii Regional Competition and won the prizes, and they were received by President Tsai Ing-wen at the Presidential Office on May 14, 2019. The international education of smart Robot and elite cultivation for robotics competitions are implemented to win honor for the country. In addition, the FRC team of NNKIEH was awarded the student ambassador certificate by Alex Lei, Director of State of Hawaii U.S.A. Taiwan Office in Taipei on May 24, 2019, promoting Taiwan's youth diplomacy and enhancing our national image. We fully support these high school and vocational students to win the championship, hoping that these students can become teaching seeds in AI Robotics in the future and continue to improve themselves and pass on the experience to help more Taiwanese students realize

their dreams on the stage at STSP.

AI_ROBOT Base at STSP had deployment ahead of schedule in the second half of 2019 and it has more diligent and active involvement in the FRC related training in 2020, providing the campus elite teams with various hands-on courses, software and hardware teaching, intensive training camp and FRC simulation competition. Furthermore, courses such as English presentation, public relations skills, and fund-raising and proposals were also given. In 2019, we expanded the scale and organized the FRC Series Training Camp at AI_ROBOT Base at STSP. The first session was a 5-day training camp starting on July 8th held in Kaohsiung Municipal Chung-Cheng Industrial High School, attracting 33 students from 15 schools. The second session was co-organized by AI_ROBOT Base at STSP Tainan and NNKIEH in Tainan from July 13, attracting 50 students from 12 schools. AI_ROBOT Base at STSP specially hired professional teachers from various fields for the 40-hour intensive training. After theoretical and practical courses, a small stimulation competition was held to enable the students to experience the fun of the robot competition. In addition, the ability to raise funds in the competition system has always been one of the most important scoring items. The Base held the first FRC fund-raising matchmaking meeting on Oct. 26-27, 2019. We invited 14 companies that care about robotics education to participate in the event, and each school team made the presentation in English to win the support from the enterprises, and a total of NTD1.25 million was raised. It is hoped that these teams we trained will have great performance in 2020 FRC International Competition and win the championship to increase Taiwan's exposure in the international communities.



The FRC team from National Nanke International Experimental High School (NNKIEH) participating in FRC Hawaii Regional Competition was received by President Tsai Ing-wen (Group photo taken at the Presidential Office on May 14, 2019)





Safeguarding Nature

Special Column — TCFD Smart Flood Prevention

6.1 Energy Resources Management at STSP

6.2 Counseling of Energy Conservation for Park Businesses

6.3 Pollution Control Measures of Park Businesses

6.4 Renewable Green Energy

6.5 Ecology Conservation at STSP

Special Column - TCFD Smart Flood Prevention

The impact of climate change resulted from global warming is getting more and more significant. In addition to reducing GHG emissions, we also need to consider its uniqueness and promote the climate change adaptation in phrases when facing the uncertainty the impact climate change brings in terms of time and space. Meanwhile, we also need to link disaster prevention and relief with the sustainable development goals to ensure the sustainable development of STSP.

GRI Standards regard climate change issues as part of the ESG management capabilities and performance while TCFD (Task Force on Climate-Related Financial Disclosures) guidelines encourage organizations to incorporate related climate change risks into financial impact assessment for in-depth disclosure, providing stakeholders with forward-looking information that is more favorable for decision-making and proposals for effective response strategies.

This report presents relevant contents of strengthened risk assessment and climate change of STSP Bureau in the format of special column to improve the quality of non-financial information and implement sustainable development. Based on the four core elements of TCFD, STSP Bureau established Governance, Strategies, Risk Management and Indicators and Targets as the framework to enable our stakeholders and industries inside and outside STSP to understand how we assess climate-related risks and opportunities.

TCFD Framework of STSP Bureau

Guidance	Responses
<p>Governance</p>	<p>Land Development Division, Construction Management Division, Industrial Safety Section and Environment and Labor Affair Division are the management units for climate change risk prevention and response.</p>
<p>Strategies</p>	<p>To refer to the policy of Ministry of Science and Technology and upgrade the advanced R&D technology of disaster prevention and relief to strengthen disaster resistance and resilience of the society with smart disaster prevention.</p> <ul style="list-style-type: none"> ◆ Dedicated to establishing Decision Support System for Disaster Response with smart disaster prevention as the main axis. ◆ Promote application of Science and Technology for Disaster Prevention and Relief and implement it in the disaster prevention practices. ◆ Introduce the latest information technology and make full use of the big data of disaster prevention. ◆ Cooperate with the government's Open Government Data policy and provide disaster information sharing platform services.
<p>Risk Management</p>	<ul style="list-style-type: none"> ◆ Establish a "STSP Integrated Disaster Risk Response System" and organize relevant drills and training annually. ◆ Establish a "Flood Prevention and Utilities Response System" to maintain the safety and proprieties at STSP.
<p>Indicators and Targets</p>	<ul style="list-style-type: none"> ◆ Encourage park businesses to introduce ISO 14064-1 GHG inventory management system. ◆ Promote the counseling of park businesses for energy conservation and water saving, reducing approximately 40.8 thousand tons of carbon emissions in 2019. ◆ Installed renewable energy resources, reducing carbon dioxide emissions by 25,294 tons in 2019. ◆ Promoted e-shuttle bus, averagely reducing 402.7 kgs of carbon emission daily. ◆ Promoted the Self-management Program of Diesel Vehicle Exhaust, and a total (cumulative) 2,197 vehicles obtained the exhaust emission mark.





Disaster Response System

To achieve the purpose of immediate notification, rescue (treatment) and aftermath handling, the existing disaster prevention and response resources in the public and private sectors in the science park are integrated to plan a simple, feasible, unified and highly efficient disaster prevention and relief system. The “Implementation Plan for the Construction of a Joint Prevention and Response System at STSP” is formulated to promote the disaster prevention and relief system in the science park and establish a joint prevention and response organization and radio system. In addition, various technologies and experiences at home and abroad are also referred to for the development of Emergency Response Support System that is incorporated with mobile devices, seismograph monitoring signals, flood control monitoring system and geographic information system. With the introduction of the geographic information system, location maps of tap water pipelines, drainage lines, power facilities and gas pipelines can be obtained and related information inquiries can be made. Main information of the villages within 3 km outside the science park is also included so that if the scope of disaster is likely to affect the surrounding residents, village information can be learned through diffusion simulation and the graphical interface so that immediate notification can be made to the liaison office of the village chief to ensure that disaster prevention and response procedure can be completed immediately.





Flood Prevention and Response System

To ensure smooth water drainage within and around Tainan and Kaohsiung Science Parks and to reduce possible floods and disasters as early as possible during flood season, personnel would be assigned for 24-hour monitoring. During the flood season between May 1 and Nov. 30 every year, when the Central Weather Bureau issues a land warning or torrential rain in the area where the science park is located, the flood prevention team is immediately established. There are three levels of alert, and resident personnel at all levels (maintenance manufacturers, flood control team members, deputy director-general) are required to be stationed for 24-hour monitoring in shifts within an hour after receiving notification.

Emergency response measures



Set up contingency plans and establish flood prevention team

To bring the functions of emergency response into full play during flood season, STSP Bureau has established contingency plans. When a typhoon warning or a torrential rain alert is issued, the flood prevention team is immediately established for 24-hour alert to effectively prevent damage brought by heavy rain and reduce the occurrence of floods.



Gather typhoon information and strengthen precautions against typhoons

After the Central Weather Bureau issues a torrential rain alert or a marine typhoon warning, the personnel of the Flood Control and Monitoring Center would stand by 24-hours. In addition to reinforcing the inspection of the road drainage in the science park and the maintenance of the flood control gate and related flood prevention equipment, information such as water level, satellite cloud image, typhoon path and so on is gathered. Relevant personnel of flood prevention will be notified of the information by SMS and communication software. Typhoon information will also be posted in the dormitories, factory buildings, elevators of the Bureau and bulletin boards to remind all to take precautions so as to reduce losses.



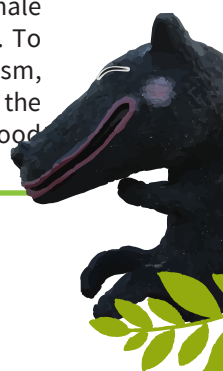
Install a flood monitoring system

Flood control and prevention facilities include Flood Control and Monitoring Center, the establishment of the network of optical fiber cables, external monitoring panels, CCTV system and surveillance equipment, water level monitoring equipment outside the science park, rainfall monitoring system, monitoring equipment of flow outside the park area & improvement of flood control gate, detention ponds, flood control pumping stations and so on. STSP is the first area in Taiwan to widely use detention ponds for water control. Due to the large number of drainage channels, high-tech equipment is used for the monitoring of the hydrological conditions of every drainage system to make the most of the detention ponds.



Organize flood prevention education and training annually

STSP Bureau have all the staff involve in flood prevention work. All the male staff in the Bureau have to take turns on duty for the flood prevention. To enable the staff to be more familiar with the flood prevention mechanism, operation of flood prevention facilities and the hydrological conditions of the science park, relevant education and training will be held before the flood season every year.





Utilities Response System

The emergency contact and notification mechanism of the Utilities Response System can effectively improve the communication efficiency of abnormal water and electricity supply to avoid wasting manpower in the reporting of causes for abnormal water and electricity supply. Besides, through this mechanism, STSP Bureau can grasp the status of losses for the park manufacturers in the shortest time and the manufacturers can also rapidly understand the cause of the abnormal water and electricity supply to facilitate the corresponding contingency measures. Since the establishment of the Line Group for Water, Power and Gas Supply Committee, manufacturers can be notified immediately through instant messaging to understand the cause of the abnormality and the recovery situation of each manufacturer.



Earthquake Early Warning and Smart Disaster Prevention System

To improve and integrate the park's disaster relief response capabilities to meet the needs of smart disaster prevention and relief, the Earthquake Early Warning and Smart Disaster Prevention System was established in 2017, combining various systems in the smart science park (chemical registration system, environmental monitoring information system, traffic control center database, smart building group database, portable disaster relief equipment, and flood prevention system), coupled with the risk assessment and disaster simulation calculations, the 3D visual disaster prevention and relief command system based on GIS (Geographic Information System) is established to rapidly provide integrated intelligence for the commander to make decisions. A total of 201 manufacturers and 9,843 chemical records have been registered in the Earthquake Early Warning and Smart Disaster Prevention System, and 2 domestic patents were obtained.

