



Southern Taiwan Science Park Bureau,
National Science and Technology Council

Corporate Sustainability Report

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Note: Excellent Science Park discloses the contents concerning industrial cluster development and external exchanges while Harmonious Community discloses information of the friendly workplace of the park manufacturers, safety protection and community feedback.



Abstract

Southern Taiwan Science Park (STSP) serves as the technology powerhouse in southern Taiwan. Southern Taiwan Science Park Bureau of National Science and Technology Council (hereinafter referred to as STSP Bureau, the Bureau, and We) is dedicated to the creation of a sound industrial cluster in the science park and at the same time attaching great importance to the integration of “Production, Living, Ecology, and Life” and promoting STSP to become a sustainable green park. We have established communication channels with our stakeholders and published our tenth Sustainability Report disclosing information on three major aspects of ESG (Environment, Social and Corporate Governance) corresponding to 15 of the SDGs, and material topics our stakeholders concern about are responded to in a public and open manner in this Report to reveal the implementation results of the Bureau.

Environment – Environmentally Friendliness

As manufacturers continue to enter STSP, the Bureau has spared no efforts with respect to environmental protection, provision of stable water and power supply, energy-saving facilities and e-buses, the maintenance of public works and facilities in the science park, and the implementation of regular environmental monitoring. At the same time, we also introduced an identification tool to understand climate-related risks in the science park. Furthermore, we have actively guided park manufacturers to improve resource use efficiency and. In 2021, we guided the manufacturers to conserve water and electricity and reduced cumulative potential of 51,766.9 metric tons of CO₂e. STSP is not merely a high-tech science park, it is also a planned area for ecological protection. The Bureau entrusts an ecological survey team to carry out regular ecological survey. STSP obtained the green building label (EEWH-EC) change assessment (continued) in 2021, showing the effectiveness of the implementation of sustainable development, green science park, and plans for energy conservation and carbon reduction.

Social – Excellent Science Park, Harmonious Community

STSP is the regional innovation hub linked to the local government-industry-academia-institute capacity, providing excellent investment environment, and has introduced various innovative R&D businesses into the science park area. The annual turnover of STSP in 2021 amounted to NTD 1,948.84 billion, a 29.15% increase compared with 2020. Significant growth can be observed in the six major industries in the science park, including integrated circuits, optoelectronics, precision machinery and communications, with 254 validly approved manufacturers and 20 newly introduced manufacturers (including 10 start-ups). The investment amount from new manufacturers amounted to NTD 7.55 billion, attracting not only manufacturers but also talents. As of the end of 2021, the total number of employees in STSP totaled 84,050, a 5% growth over the same period in 2020, creating economic output and employment opportunities, making STSP a practical field for innovative industries for the next generation, and facilitating innovation and transformation of the science park.

Meanwhile, the Bureau continues to complete and better the infrastructure and life functions in the park area, introducing the Little Bear Baby Care Center of Luzhu Science Park Branch to provide nursery services for the employees in the park. In addition, Virtual Reality and communication technology are combined for the creation of the “Occupational Safety and Health Multi-somatosensory Extended Reality (XR), Disaster Prevention Simulation Training Field Project” to reinforce the necessary knowledge of occupational safety and health in the workplace for the embodiment of a smart, innovative, and safe STSP. Furthermore, we regularly organize late-spring art events, ball games and neighborly activities, and the professional badminton player, Tai Tzu-Ying was invited to be the spokesperson for the fourth time to encourage the employees in the park to maintain a balance between work and life, creating a living environment with comfort and cultural atmosphere.

Governance – Integrity Governance

As a public agency, STSP Bureau abides by the Ethics Directions for Civil Servants prescribed by the Executive Yuan and asks the employees to conduct law-based administration when implementing their duties with integrity and impartiality. We cooperate with the advocacy of integrity, implement the internal control system, plan training courses containing major national policies, and abide by various laws and regulations. In response to the COVID-19 pandemic, the Bureau cooperated with the Central Epidemic Command Center and carried anti-epidemic measures and set up screening stations together with the local government and park manufacturers by combining resources. Park manufacturers also actively donated anti-epidemic materials. We even provided the relief plan of rent (royalty) reduction to help the service industry in the park go through the operational difficulties caused by the severe pandemic. STSP Bureau stands by all park manufacturers in the fight against the epidemic together.