Through the real-time positioning system technology, smart fire hose and the rapid conversion technology of the fire evacuation map, and with the integration of the GIS field map data, BIM (Building Information Modeling) and the STSP Smart Disaster Prevention System, data concatenation and data integration application are reached to strengthen the autonomous disaster prevention and relief mechanism of the agency. On the disaster site, through the conversion of communication protocol between PoE and 4G network, the promptness, liquidity and stability of the information transmission among various units can be ensured so as to reduce the risk of occurrence of disasters.



1 Earthquake Early Warning System: Escape and linkage of equipment
Compound-disaster scenarios: Fires and chemical leaks in factories caused by the earthquake

2 Use the intelligent traffic and smart building surveillance cameras to monitor the scene of accident

3 Monitor the scene of accident, conduct air sampling and make use of AR Technology for the implementation of pollution diffusion model

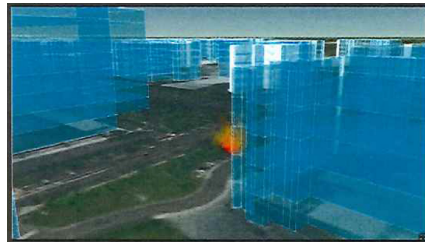


∴ Portable mass spectrometer ∴

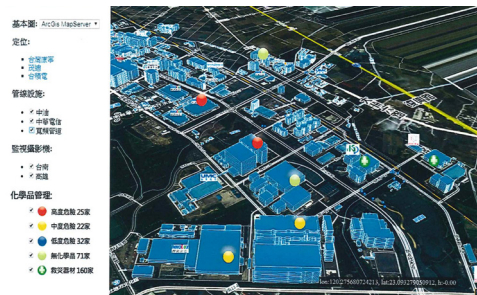
4 Pollution diffusion model--
Disaster simulation to assist the commander with decision-making



5 Combine 3D GIS for the very first chemical registration management by floor



6 Smart environment monitoring



∴ Clear and comprehensive listing of chemical substances in 3D images for management ∴



6 | Safeguarding Nature

Data gathered by the disaster prevention and relief management unit is integrated with the disaster prevention data established by the manufacturers in the park, and data is integrated and displayed with the GIS system to provide heads of units, commander of the disaster prevention center and other superiors with relevant information of disaster and related information to assist the commander to issue disaster relief orders and grasp the disaster relief activities on the spot.

STSP Bureau conducts smart disaster prevention and relief system related education and training. It is hoped that park business units can join the operation of the system to reduce the occurrence of occupational disasters.



6.1 Energy Resources Management at STSP

⌘ Energy Use

Southern Taiwan Science Park continues to expand, and the number of manufacturers as well as the turnover continues to grow, and consequently, the demand for energy resources and the intensity of use also increases. To stabilize the use of energy resources among park business units, STSP Bureau regularly gathers statistics and controls energy consumption to ensure the compliance with the approved amount in EIA.

Item	2017	2018	2019
Electricity use (kWh)	10,789,403,701	10,791,991,852	11,280,777,692
Energy consumption (GJ)	38,841,853.32	38,851,170.67	40,610,799.69
Annual turnover of park businesses (NTD 100 million)	8,787.60	7,956.42	7,432.40
Energy intensity (GJ/NTD 100 million in revenue)	4,420	4,883	5,464

Notes:

1. The total energy consumption within the organization was calculated using Joule or its multiple as the unit in accordance with the disclosure principle of GRI Standards.
2. Every 1 kilowatt-hour of electricity=1kWh=3,600joules.
3. Energy intensity is calculated using the total turnover of STSP in the current year as the denominator.

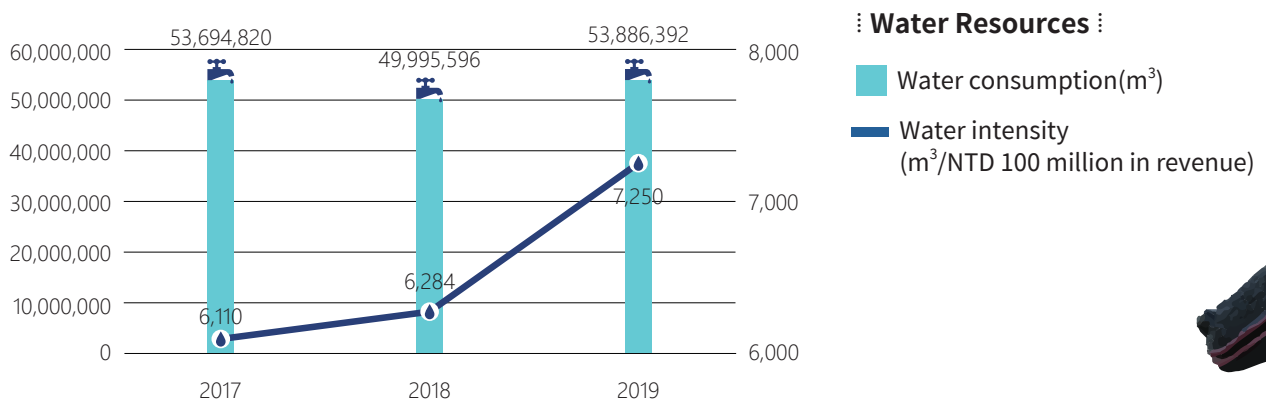
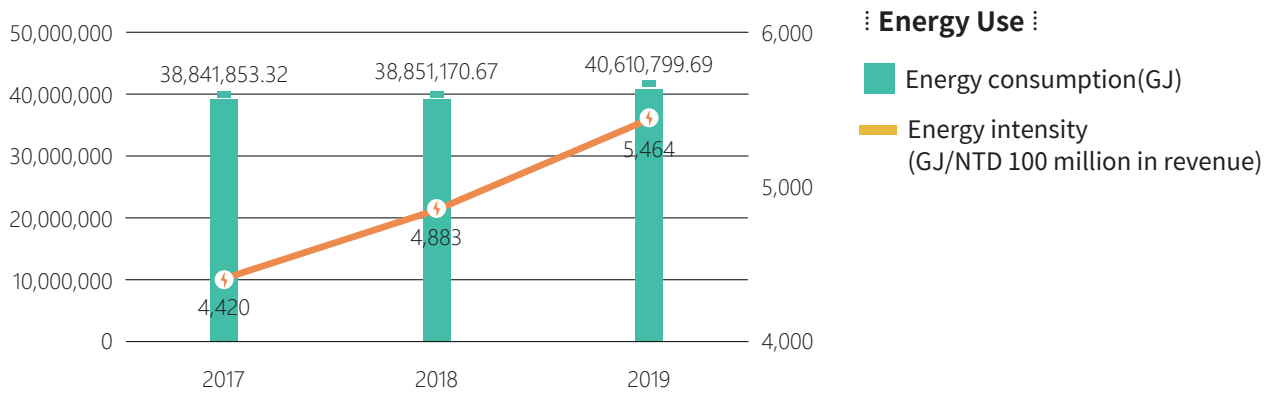
Water Resources

Enterprises' intake and consumption of water as well as the quality of discharged water may cause impacts on the ecosystem. Therefore, the Bureau assists park businesses to understand their overall water use status. Based on the Water Risk Atlas of the World Resources Institute, it shows that Tainan Science Park and Kaohsiung Science Park belong to Low - Medium (1-2), indicating that the water intake of park businesses does not cause a major impact on the ecological environment.

Item	2017	2018	2019
Water consumption (m ³)	53,694,820	49,995,596	53,886,392
Annual turnover of park businesses (NTD 100 million)	8,787.60	7,956.42	7,432.40
Water intensity (m ³ /NTD 100 million in revenue)	6,110	6,284	7,250

Note:

1. Water intensity is calculated using the total turnover of STSP in the current year as the denominator.



Greenhouse Gas Inventory

The Bureau conducted the 2019 annual GHG inventory in 2020, and the organizational boundaries of the organization were Tainan Science Park and Kaohsiung Science Park, and the total emission of carbon dioxide amounted to 7,104,389.0850 tons. Due to the expansion projects of park businesses in 2019, the GHG emissions also increased by 4.2% resulted from the increase in production capacity. STSP Bureau is actively implementing energy conservation counseling measures, hoping to reduce the environmental burden.

Item	Tainan Science Park	Kaohsiung Science Park	Total
Scope 1 (tons of CO ₂ e)	1,247,024.9175	61,572.5543	1,308,597.4718
Scope 2 (tons of CO ₂ e)	5,157,483.2944	638,308.3185	5,795,791.6129
Total (tons of CO ₂ e)	6,404,508.2119	699,880.8729	7,104,389.0850
Turnover (NTD 100 million)	6,865.22	567.13	7,432.35
Intensity (tons of CO ₂ e/ NTD 100 million)	932.8919	1,234.0749	955.8739

Note:

All other indirect emissions (Scope 3): Due to the inability to control its activities and GHG emissions, only the identification of emission sources was carried out. Quantification was not conducted. Only vehicles for commuting and business trips in the science park, vehicles transporting waste to outside of the science park for treatment and those for raw material transportation were qualitatively enumerated.

6.2 Counseling of Energy Conservation for Park Businesses

To reduce the water consumption in the science park to solve the urgent water problems to meet the EIA requirements and to cooperate with the promotion of energy conservation and carbon reduction policies, the Bureau has actively engaged in the counseling of water saving and energy conservation and strengthened the advocacy to encourage park manufacturers to build green factories. In terms of the effectiveness of the counseling, approximately 40,800 tones of carbon dioxide emissions were reduced in 2019, equivalent to the amount of fixed carbon of 105 Daan Forest Parks (Note: Daan Forest Park absorbs approximately 389 tons of carbon dioxide emissions annually). In the future, we will continue to handle energy conservation and water saving measures to achieve the most appropriate distribution under the condition of limited resources to achieve the purpose of stable supply of water and power in the science park.

❖ Counseling of Energy Conservation

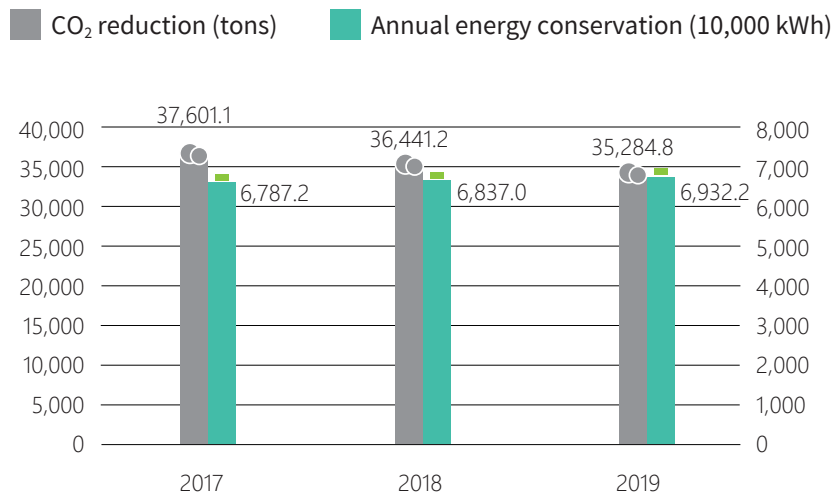
STSP Bureau has provided counseling of energy conservation to 50 manufacturers so far. In 2019, 6 park business units received the counseling. In terms of the actual results of the energy conservation measures, the total power saved was approximately 69.322 million kWh annually, equivalent to the reduction of 35,284.8 tons of carbon dioxide emissions in a year.

Item	2017	2018	2019
CO ₂ reduction (tons)	37,601.1	36,441.2	35,284.8
Annual energy conservation (10,000 kWh)	6,787.2	6,837.0	6,932.2

Note:

The calculation basis is based on the standard published by the Bureau of Energy of MOEA. In 2019, the CO₂ emission for every 1kWh of electricity generated is equivalent to 0.509 equivalent.

❖ Counseling of Energy Conservation ❖





❖ Counseling of Water Conservation

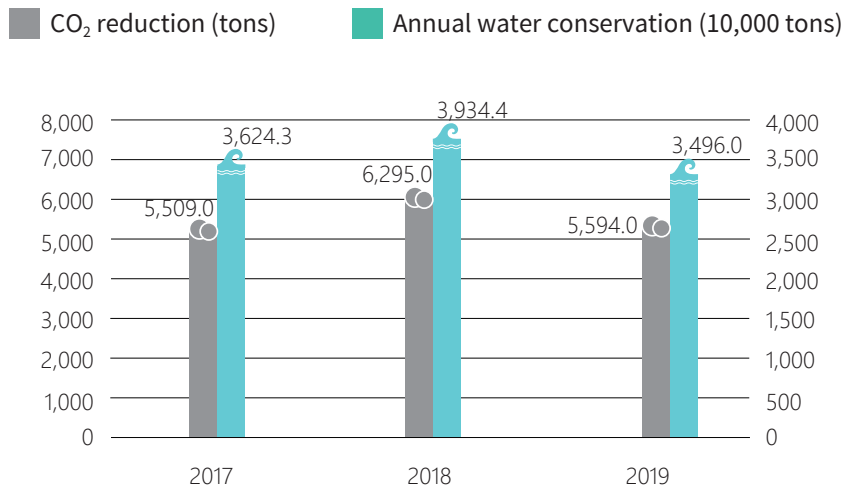
The Bureau has promoted counseling of water conservation to 114 manufacturers so far. In 2019, 5 park business units received the counseling. In terms of the actual results of the water conservation measures, the water saved was approximately 34.96 million tons/year, equivalent to the reduction of 5,594 tons of carbon dioxide emissions in a year.

Item	2017	2018	2019
CO ₂ reduction (tons)	5,509.0	6,295.0	5,594.0
Annual water conservation (10,000 tons)	3,624.3	3,934.4	3,496.0

Note:

The calculation basis is based on the standard published by Taiwan Water Corporation. In 2019, the CO₂ emission for every 1 m3 of water generated is equivalent to 0.160 equivalent.

❖ Counseling of Water Conservation ❖



❖ 2019 Excellent Manufacturers for Energy Conservation and Water Saving

Category	Item	Excellent manufacturer for energy conservation	Excellent manufacturer for water saving
Manufacturer with large water (electricity) consumption		Taiwan Semiconductor Manufacturing Company Ltd. (FAB 14 B P7)	Innolux Corporation (Factory III)
Manufacturer with small water (electricity) consumption		ChipMOS TECHNOLOGIES INC. (Factory II)	Zacros Taiwan Co., Ltd



∴ On-site visit for manufacturer counseling ∴

6.3 Pollution Control Measures of Park Businesses

∴ Review of Environmental Permit

To accurately grasp the environmental impact the pollutants cause during the construction period, STSP Bureau has actively worked on the environmental impact assessment commitments and improvement of the review conclusions and continued to entrust professionals to handle the “Environmental Monitoring Plan During Construction Period at STSP”, focusing on the investigations and tracking of the surrounding environmental quality of the park area under construction, so as to grasp the level of impact every project has on the quality of the environment, make timely adjustment of the construction method and take effective preventive measures to achieve the goal of taking care of the construction and maintaining the environment quality at the same time. Meanwhile, through the collection and analysis of the background data of the environment, a long-term environmental monitoring system and database can be established to meet the requirements of environmental tracking control.

∴ STSP environmental permit review ∴

In 2019, the number of approved environmental permits was 334, including 88 permits for fixed pollution source, 95 water pollution permits, 145 permits for waste, and 6 permits for waste recycling. Relevant service information and qualification for application are all available on STSP Bureau’s official website to provide open and transparent service information.



Overview of Waste Treatment

As the park businesses develop, the industrial waste in the science park also increases year by year. STSP Bureau actively provides counseling to park businesses to implement source separation and recycling to reach the goal of resource recovery, waste reduction and no secondary pollution. The reuse volume of the park businesses reached 237,394.98 tons in 2019.

Item	2019		
	Production volume (tons)	Reuse volume (tons)	Utilization rate (%)
Science Park			
Tainan	256,438.81	223,789.14	87.27
Kaohsiung	16,327.27	13,605.84	83.33
The whole park	272,766.08	237,394.98	87.03

In addition, to cope with the diverse types and characteristics of waste produced in diverse industries in Tainan Science Park, the Bureau has established a well-equipped Resource Recycling Center with waste removal equipment and treatment facilities to properly remove and dispose waste in the park. In 2019, the Resource Recycling Center properly processed 31,333 tons of waste, incinerated 27,484 tons of waste, physically and chemically treated 7 tons of waste, solidified 13 tons of waste and disposed 3,829 tons of waste at landfill.



The Bureau not only maintains normal waste removal and normal operation of the treatment facilities (equipment) but also strengthens the capabilities of effective treatment of general inorganic waste produced in the science park and increases the total amount and a site (the designed landfill capacity is 90,000m³, with 15 years of service life) for safe landfill (of bottom ash, fly ash, etc.) of general industrial waste classified and incinerated through the promotion of the third phase of construction of the landfill site of the Resource Recycling Center in Tainan Science Park. By doing so, the future needs of the landfill volume and scheduling as well as use of landfill sites can be met for the Resource Recycling Center, and it also demonstrates the determination to implement environmental protection policies.

Use Direction of Water Flow

The tap water used in Tainan Science Park mainly comes from Wushantou Reservoir through Tanding Water Treatment Plant and Nanhua Reservoir through Nanhua water Treatment Plant. Water resources for Kaohsiung Science Park is from Agongdian Reservoir through Luzhu Water Treatment Plant and the surface water of the weir of Gaoping River through Pingding Water Treatment Plant.

In 2019, all the wastewater generated in the whole science park was properly treated and met the influent standards of the science park before being discharged into the sewage system. After treatment, the quality of all discharged water meets the effluent standards. The effluents of Tainan Science Park and Kaohsiung Science Park are discharged into Yanshuel River and Tuku Drainage respectively before finally flowing to the ocean. Part of the discharged water is recycled for equipment cleaning, plant watering and landscape ponds.

To strengthen the efficiency of the wastewater treatment plant in Kaohsiung Science Park for the treatment of wastewater rich in ammonia nitrogen, the A/O treatment system for the activated sludge process was newly added in December in 2019 to reduce the discharge of nitrogenous substance and lessen the load on the wastewater treatment system and environmental impact.

To ensure the water quality of the science park, there is a water quality inspection room in the Environmental Protection Center. The testing and evaluation of the testing capabilities of the inspection room is done through an impartial, objective and independent third party, which can enable us to understand the water quality of influents/effluents, treatment units, rain/sewage sewers and so on. It can also guarantee the fairness and objectivity of its testing and sewage charges.

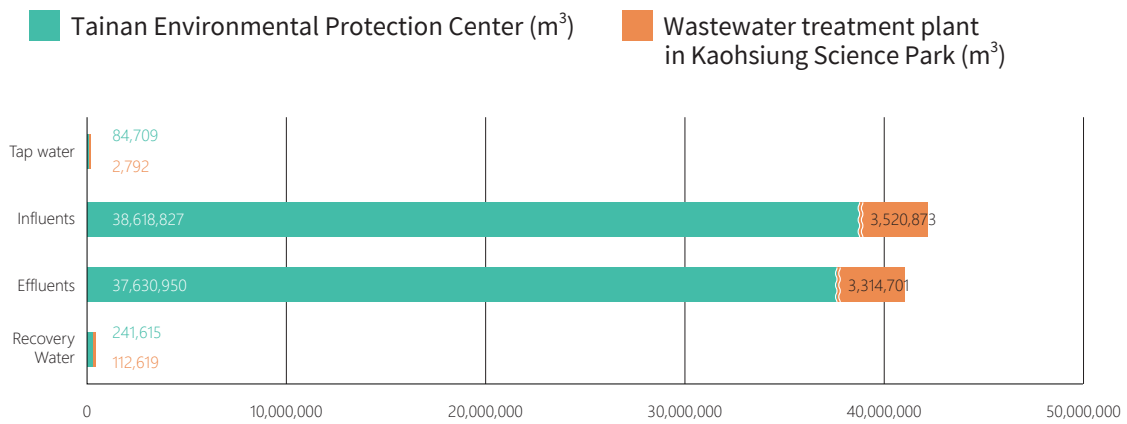
2019 Overview of water use at STSP

Item (year)	Tainan Environmental Protection Center (m ³)	Wastewater treatment plant in Kaohsiung Science Park (m ³)	Sum (m ³)
Amount of tap water	84,709	2,792	87,501
Amount of influents	38,618,827	3,520,873	42,139,700
Amount of effluents	37,630,950	3,314,701	40,945,651
Amount of water recovery	241,615	112,619	354,234



6 | Safeguarding Nature

2019 Overview of water use at STSP



Overview of water recovery at STSP between from 2017 to 2019

Item		2017	2018	2019
Recycling rate of wastewater (year)	Tainan Environmental Protection Center	2.68%	0.84%	0.63%
	Wastewater treatment plant in Kaohsiung Science Park	2.56%	2.92%	3.26%
Usage rate of recycled water (year)	Tainan Environmental Protection Center	92.38%	77.61%	74.04%
	Wastewater treatment plant in Kaohsiung Science Park	98.69%	98.94%	99%

Notes:

1. Wastewater recycling rate= recovered water/influent.
2. Usage rate of reclaimed water= reclaimed water usage/ (reclaimed water usage+ tap water usage).