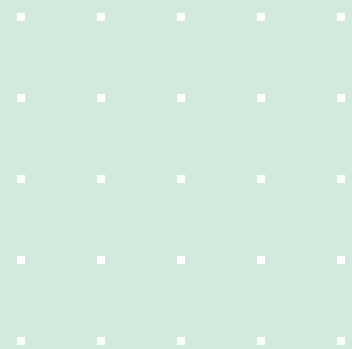
Message from the Director-General

In 2021, we were faced with the COVID-19 epidemic and the tight water supply countrywide, but we worked together with the manufacturers in the face of these challenges. In the 26th year of the establishment, the turnover of STSP surged to over NTD 1,000 billion, reaching NTD 1,948.84 billion, and the number of employees also hit a record high, reaching 84,000. STSP has stepped into a golden era of high growth, and we would like to express our gratitude to all the partners who have supported the development of the park along the way.

To support the needs for industrial development, STSP is actively preparing the land for industrial development. The newly established Ciatou Science Park has passed EIA as scheduled, and the business invitation implemented simultaneously also achieved great results. The investment is expected to exceed NTD 100 billion. The planned Pingtung and Chiayi Science Parks have also been approved by the Executive Yuan for establishment, coupled with the development of the Tainan Science Park Phase III Expansion Project, STSP is gradually becoming the world's largest cluster of semiconductor industry. The technology corridor in southern Taiwan will be completed to strengthen the regional economic resilience.

While the park manufacturers continue to increase their investment, the Bureau continues its dedication to environmental protection. STSP Bureau has established the environmental quality monitoring survey information disclosure, strengthened manufacturers' emission management, promoted the establishment of diamond-level green building and green factories, required manufacturers to work on water and power conservation, reduced the carbon emissions in the park area by over 50,000 tonnes, equipment to the carbon reduction of 133 Daan Forest parks in a year. Meanwhile, the Bureau is also devoted to creating a friendly and safe workplace, optimizing both childcare services and education in the National Nanke International Experimental High School (NNKIEH), enhancing the awareness of gender equality in employment, organizing various activities such as sports activities, late-spring art events, group wedding, and Christmas party for employees at STSP to maintain a balance between work and life, creating a livable and happy science park.

In the future, the development of STSP will move toward the visions of "innovation, inclusion and sustainability" and will continue to promote digital transformation of the industry and assist in R&D innovation while at the same time establish a friendly environment that enables technology and the environment to develop together, making STSP a model of a new type of science park with "exquisite diversity", "high-quality life", and "energy conservation and sustainability".



Director-General

蘇振綱

Highlights of Annual Performance

Environment

The reuse volume of the industrial waste in the science park reached **407,152.49** tons, with the reuse rate of **90.62%**

Completed the counseling of energy conservation for **6** park manufacturers and the counseling of water conservation for **5** park manufacturers.

The total amount of water recovered in the whole park area was about **619,980** tons.

The quality of the discharged water was **100%** in line with the Effluent Standards.

Installed solar power generation system with the capacity of **4.62MW**.

Promoted the Self-management Program of Diesel Vehicle Exhaust, and a total (cumulative) of **3,167** vehicles obtained the exhaust emission mark.

Among the birds observed, **6** species in Tainan Science Park and **10** species in Kaohsiung Science Park are the protected birds announced by the Council of Agriculture, which is shared through online media.

Organized 23 sessions of educational education courses, with a total of **792** participants.

Governance

The total training hours of the STSP Bureau staff was **5,264 hours**, and the average training hours was **42 hours**.

Organized anti-corruption advocacy activities and seminars, with a total of **100** participants.