❖ Air Pollution Control

In accordance with Air Pollution Control Act, in addition to GHG, STSP Bureau also takes regular inventories of various air pollutants, including nitrogen oxides, sulfur oxides, volatile organic compounds and particulate matters to reduce environmental burden.

Unit: ton

Item	Tainan Science Park	EIA allocation (year)	Kaohsiung Science Park	EIA allocation (year)
Nitrogen oxides (NO _x)	418.3	2,590	26.1	213.5
Sulfur oxides (SO _x)	120.4	521	10.3	99
Volatile organic compounds (VOCS)	490.2	2,796	97.8	927.7
Particulate matters (Par)	75.0	425	10.0	46.5

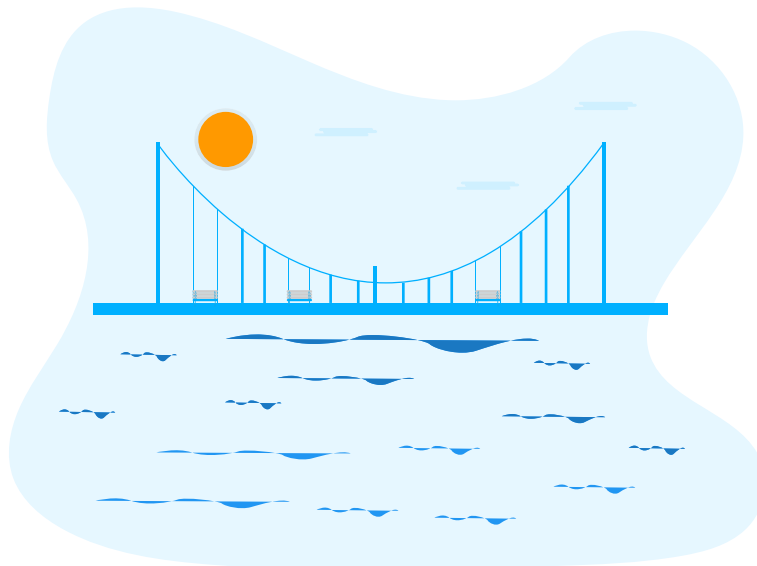
The increase in concentration of GHG has caused more and more significant global warming effects. The result of global warming not only affects the biological ecology but also damages economic activities of humans greatly. The ozone layer that is very important to living creatures on earth is also destroyed because of this. The Bureau understands the seriousness of it and is devoted to environmental protection. No ozone-depleting substances are used in the Bureau, and no harmful gases that have significant impact on the environment and the ozone layer were emitted in 2019.



Advanced Wastewater Treatment

The second wastewater treatment plant in Tainan Science Park has been completed. It is adjacent to the ecological conservation zone and the 1-hectare wetland, located at the intersection of Siraya Avenue and Huanxi Road. The exterior of the wastewater treatment plant is based on the theme of water purification. Through layered filtration and dynamic water flow, it presents the beauty of rhythm and dynamic beauty, showing a very different appearance of a wastewater treatment plant.

The subsequent electrical and mechanical engineering work was completed in May, 2019, and currently, its capacity of wastewater treatment has reached 40,000 tons per day. Wastewater is treated through Secondary (Biological) Process and tertiary filtration and the treatment of the sludge adopts mechanical thickening and dewatering. The process units include pre-treatment, preliminary sedimentation tank, adjustment tank, neutralization tank, anoxic tank, aeration tank, secondary sedimentation tank, chlorination tank, rapid filter, reclaimed water pumping station, mechanical equipment building and sludge treatment building. The amount of waste sludge in 2019 was 15,169 tons, which was handed over to the Resource Recycling Center for incineration treatment and to qualified treatment companies for heat treating.



Monitoring of the Environment

In 2019, STSP Bureau received 4 odor and 2 noise complaints in total, and all were investigated and handled immediately. In 2019, the major monitoring items in the science park all met the legal requirements. Detailed indicators and data of monitoring are regularly disclosed on the official website of the Bureau. Please go to the “Environmental Monitoring Data” section for details.



Environmental monitoring data query

Monitoring item	Tainan Science Park	Kaohsiung Science Park
Monitoring of air quality	✓	✓
Monitoring of environmental noise	✓	✓
Monitoring of environmental vibration	✓	✓
Monitoring of surface water quality	✓	✓
Monitoring of traffic	✓	✓
Monitoring of the Resource Recycling Center	✓	There is no Resource Recycling Center.
Monitoring of water quality of effluents in the wastewater treatment plant	✓	✓
Monitoring of groundwater quality	✓	✓



Monitoring of the Environment





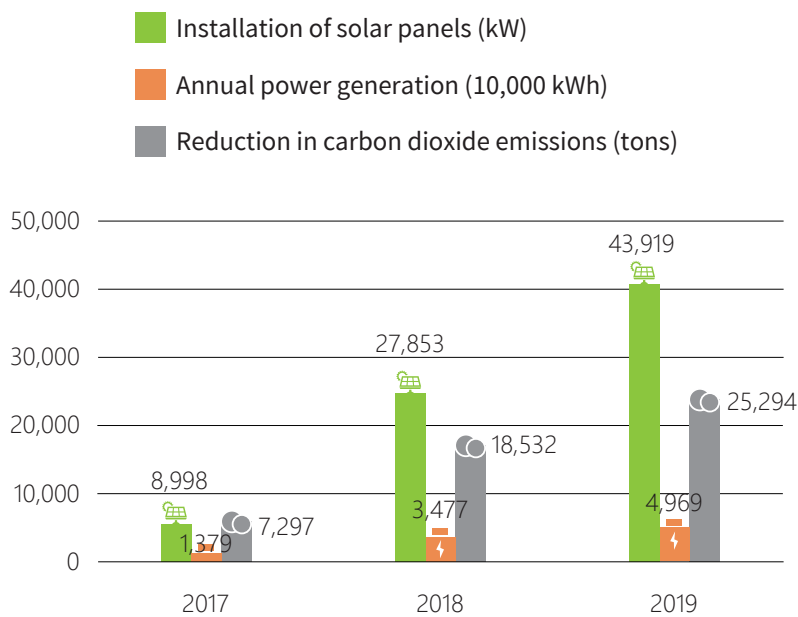
6.4 Renewable Green Energy

Renewable Energy System

Solar panels are installed on the roofs of NNKIEH, Administration Building of the Bureau, Police Building, STSP Commercial Center, flood control pumping station, wastewater treatment plant, Resource Recycling Center, and standard factories in the science park. The total statistics related to the installment of solar panels for manufacturers and public departments are organized in the table below. It shows that the amount of power generation increases while carbon dioxide emission is decreasing year by year. The Bureau is actively installing solar panels in the park to achieve the effect of environmental protection.

Item	2017	2018	2019
Installation of solar panels (kW)	8,998	27,853	43,919
Annual power generation (10,000 kWh)	1,379	3,477	4,969
Reduction in carbon dioxide emissions (tons)	7,297	18,532	25,294

In addition to installing solar panels in the science park, to promote solar power generation, three solar PV power generation systems with a total capacity of 158kWp were also installed at the second phase adjustment tank, lab and control center respectively. The solar power generation is integrated into the plant’s equipment system for operation.



❖ Energy-saving LED Street Lights

To promote “Sustainable Environment, Green Park”, we continue to move forward to reach the goal of energy conservation, carbon reduction and decrease in public electricity consumption. In accordance with the Technical Specifications for Setting up LED Street Lights in Taiwan of the Energy Bureau of MOEA and considering the development technology of LED street light products available in the market, LED street lights with appropriate illuminance and luminous efficiency are chosen. Starting from 2010, LED street lights have been replaced in stages. As of the end of 2018, all the street lights in Tainan Science Park have been completely replaced with 2,870 LED lamps in total. By the end of 2019, the street lights in Kaohsiung Science Park have all been placed with 1,603 LED lamps in total. A total of 4,473 lamps were replaced in the whole science park. In 2019, the high beam lights in the parking lot were also replaced by LED lamps.

❖ Electronic Shuttle Bus

In December, 2019, the Bureau added another e-shuttle bus (7 in total) in the Tainan Science Park, with a total of 701 passengers per day, an average daily mileage of about 618 kilometers, reducing the use of diesel by 154.5 liters averagely every day (e-vehicle mileage/4 kms per liter of gas) and reducing 402.7 kg of carbon dioxide emissions averagely every day.

❖ Self-management of Exhaust

STSP Bureau cooperates with the Environmental Protection Agency and the local government to promote the policy of air quality purification zone and counseled businesses in Tainan Science Park to join the Self-management of Diesel Vehicle Exhaust promoted by the Environmental Protection Bureau of Tainan City and won the affirmation of the city government for 3 consecutive years. In 2019, STSP Bureau has obtained a total of (cumulative) 2,197 exhaust emission marks.





6.5 Ecology Conservation at STSP

Adoption of Beach Cleanup



From 2017 to 2019, the Bureau responded to the Adoption of Coastal Cleanup initiated by Environmental Protection Administration and adopted the 500-meter coast along the Gold Coast in the South District of Tainan City. The Gold Coast has beautiful landscape, a soft and delicate beach and broad coastline. We led our staff to the Gold Coast for the beach cleanup to convey and implement environmental education in real actions, encouraging our staff to take actions to protect the earth, assist in the maintenance of a clean coastal environment to contribute to the marine environment and take practical actions to remove the trash in the coastal area.



Resource Recycling Center’s Beach Cleanup Activity

Greening of Landscape

To create a colorful image of the diversity of the planting belt along the main roads of Tainan and Kaohsiung Science Parks, the Bureau continuous to plan the landscape improvement project in the science parks every year to replace poor-growing arbores or aging shrubs. The overall landscaping is based on a people-oriented perspective with the concept of multi-layered planning. Seasonal patterns and color changes are chosen to match the areas around the park in four seasons to show rich and colorful scenery. The overall landscape is all refreshed after the greening and beautification of the park area is completed.

	Year	2016	2017	2018	2019
 Arbores	Tainan Science Park	120,716	126,322	127,436	128,679
	Kaohsiung Science Park	75,411	84,833	91,398	92,366
 Shrubs	Tainan Science Park	486,720	503,324	509,639	561,215
	Kaohsiung Science Park	69,075	101,017	107,807	112,489



Cosmos flowers at the Yinxi Lake in Tainan Science Park



Fire-cracker vines at the Dazhou Drainage Pavilion in Tainan Science Park



Crepe Myrtle Flowers at the setback zone on Nanke S. Road in Tainan Science Park



Red-flowered in Puxin Park in Tainan Science Park



Red-flowered on Beiyuan 2nd Road in Tainan Science Park



Sunflowers in the Administrative Service Area in Tainan Science Park



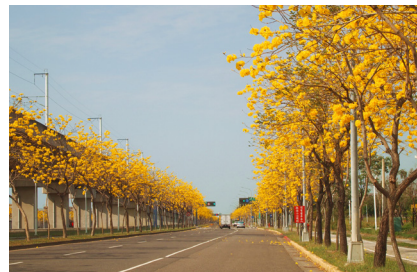
Golden Shower Trees at Park 17 Mall in Tainan Science Park



Golden Phoenix Trees on Nanke N. Road in Tainan Science Park



Orchid Trees at Titan Lake in Tainan Science Park



Golden Trumpet Trees on Huandong Road in Tainan Science Park





STSP Bureau has planted various flowers and plants in the science park and properly cared for them to create a more friendly green park. In the face of so many fallen leaves and branches, the Bureau started to establish a green resources recycling plant in Tainan Science Park where fallen leaves are mixed with organic cane fertilizers to make compost. Large residual branches are crashed into wood chips using wood chippers and are scattered in the green landscape planting belt in the science park. In 2016, the establishment of the green resource recycling plant in Kaohsiung Science Park was also completed for the sustainable use on the land of STSP. In 2019, Tainan and Kaohsiung Science Parks totally produced 828 tons of deciduous compost and 95 tons of wood chips. Based on the statistics, a total of 4,256 tons of compost and 2,327 tons of wood chips were produced during 2013 and 2019.







❖ Aggregation of Ecosystem

Due to the geographic location of the science park, it has a unique plain farming ecology. After years of efforts and planning, the Bureau has finally created abundant ecological resources in the science park today, including grassland, shrubs, detention ponds (for flood prevention), ditches and so on, covering the diverse habitats of the plain and attracting diverse creatures that forms aggregation in the science park.

To make this fertile land of STSP a home for the aboriginals and passing visitors, the Bureau has specially planned a 30-hactare land for ecological protection to conserve bird habitats, and it has become the best demonstration of symbiosis between development and ecological conservation. In addition, we also commissioned ecological conservation groups to conduct ecological survey in the science park to analyze the changes in the number of the population. Observation and recording of the reproduction of protected species of birds were particularly carried out, which has also formed a unique ecological characteristic at STSP.

The survey results in 2019 are as follows.

	 Birds	 Amphibian	 Butterfly	 Odonata
Tainan Science Park	67 species and 34 families	6 species and 4 families	21 species and 4 families	10 species and 3 families
Kaohsiung Science Park	70 species and 35 families	5 species and 4 families	17 species and 4 families	8 species and 3 families

The birds observed in Tainan Science Park include 7 species of protected birds (not in the Lists of IUCN Red List data deficient species), including *Glareola maldivarum*, *Phasianus colchicus*, *Elanus caeruleus*, *Accipiter trivirgatus*, *Hydrophasianus chirurgus*, *Rostratula benghalensis* and *Lanius cristatus*, while the 7 species observed in Kaohsiung Science Park are *Phasianus colchicus*, *Elanus caeruleus*, *Rostratula benghalensis*, *Falco tinnunculus*, *Acridotheres cristatellus*, *Glareola maldivarum* and *Lanius cristatus*. In terms of frogs, *Duttaphrynus melanostictus*, *Rana guentheri*, *Fejervarya limnocharis* and *Microhyla ornata* can be observed in Tainan Science Park while *Duttaphrynus melanostictus*, *Rana guentheri*, *Fejervarya limnocharis* and *Microhyla ornata* can be observed in Kaohsiung Science Park.



Protected species III

- ***Glareola maldivarum*, *Lanius cristatus***



Protected species II

- ***Phasianus colchicus*, *Elanus caeruleus*, *Accipiter trivirgatus*, *Hydrophasianus chirurgus*, *Rostratula benghalensis*, *Falco tinnunculus*, *Acridotheres cristatellus***

Note: The protected species mentioned in this report are listed in the Schedule of Protected Species designated by Council of Agriculture of Executive Yuan in 2019.



⋮ Work photo- bird survey ⋮





‡ Bubulcus ibis ‡



‡ Pycnonotus sinensis ‡



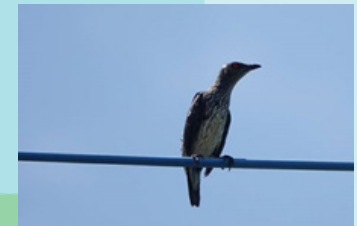
‡ Motacilla alba ‡



‡ Rostratula benghalensis ‡



‡ Pratincole ‡



‡ Aplonis panayensis ‡



‡ Lanius cristatus ‡



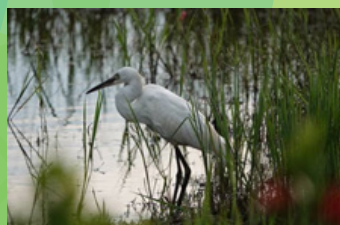
‡ Elanus caeruleus ‡



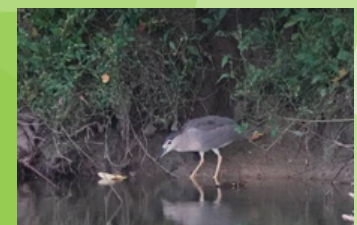
‡ Streptopelia tranquebarica ‡



‡ Charadrius dubius ‡



‡ Egretta garzetta ‡



‡ Nycticorax nycticorax ‡



‡ Bubulcus ibis ‡





‡ *Rana guentheri* ‡



‡ *Fejervarya limnocharis* ‡



‡ *Microhyla ornata* ‡



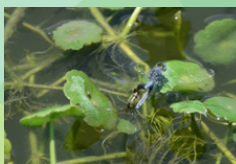
‡ *Lampides boeticus* ‡



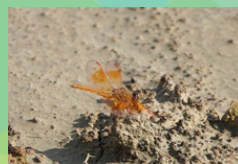
‡ *Ariadne ariadne pallidior* ‡



‡ *Junonia almana* ‡



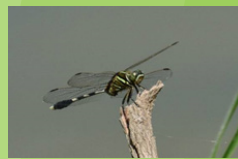
‡ *Diplacodes trivialis* ‡



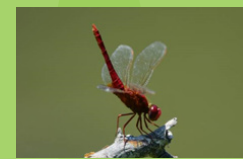
‡ *Brachythemis contaminata* ‡



‡ *Orthetrum sabina* ‡



‡ *Orthetrum sabina* ‡



‡ *Trithemis aurora* ‡

‡ Environmental Education

STSP Bureau continues to organize environmental education and related activities that incorporate issues of water pollution control, waste reduction, natural environment

exploration and disaster and flood prevention. In 2019, a total of 15 sessions of environmental courses were organized, with a total of 689 participants, and more diverse eco-friendly concepts and measures will be introduced to create a green science park with sustainable development.



‡ Photos taken in environmental education courses ‡





Beautiful STSP

- 7.1 Installation Art
- 7.2 Good-Neighborliness
- Special Column—Exploration of Prehistoric Culture



7.1 Installation Art

Local Aesthetics

There are many works of public art in STSP. This year, special courses in public artwork cleaning and maintenance are held. With the introduction of materials commonly used for art creation in Taiwan, common damage cases and procedures for work repair, we can understand that public artworks are like humans and will be damaged due to weather of human factors. They also require constant maintenance and need careful care from every visitor.

In addition, to combine the surrounding area with the features of Museum of Archaeology, public artworks of 3-D paintings with the themes of “Whale in the Mirror” and “A Family from Niaosung” are presented in the plaza next to Park 17 Mall. The blue whale swimming elegantly in the deep ocean and the human face pottery dolls of the National Museum of Prehistory show pictures full of adventure and excitement. Visitors can take photos from specific angles to simulate the excitement of facing a cliff. These works help visitors to have a deeper understanding of arts & culture and the regional scenery of STSP.



3-D painting

7.2 Good-Neighborliness

The Bureau organizes various activities every year to attract employees in the science park to enjoy and bring their families to attend. The residents in the surrounding communities are also invited to enjoy together.

❖ Meeting Love (ai) at STSP

STSP Bureau constantly seeks innovation and change in various areas and actively promotes “Livable STSP” to attract talents in different fields to work and settle down in STSP. On Jan. 20, we held the 16th anniversary of the Bureau & neighborly activities in the square located on the north side of the Administration Building. This event combined the concept of group wedding for the symbol of the establishment of families and businesses, with “love” as the main axis, and based on the Chinese pronunciation of the word “love (ai)”, this event was named “Meeting Love (ai) at STSP”, showing our achievement and efforts in the promotion of AI. The group wedding was held in the lobby on the first floor, and guests from all circles, park manufacturers, residents in the neighborhood and the media were all invited to witness the achievement of the R&D of AI at STSP while sending their best and sweetest wishes to the 18 couples at this group wedding.



❖ Love from 119- A Party for a Safe Year of the Pig

To strengthen the citizens’ knowledge of disaster prevention and to enable children to learn about fire safety from education through entertaining teaching, Tainan City Government Fire Bureau held the 2019 event of “Love from 119- A Party for a Safe Year of the Pig” at Siraya Plaza in STSP on Jan. 12. This large-scale fire safety publicity & garden party event was organized and planned by Fourth District Emergency and Rescue Corps.

The opening ceremony was started by the firefighter show and rescue performance to show the results of the daily training in the Fire Bureau. In addition, there were also performances from school groups. There were also raffle draw of more than 500 prizes in

the event. In the fun activities, 8 challenge games were provided for participants to play, including “Ghost Pigs’ Escape”, “Roll Over, Warriors”, “Trouble Maker Snack Bar”, “Escaping from Glassy Building”, “Haze on All Side”, “Crossing to Escape”, “Inclining Little Buddies”, and “Full Firepower”. Many parents brought their children to wait in line for the participation in these games. Participants not only improved their basic response capabilities concerning fire prevention, disaster prevention and evacuation but also received fabulous prizes.