Complied with environmental laws and regulations, and there were **no** major environmental pollution incidents.

Organized **2** sessions of environmental protection-related seminars.



The 2020 Unit of Merit for Environmental Protection of Self-management of Diesel Vehicle Exhaust by the Environmental Protection Bureau of Tainan City

The annual turnover amounted to **NTD 1,948.84 billion**, an increase of **29.15%** compared with 2020.

The cumulative validly approved manufacturers reached **254**, and **20** manufactures were introduced to the park, with an investment amount of **NTD 7.55 billion**.

Established an **experimental field for 5G private network application** to assist innovation of industrial technology.

Ciaotou Science Park **has completed the EIA** and entered investment attraction and development stage.

Completed the construction of the **Little Bear Baby Care Center, Luzhu Science Park Branch**.

The overall health service rate of the science parks within STSP has reached **99.80%**.

Promoted "On-site Counseling of Occupational Safety and Health", and there were **57** sessions of counseling in total.

4 manufacturers and **10** employees in the science park won the excellent industrial safety unit (personnel) award.

The occupational disaster rate (per thousand people) was **1.09‰**, an **11%** drop compared with the 3-year average.

Organized on-site counseling, publicity meetings, education & training, emergency response drills, and sharing sessions, with **129** sessions in total.

Completed **1,011** sessions of labor inspection (926 sessions of occupational safety and health inspections and 85 sessions of labor condition inspections).

Completed about **85** labor disputes mediations.

Organized the opening of the "**Occupational Safety and Health Multi-somatosensory Extended Reality (XR), Disaster Prevention Simulation Training Field**" and completed the XR software platform and three disaster prevention simulation training courses.



Ranked "Excellent" in the institutional performance evaluation of labor inspection in 2021

About STSP

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

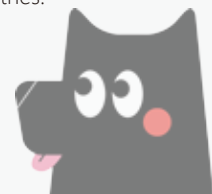


Tainan Science Park is located among Xinshi, Shanhu and Anding Districts, with an area of 1,043 hectares. The main industries include optoelectronics, integrated circuits, precision machinery, biotechnology and green energy industries. The existing green energy manufacturers in the park and the surrounding 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.

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.



STSP Service Items



Application
Procedure

The purpose of the establishment of the science park is to establish an excellent base for the development of high-tech industry, balance regional development, and facilitate industrial upgrading. During the expansion process, there is a need to coordinate and communicate with all sectors in terms of environmental, safety, labor, and tax issues. STSP Bureau provides a one-stop service for park manufacturers. Coupled with the integrated infrastructure, including water, gas, power supply, logistics and safety assurance, we support smooth operation of park manufacturers, maintain excellent investment environment and quality of life to facilitate industrial development.

We cooperate with the transformation of the government organizations and organize work related to information business and present STSP Bureau 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	188
	Usage permit (including change)	
	Interior renovation	
Review of environmental permit	Stationary Pollution Source Permit	421
	Water Pollution Permit	
	Waste Permit	
	Waste Recycling Permit	
Foreign trade visa	Export permit (EP)	926
	Import permit (IP)	
	Strategic High-tech Commodities (SHTC) Export Permit	
	Strategic High-tech Commodities International Import Certificate (IC)	
	General Certificate of Origin	
	Cross-Straits Economic Cooperation Framework Agreement (ECFA) Certificate of Origin	
Industrial and commercial registration	Handling company, factory, completion certification, chattel secured transactions and so on	414

Scale of Budget

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

2021 Budget scale of STSP Bureau (NNIEHS excluded)

Item	Amount
The final amount of annual expenditure (including final amount of personnel expenses ^{Note 1})	NTD 0.399 billion (NTD 0.162 billion)
The final account of expenditure of the total business revenues	NTD 5.732 billion
The final account of the total business costs	NTD 4.313 billion
The final account of the fixed assets construction improvement and expansion plans	NTD 2.156 billion
Business taxes paid	NTD 37 million

Notes :

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

STSP Bureau budget, monthly final and accounting reports ►



Special Column-Taking Epidemic Prevention Measures to Safeguard the Science Park



Severe
Pneumonia with
Novel Pathogens
Section

The confirmed cases of the COVID-19 that is raging around the world have gradually increased in Taiwan since the end of April, 2021. The Central Epidemic Command Center (CECC) announced Level 3 Epidemic Alert in Taiwan in May. STSP Bureau immediately upgraded the Epidemic Prevention Measures in Response to the Epidemic for implementation to improve the health and safety of the employees in STSP. We cooperated with CECC and took multiple anti-epidemic measures to safeguard the health of people in the science park.