⋮ Firefighter show ⋮



⋮ Advocacy of fire survival tips ⋮

⋮ STSP Late Spring Art Event

Every March and April when spring comes and flowers bloom, STSP Bureau will organize the STSP Late Spring Art Event. 2019 is the 9th year of this event, with the theme of “Interaction, Fun and Music” to convey a positive attitude that good music can bring good mood. The 2019 event was held from Mar. 16 to Apr. 20, lasting for 6 consecutive weeks, and performances were presented by local schools, clubs and performing groups, which was combined with culture and art, showing great singing, musical and magic performances. Free refreshments, interaction with robots, and the advocacy and public welfare booths were also provided to attract people working in STSP and residents in the neighboring communities to enjoy on holidays to relieve their pressure in their daily life, improve the quality of life in STSP, and enhance relationship with the residents in the neighborhood, bringing a grand feast of art and culture in the science park.



❖ Inspiration for Technology through Art- A Happy Children’s Day

The Bureau and Luzhu District Office co-organized the event of Inspiration for Technology through Art- A Happy Children’s Day at Kaohsiung Science Park on April 4. This was the very first large-scale event co-organized with the public agency of Kaohsiung City since the opening of Kaohsiung Science Park in 2001. There were more than 20 units and more than 30 different booths on the site, attracting more than 10 thousand participants, including adults and children, to discover scientific knowledge and experience archaeological activities of excavating prehistoric relics. There were also games for them to gain health care related knowledge. All participants enjoyed the unique experience from all the activities in this event.



❖ Children’s play, The Promise of Clovers ❖

❖ Decorating for public artworks ❖

❖ At the booth of “Aerospace Primary School”, adults and children lined up for the challenge to win prizes ❖

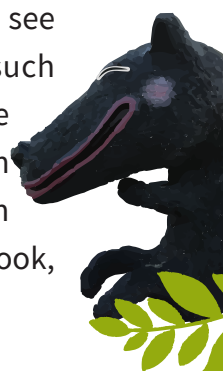
❖ A long line waiting to chat with the robot, Zenbo ❖

❖ Serendipity at STSP - Shiny Blue Christmas Eve



To embrace the coming of Christmas and New Year, STSP Bureau held a Christmas Party & Holiday Lighting Ceremony with the theme of “2019 Serendipity at STSP” at Puxin Park on the evening of Dec. 20. The main light was a healing blue and white Christmas tree with a maze of trees, allowing the public to not only appreciate the changes of lights and shadows but also experience the Christmas atmosphere created by the lights in the maze. When the party ended, the public could still see the beautiful and delicate lighting decorations, such as the Dream Carriage at the Yingxi Lake and the Overpass Tunnel on Siraya Avenue until the Lantern

Festival in 2020. In 2019, there was also a lucky draw for those uploading photos taken with the lighting decorations in the science park onto the Bureau’s Fanpage on Facebook, STSP 543, inviting all to come to STSP and enjoy the lighting decorations.



Love Never Stops

Since 2015, STSP Bureau has worked with Rotary Club Nanke and World Vision Taiwan to raise funds and jointly promote the STSP Charity Month with the purpose of “Care for the Locals, Let Love Grow Roots” to gather love and care at STSP and bring hopes to the disadvantaged for emergency medical care and other needs in the surrounding areas of Tainan and Kaohsiung Science Parks, providing assistance to these families. In 2019, more charitable groups including Luway Opportunity Center, the Organization for World Peace, Huashan Social Welfare Foundation and so on jointed the 5th STSP Charity Month. The cumulative funds raised in STSP Charity Month for the past 5 years amounted to NTD 9,517,896.

As of the end of 2019, the cumulative funds of NTD 7.86 million have been distributed to 1,934 people from 549 disadvantaged households in Xinshi, Shanhua and Anding Districts where Tainan Science Park is located and Luzhu, Gangshan and Yongan Districts where Kaohsiung Science Park is located.

Item	Participating manufacturers	Amount of total donation	Number of recipients	Number of aided households
1 st Year	31	NTD 715,612	211	58
2 nd Year	29	NTD 1,572,720	528	117
3 rd Year	37	NTD 3,153,995	524	146
4 th Year	29	NTD 2,118,565	671	228
5 th Year	11	NTD 1,957,004	-	-
Accumulative total	-	NTD 9,517,896	1,934	549

Note: The funds raised in 2019 will be used in 2020, so there have not been recipients and households receiving such fund yet.



STSP Charity Month Love from STSP

❖ Good Neighbor Fund

In 2019, the Bureau continued to promote the recycling of waste resources. The amount of waste incineration was reduced from 27,573 tons in 2017 to 25,023 tons in 2019, showing a decline year by year, indicating that the promotion of recycling waste resources in the science park was effective. NTD 135 will be provided as the good neighbor fund for every ton of waste processed by the incinerator, and the total fund reached NTD 3,376,176, which will be proportionally used in the communities within 1.5 km of the Resource Recycling Center for the improvement of quality of life, local sanitation, environmental quality, beautification of environment, education and cultural standards so as to maintain good neighborly relations, facilitate investment of park business units and local prosperity and development.

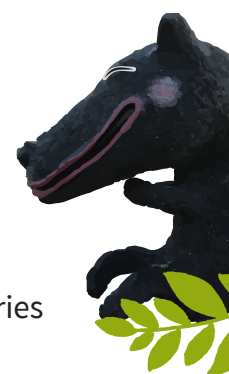
Item	2017	2018	2019
Amount of waste incineration (tons)	27,573	25,278	25,023
Total rebate amount (NTD)	3,720,068	3,410,483	3,376,176

Special Column - Exploration of Prehistoric Culture

The deep-rooted local beliefs and precious cultural assets have enriched Southern Tainan Science Park, making it not only an important base of technology but also a science park coexisting with local culture, historical relics and folk beliefs, balancing the development of both technology and humanities. This unique cultural connotation has added amiability to Tainan Science Park. With various activities, promotion of education and the assistance in the preparation of Museum of Archaeology, Tainan Branch, we invite you to come to know and cherish this rare science park with humanities.

Museum of Archaeology, Tainan Branch (STSP Museum of Archaeology) was officially opened to the public on Oct. 19, 2019. It has an area of 2.44 hectares, and is located next to the Administration Building of the STSP Bureau. Its unique exterior is based on the conceptual design ideas of “Exploring, Retrospecting, and Interweaving”, and this archaeology museum tells the story of Taiwan over the past 5,000 years in details.

STSP Museum of Archaeology contains more than 8 million cultural and archaeological relics, all were unearthed with the development of STSP, reflecting the profound context of craft and cultural life of this land, and as new generations of industries



in science and technology have been developed in STSP, we are entering the new chapter of future history.

STSP Bureau has worked with Museum of Archaeology and organized archaeological promotion activities, including lectures on relevant regulations and reporting mechanism and explanations of projects cases within archaeological sites to enable park manufacturers to better understand the importance of archaeological site protection.



∴ Park manufacturers visit the STSP Museum of Archaeology ∴



∴ Advocacy of the construction and protection of the relics at STSP ∴



Let's Go! Take Historical Actions!

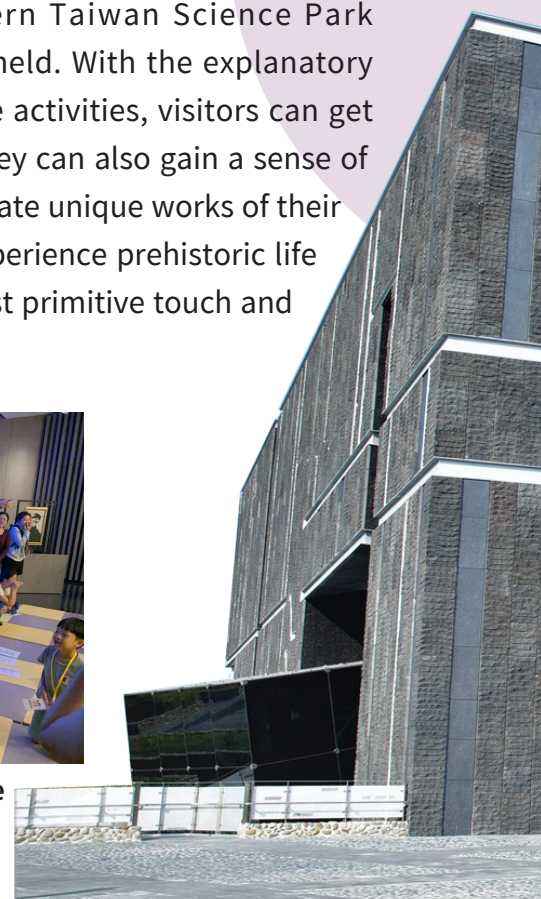
In 2019, an education promotion activity for Southern Taiwan Science Park archaeological site, "Let's Go! Take Historical Actions!" was held. With the explanatory panels that are easy to understand and interesting experience activities, visitors can get to know more about the wisdom of ancient civilizations and they can also gain a sense of achievement in the challenges and experience activities and create unique works of their own. In addition, through featured booths, visitors can also experience prehistoric life and "return to simplicity", enabling them to experience the most primitive touch and enjoyment.



∴ Human skeleton puzzles ∴



∴ Parent-child interactive performance ∴





∴ Prehistory history house ∴



∴ Realistic puzzle solving activity ∴



∴ Start from Sugarcane ∴



∴ Archaeological reality show ∴



∴ Layer marketplace ∴



∴ Sugar DIY ∴





New Phase of Prosperity



One of the three missions of the Minister of Science and Technology is the “Development of Science Parks”, namely to accelerate the construction of science parks, reinforce the R&D capabilities and attract investment in the science parks to establish a high value-added industrial cluster with the combination of R&D, innovation and manufacturing so as to boost industrial development and employment rate locally, forming an innovation corridor for high-tech industries and facilitating Taiwan to become a global innovation R&D center. Southern Taiwan Science Park is an important cluster for the development of a high-tech corridor in western Taiwan.