Set up rapid screening stations to fight against the epidemic with park manufactures

Combine local government resources and set up rapid antigen test stations in two science park areas

The Bureau combined local government resources to set up rapid screening stations in Tainan and Kaohsiung Science Parks to assist park manufacturers to carry out rapid screening for high-risk employees. The screening stations had 100% screening rate of foreign workers within 2 weeks after the implementation of such measure on June 9. A total of 8,290 foreign workers were screened, and all the results were negative.



Park manufacturers actively donated materials for joint epidemic prevention

Park manufacturers donated rapid screening stations, masks and face shields, reagents for COVID-19 and other materials. They also donated two police patrol cars for grassroots police officers to use when on duty. Park manufacturers took initiatives to joining and responding to material donations.

Attaching importance to epidemic prevention and human rights and inspecting dormitories for foreign works in the park areas

STSP Bureau has strengthened park manufacturers' epidemic prevention measures in the workplace and management of labor (foreign workers). STSP Director-General, Su Cheng-Kang, visited foreign laborer's dormitories many times and found that the management and facilities of these dormitories were compliant with regulations, and they were also considerate and human rights are also taken into account.

Work with park manufacturers to set up the first zero-contact screening stations in Taiwan

The Bureau set up the very first zero-contact screening station on May 28, which was donated by TSMC Charity Foundation, and the on-site services were provided by Chi Mei Hospital, providing more efficient and convenient nucleic acid amplification tests (NAATs) for park manufacturers.



Advanced deployment for vaccination

The Bureau cooperated with the COVID-19 Inoculation Plan for Science Parks affiliated to Ministry of Science and Technology (MOST) and worked in line with CECC and local governments to assist large corporations in the science parks to set up vaccination sites and planned large-scale vaccination sites for small and medium-sized enterprises (SMEs) in the science parks.

Cooperating with regulations of Ministry of Labor and implementing epidemic prevention management

Park manufacturers worked in line with the "Foreign Worker Employment Guidelines in Response to Severe Pneumonia with Novel Pathogens (COVID-19): Managing the Work, Life and Outdoor Activities of Foreign Workers" and strengthened the epidemic prevention management of foreign workers. The Bureau has completed the inspection and counseling of 162 business units that hire foreign workers.

Joint anti-epidemic efforts to work together with life service industry in the park

The Bureau and the life service industry (Park 17 Mall, community center, Owin 1 Fitness Center, the Premier Restaurant, Xingan Temple, and Xingan Community Culture Museum) carried out joint epidemic prevention measures.

COVID-19拉警報

南科管理局與園區生活服務業，攜手防疫不鬆懈



管制單一出入口



配戴口罩 量測體溫



提供消毒酒精



定時消毒環境



保持社交距離



落實實聯制



提供外送/防疫餐盒



提供紓困方案

Relief plan and assistance to the service industry in the park

The severe epidemic caused operational difficulties for industrial, commercial and life service industries in the science park. To help these businesses, the Bureau cooperated with MOST and provided relief plans of rent (royalty) reduction.