The key points of science and technology administration include planning national science and technology policies, the planning, evaluation appraisal and budget deliberation for the government’s technology development, support for academic research and promotion of basic and applied technology research, strengthening the innovation R&D momentum in the academic and research circles, constructing of excellent quality R&D environment, cultivation of scientific and technological talents, strengthening academia-industry links and momentum for the development of an innovation park. At the same time, the effects on the R&D results are also improved in terms of the academic excellence, industrial upgrade, economic development, environmental sustainability and social welfare. STSP Bureau will take more active actions to help industries innovate and transform to enhance the competitiveness of the manufacturers. The key points for future outlooks are as follows.



Guiding Start-ups and Transformation

We cooperate with the Executive Yuan to promote the development of industrial innovation and grasp the global trend of digital intelligence. We support industrial innovation with technology, strengthen R&D of key industrial technologies and further promote industrial transformation and upgrade. We also nurture start-up companies and invest in the development of

- AI technology and apply it to the processes of manufacturers.



Increasing Industrial Value

Make up the supply chain gap for semiconductor and other industries, target at the investment goals, create complete industrial clusters and continue to strengthen the competitiveness of the industrial clusters in the science park.



Expanding the Park Area

We organize the construction of Ciaotou Science Park and the expansion projects of Tainan Science Park to ensure sufficient supply of industrial land. A virtual park of IoT information security is planned and built to assist manufacturers in the introduction of IoT and establish a sound protection system for information safety.



Establishment of a Talent Platform

Improve the Industry-Academia Platform tools, provide diverse channels for technical talents, make use of industry planning resources for industry-research and industry-academia connection and help manufacturers with the talent exchange activities.



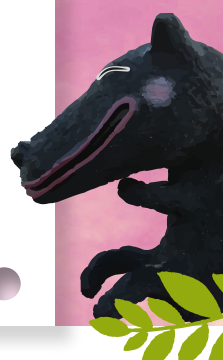
Establishment of a Demonstration Field

Promote the integrated application of autonomous shuttle bus and indoor positioning technology with the occupational safety and health, showing the achievement of the advanced technology of the science park, reducing the operating risks of manufacturers and enhancing the overall image of STSP.



Improvement of Life Functions

We all want to have a good job and a good life. Therefore, the Bureau will integrate the organizations in STSP and groups in all fields in the surrounding areas to hold activities with characteristics. In addition, we will also introduce convenience stores into Kaohsiung Science Park to improve the convenience of life. What is more, we also work with STSP Museum of Archaeology and jointly encourage employees of park manufacturers to visit the museum, shaping an image of technology and humanities of STSP.





Appendix

Appendix I: Global Reporting Initiative (GRI) Index

"*" indicates major aspects while

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
Organizational Profile				
GRI102 General disclosure 2016	102-1	Name of the organization	2.1 About Southern Taiwan Science Park	37
	102-2	Activities, brands, products, and services	2.1 About Southern Taiwan Science Park	37
	102-3	Location of headquarters	2.1 About Southern Taiwan Science Park	37
	102-4	Location of operations	2.1 About Southern Taiwan Science Park	37
	102-5	Ownership and legal form	2.1 About Southern Taiwan Science Park	37
	102-6	Markets served	2.1 About Southern Taiwan Science Park	37
	102-7	Scale of the organization	2.1 About Southern Taiwan Science Park	37
	102-8	Information on employees and other workers	3.1 Human Resource Structure	53
	102-9	Supply chain	2.4 Management of Suppliers	51
	102-10	Significant changes to the organization and its supply chain	Editing Guidelines	5
	102-11	Precautionary Principle or approach	2.2 Risk Control Special Column - TCFD Smart Flood Prevention	43 121
	102-12	External initiatives	Editing Guidelines	5
	102-13	Membership of associations	--	
Strategy				
GRI102 General disclosure 2016	102-14	Statement from senior decision-maker	Message from the Director-General	3
	102-15	Key impacts, risks, and opportunities	2.2 Risk Control Special Column - TCFD Smart Flood Prevention	43 121
Ethics and Integrity				
GRI102 General disclosure 2016	102-16	Values, principles, standards, and norms of behavior	2.3 Compliance	48
	102-17	Mechanisms for advice and concerns about ethics	2.3 Compliance	48
Governance				
GRI102 General disclosure 2016	102-18	Governance structure	2.1 About Southern Taiwan Science Park	37
	102-40	List of stakeholder groups	1.2 Stakeholder Communication and Response	21
	102-41	Collective bargaining agreements	No labor union has been established at STSP	

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
GRI102 General disclosure 2016	102-42	Identifying and selecting stakeholders	1.1 Stakeholders and Identification Process of the Material Topics	19
	102-43	Approach to stakeholder engagement	1.2 Stakeholder Communication and Response	21
	102-44	Key topics and concerns raised	1.2 Stakeholder Communication and Response	21

Stakeholder Engagement

GRI102 General disclosure 2016	102-45	Entities included in the consolidated financial statements	STSP is a government agency, and it does not contain entities included in the consolidated financial statement.	
	102-46	Defining report content and topic Boundaries	Editing Guidelines 1.4 Value Chain and Goals of the Material Topics	5 25
	102-47	List of material topics	1.3 Management of Sustainability Issues	23
	102-48	Restatements of information	Editing Guidelines	5
	102-49	Changes in reporting	Editing Guidelines	5
	102-50	Reporting period	Editing Guidelines	5
	102-51	Date of most recent report	Editing Guidelines	5
	102-52	Reporting cycle	Editing Guidelines	5
	102-53	Contact point for questions regarding the report	Editing Guidelines	5
	102-54	Claims of reporting in accordance with the GRI Standards	Editing Guidelines	5
	102-55	GRI content index	Appendix I: Global Reporting Initiative (GRI) Index	157
	102-56	External assurance	Editing Guidelines	5

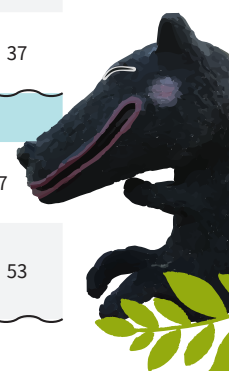
Topic-specific disclosure: 200 series (Economic topics)

Economic performance (Industrial Upgrading)

GRI 201 Disclosure of Economic Performance (Industrial Upgrading) 2016	201-1	Direct economic value generated and distributed	2.1 About Southern Taiwan Science Park	37
	201-2	Financial implications and other risks and opportunities due to climate change	Special Column - TCFD Smart Flood Prevention	121
	201-3	Defined benefit plan obligations and other retirement plans	3.2 Compensation and Benefits	57
	201-4	Financial assistance received from government	2.1 About Southern Taiwan Science Park	37

Market Presence (Level of Wage)

GRI 202 Disclosure of Market Presence (Level of Wage) 2016	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	3.2 Compensation and Benefits	57
	202-2	Proportion of senior management hired from the local community	3.1 Human Resource Structure	53





GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
* Indirect Economic Impacts (Infrastructure in the Park)				
GRI 103 Management approach of Indirect Economic Impacts (Infrastructure in the Park) 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
<hr/>				
GRI 203 Disclosure of Indirect Economic Impacts (Infrastructure in the Park) 2016	203-1	Infrastructure investments and services supported	7.2 Good-Neighborliness	148
<hr/>				
Procurement Practices				
GRI 204 Disclosure of Procurement Practices 2016	204-1	Proportion of spending on local suppliers	2.4 Management of Suppliers	51
<hr/>				
Anti-corruption				
GRI 205 Disclosure of Anti- corruption 2016	205-1	Operations assessed for risks related to corruption	2.3 Compliance	48
	205-2	Communication and training about anticorruption policies and procedures	2.3 Compliance	48
	205-3	Confirmed incidents of corruption and actions taken	2.3 Compliance	48
<hr/>				
Anti-competitive Behavior				
GRI 206 Disclosure of Anti-competitive Behavior 2016	206-1	Legal actions for anti-competitive behavior, anti- trust, and monopoly practices	2.3 Compliance	48
<hr/>				
* Investment Promotion				
GRI 103 Management approach of Investment Promotion 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
<hr/>				
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	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
<hr/>				

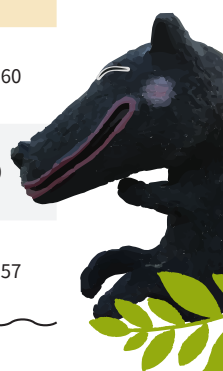
GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
GRI 302 Disclosure of Energy topics 2016	302-1	Energy consumption within the organization	3.5 Energy Conservation	61
			6.1 Energy Resources Management at STSP	127
	302-3	Energy intensity	3.5 Energy Conservation	61
			6.1 Energy Resources Management at STSP	127
302-4	Reduction of energy consumption	3.5 Energy Conservation	61	
		6.1 Energy Resources Management at STSP	127	
* Water and Effluents				
GRI 303 Disclosure of Water and Effluents topics 2018	303-1	Interactions with water as a shared resource	6.1 Energy Resources Management at STSP	127
			6.3 Pollution Control Measures of Park Businesses	132
	303-2	Management of water discharge-related impacts	6.3 Pollution Control Measures of Park Businesses	132
	303-3	Water withdrawal	6.3 Pollution Control Measures of Park Businesses	132
	303-4	Water discharge	6.3 Pollution Control Measures of Park Businesses	132
303-5	Water consumption	6.3 Pollution Control Measures of Park Businesses	132	
Biodiversity				
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	6.5 Ecology Conservation at STSP	165
	304-2	Significant impacts of activities, products, and services on biodiversity	6.5 Ecology Conservation at STSP	165
	304-3	Habitats protected or restored	6.5 Ecology Conservation at STSP	165
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	6.5 Ecology Conservation at STSP	165
* Emissions				
GRI 103 Management approach of Emissions 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
GRI 305 Disclosure of Emissions topics 2016	305-1	Direct (Scope 1) GHG emissions	6.1 Energy Resources Management at STSP	127
	305-2	Energy indirect (Scope 2) GHG emissions	6.1 Energy Resources Management at STSP	127
	305-4	GHG emissions intensity	6.1 Energy Resources Management at STSP	127
	305-5	Reduction of GHG emissions	6.2 Counseling of Energy Conservation for Park Businesses	129





GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
* Effluents and Waste				
GRI 103 Management approach of Effluents and Waste 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
GRI 306 Disclosure of Effluents and Waste topics 2016	306-1	Water discharge by quality and destination	6.3 Pollution Control Measures of Park Businesses	132
	306-2	Waste by type and disposal method	6.3 Pollution Control Measures of Park Businesses	132
	306-3	Significant spills	STSP is no serious leakage	
	306-4	Transport of hazardous waste	6.3 Pollution Control Measures of Park Businesses	132
	306-5	Water bodies affected by water discharges and/or runoff	6.3 Pollution Control Measures of Park Businesses	132
* Environmental Compliance				
GRI 103 Management approach of Environmental Compliance 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
GRI 307 Disclosure of Environmental Compliance topics 2016	307-1	Non-compliance with environmental laws and regulations	2.3 Compliance	48
* Climate Change				
GRI 103 Management approach of Climate Change 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
Topic-specific disclosure: 400 series (Social topics)				
Employment				
GRI 401 Disclosure of Employment topics 2016	401-1	New employee hires and employee turnover	3.1 Human Resource Structure	53
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	3.2 Compensation and Benefits	57
	401-3	Parental leave	3.1 Human Resource Structure	53

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
Labor/Management Relations				
GRI 402 Disclosure of Labor/ Management Relations 2016	402-1	Minimum notice periods regarding operational changes	3.1 Human Resource Structure	53
Occupational Health and Safety				
GRI 403 Disclosure of Occupational Health and Safety topics 2018	403-1	Occupational health and safety management system	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-2	Hazard identification, risk assessment, and incident investigation	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-3	Occupational health services	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-4	Worker participation, consultation, and communication on occupational health and safety	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-5	Worker training on occupational health and safety	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-6	Promotion of worker health	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-8	Workers covered by an occupational health and safety management system	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-9	Work-related injuries	Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	83
	403-10	Work-related ill health	3.1 Human Resource Structure Special Column- Industrial Safety White Papers-Smart Innovation and Health Science Park	53 83
Training and Education				
GRI 404 Disclosure of Training and Education topics 2016	404-1	Average hours of training per year per employee	3.4 Education and Training	60
	404-2	Programs for upgrading employee skills and transition assistance programs	3.4 Education and Training	60
	404-3	Percentage of employees receiving regular performance and career development reviews	3.2 Compensation and Benefits	57





GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
Diversity and Equal Opportunity				
GRI 405 Disclosure of Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	3.1 Human Resource Structure	53
Non-discrimination				
GRI 406 Disclosure of Non-discrimination 2016	406-1	Incidents of discrimination and corrective actions taken	3.3 Labor-Management Equality 4.3 Implementation of Labor Equality	59 75
Freedom of Association and Collective Bargaining				
GRI 407 Disclosure of Freedom of Association and Collective Bargaining 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	3.2 Compensation and Benefits	57
Child Labor				
GRI 408 Disclosure of Child Labor 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	3.1 Human Resource Structure	53
Forced or Compulsory Labor				
GRI 409 Disclosure of Forced or Compulsory Labor 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	STSP' s operations and suppliers were no forced labor of incidents.	
Rights of Indigenous Peoples				
GRI 411 Disclosure of Rights of Indigenous Peoples 2016	411-1	Incidents of violations involving rights of indigenous peoples	STSP was no cases of violations involving rights of indigenous peoples.	
Human Rights Assessment				
GRI 412 Disclosure of Rights of Human Rights Assessment 2016	412-2	Employee training on human rights policies or procedures	3.3 Labor-Management Equality	59
* Local Communities				
GRI 103 Management approach of Local Communities 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
GRI 413 Disclosure of Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	4.1 Employment of Talent in the Science Park	67
			4.2 Cultivation of Talent in the Science Park	71
			4.4 Good Workplace for Park Businesses	78

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page
Public Policy				
GRI 415 Disclosure of Public Policy 2016	415-1	Political contributions	STSP was no cases of political contributions.	
Marketing and Labeling				
GRI 417 Disclosure of Marketing and Labeling 2016	417-1	Requirements for product and service information and labeling	STSP is a government agency, and it has no profit- making products and services.	
* Customer Privacy				
GRI 103 Management approach of Customer Privacy 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
GRI 418 Disclosure of Customer Privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	2.2 Risk Control	43
* Socioeconomic Compliance				
GRI 103 Management approach of Socioeconomic Compliance 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25
GRI 419 Disclosure of Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	2.3 Compliance	48
* Safe Working Environment				
GRI 103 Management approach of Safe Working Environment 2016	103-1	Explanation of the material topic and its Boundary	1.4 Value Chain and Goals of the Material Topics	25
	103-2	The management approach and its components	1.4 Value Chain and Goals of the Material Topics	25
	103-3	Evaluation of the management approach	1.4 Value Chain and Goals of the Material Topics	25





Appendix II : Sustainable Development Goals (SDGs) Index

Item	Sustainable Development Goals	Chapter and Section	Page
Goal 1	End poverty in all its forms everywhere	4.1 Employment of Talent in the Science Park	67
Goal 3	Ensure healthy lives and promote well-being for all at all ages	4.4 Good Workplace for Park Businesses	78
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	4.2 Cultivation of Talent in the Science Park	71
Goal 5	Achieve gender equality and empower all women and girls	4.3 Implementation of Labor Equality	75
Goal 6	Ensure availability and sustainable management of water and sanitation for all.	6.1 Energy Resources Management at STSP	127
		6.3 Pollution Control Measures of Park Businesses	132
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all.	6.4 Pollution Control Measures of Park Businesses	139
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	5.1 Overview of the Park Development	95
Goal 9	Build resilient infrastructure, promote inclusive and Sustainable industrialization and foster innovation.	5.3 Industry-Government-University-Research-Medicine Project	104
Goal 10	Reduce inequality within and among countries	4.3 Implementation of Labor Equality	75
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable.	4.4 Good Workplace for Park Businesses	78
Goal 12	Ensure sustainable consumption and production patterns.	6.3 Pollution Control Measures of Park Businesses	132
Goal 13	Take urgent action to combat climate change and its impacts.	Special Column - TCFD Smart Flood Prevention	121
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.	6.5 Ecology Conservation at STSP	165
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.	1.2 Stakeholder Communication and Response	21
		2.3 Compliance	48
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	5.2 International Exchanges	98

Appendix III : 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 Compliance	48
2. Human Rights			
2.1	Due diligence	4.3 Implementation of Labor Equality	75
2.2	Human rights risk situations	4.3 Implementation of Labor Equality	75
2.3	Avoidance of complicity	2.3 Compliance	48
2.4	Resolving grievances	4.3 Implementation of Labor Equality	75
2.5	Discrimination and vulnerable groups	4.3 Implementation of Labor Equality	75
2.6	Civil and political rights	4.3 Implementation of Labor Equality	75
2.7	Economic, social and cultural rights	4.3 Implementation of Labor Equality	75
2.8	Fundamental principles and rights at work	4.3 Implementation of Labor Equality	75
3. Labor Practices			
3.1	Employment and employment relationships	3.1 Human Resource Structure	53
		4.3 Implementation of Labor Equality	75
3.2	Conditions of work and social protection	4.3 Implementation of Labor Equality	75
3.3	Social dialogue	4.3 Implementation of Labor Equality	75
3.4	Health and safety at work	Special Column- Industrial Safety White Papers · Smart Innovation and Health Science Park	83
3.5	Human development and training in the workplace	4.2 Cultivation of Talent in the Science Park	71
4. The Environment			
4.1	Prevention of pollution	6.3 Pollution Control Measures of Park Businesses	132
4.2	Sustainable resource use	6.1 Energy Resources Management at STSP	127
4.3	Climate change mitigation and adaptation	Special Column - TCFD Smart Flood Prevention	121
		6.4 Pollution Control Measures of Park Businesses	139
4.4	Protection of the environment, biodiversity and restoration of natural habitats	6.5 Ecology Conservation at STSP	165
5. Fair Operating Practices			
5.1	Anti-corruption	2.3 Compliance	48
5.2	Responsible political involvement	2.3 Compliance	48
5.3	Fair competition	2.4 Management of Suppliers	51
5.4	Promoting social responsibility in the value chain	1.4 Value Chain and Goals of the Material Topics	25
5.5	Respect for property rights	2.3 Compliance	48





Item	Article	Chapter and Section	Page
6.Consumer Issues			
6.1	Fair marketing, factual and unbiased information and fair contractual practices	1.2 Stakeholder Communication and Response	21
6.2	Protecting consumers' health and safety	1.2 Stakeholder Communication and Response	21
6.3	Sustainable consumption	1.2 Stakeholder Communication and Response	21
6.4	Consumer service, support, and complaint and dispute resolution	1.2 Stakeholder Communication and Response	21
6.5	Consumer data protection and privacy	2.2 Risk Control	43
6.6	Access to essential services	2.1 About Southern Taiwan Science Park	37
6.7	Education and awareness	1.2 Stakeholder Communication and Response	21
7.Community Involvement and Development			
7.1	Community involvement	7.2 Good-Neighborliness	148
7.2	Education and culture	7.1 Installation Art	147
		Special Column - Exploration of Prehistoric Culture	152
7.3	Employment creation and skills development	4.1 Employment of Talent in the Science Park	67
		5.3 Industry-Government-University-Research-Medicine Project	104
7.4	Technology development and access	5.1 Overview of the Park Development	95
7.5	Wealth and income creation	5.1 Overview of the Park Development	95
7.6	Health	Special Column- Industrial Safety White Papers · Smart Innovation and Health Science Park	83
7.7	Social investment	5.4 Start-up Competition	114

Appendix IV : United Nation Global Compact Index

Item	Article	Chapter and Section	Page
1.Human Rights			
1	Businesses should support and respect the protection of internationally proclaimed human rights.	4.3 Implementation of Labor Equality	75
2	Make sure that they are not complicit in human rights abuses.	3.3 Labor-Management Equality	59
2.Labor			
3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	4.3 Implementation of Labor Equality	75
4	The elimination of all forms of forced and compulsory labor.	4.3 Implementation of Labor Equality	75
5	The effective abolition of child labor.	4.3 Implementation of Labor Equality	75
6	The elimination of discrimination in respect of employment and occupation.	4.3 Implementation of Labor Equality	75
3.Environment			
7	Businesses should support a precautionary approach to environmental challenges.	Special Column - TCFD Smart Flood Prevention 6.4 Pollution Control Measures of Park Businesses	121 139
8	Undertake initiatives to promote greater environmental responsibility.	6.1 Energy Resources Management at STSP 6.3 Pollution Control Measures of Park Businesses	127 132
9	Encourage the development and diffusion of environmentally friendly technologies.	6.4 Pollution Control Measures of Park Businesses	139
4.Anti-Corruption			
10	Businesses should work against corruption in all its forms, including extortion and bribery.	2.3 Compliance	48







Corporate Sustainability Report



Southern Taiwan Science Park