Relief plan of rent reduction in the science park

適用對象

自 2021 年 5 月至 2021 年 11 月止，營業期間受疫情影響營運之廠商，其營業額較 2019 年同期等合理比較基期衰退者。

廠商資格

承租或營運管理局管有不動產之服務業
包括：餐館、旅館、旅行社、PARK 17 商場、科技生活館、休閒運動設施、活動中心、報關運輸業、診所、托嬰托兒補教業、便利商店、停車場業者

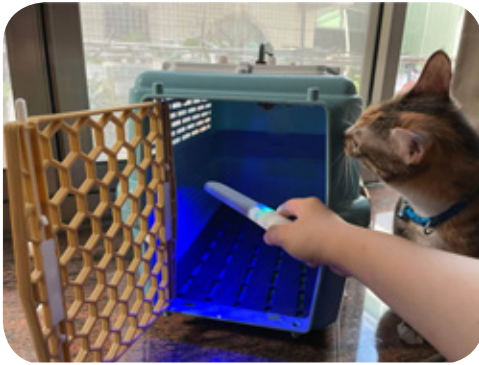
申請期間

自即日起至2021年12月31日止

紓困方案

1.經管理局核准後
2.租金(權利金)減半收取至多7個月

With the spread of the epidemic, the R&D of anti-epidemic products has started globally. The Start-up Workshop provided guidance to start-up teams to make use of their technological advantages in the R&D to launch good anti-epidemic products, which continued to bring operational momentum to start-ups under the impact of epidemic.



Opticser Co., Ltd. first launched the UV C-portable-sterilizer



GEcoll Biomedical researched and developed the safe and hypoallergenic SAY CHILL Tea Tree Antimicrobial Spray



DROXO TECH used drones in epidemic prevention for disinfection. In May, 2021, DROXO TECH utilized 2 drones and completed the urgent disinfection work of the entire campus of Tai An Elementary School in Taichung in half a day.



The Proraylik team developed the coronavirus protein microarray in the early stage of COVID-19 epidemic, and the results were published in the international Analytical Chemistry, and non-exclusive authorization was also conducted with large manufacturers in USA.

I would like to extend my gratitude to our partners in all science park areas and the STSP Bureau for their voluntary and full cooperation with epidemic prevention measures to reduce the risks of contracting diseases, preventing the spread of the epidemic and safeguarding the health of the employees. STSP Bureau will continue providing its services to the employees in the science park to enable them to go through the severe and difficult period of the epidemic.

Special Column - Expansion of the Park Area

According to the land lease statistics, as of the end of December, 2021, the lease rate of Tainan Science Park was 99.58% while that of Kaohsiung Science Park was 94.57%. 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. In addition, the development thinking incorporated with innovation, sustainability, and inclusion is introduced to assist in the upgrading of local industries, making the science park the driving force for Taiwan's new economy.

The promotion of newly established expansion parks is estimated to create at least NTD 202.2 billion in output value, providing approximately 22,100 job opportunities, expanding the existing effect of industrial clusters, driving innovation of local industries by integrating software and hardware resources, strengthening regional economic resilience, and completing the technology corridor in southern Taiwan.

Tainan Science Park Phase III Expansion Project

The Tainan Science Park Phase III Expansion Project (hereinafter referred to as Phase III Project) is located in Kanxi Farm on the southwest side of Tainan Science Park, and industries to be introduced include semiconductors, smart machinery, precision health and industrial innovation to create the effect of industrial clusters. Currently, there are several manufacturers that have already deployed ahead and scheduled their factory expansion projects here on the land for Phase III Project.

Profile of Tainan Science Park Phase III Expansion Project

- ▶ The environmental assessment and changes in urban planning are being handled
- ▶ A total area of 84.51 hectares, 38.91 hectares for plant establishment
- ▶ Expected to be provided for manufacturers to enter and set up plants in January, 2023
- ▶ Expected to create an annual output of approximately NTD 39.2 billion and create 4,900 job opportunities

Notional diagram of the Tainan Science Park Phase III Expansion Project ▶



Ciaotou Science Park

Ciaotou Science Park, the second park area of STSP Kaohsiung Science Park is planned to be established on an exclusive industrial zone within the expropriation area of the Kaohsiung New Town Second Phase Development Area. The EIA report was deliberated and passed on September 1, 2021, by EPA, and selection and investment attraction were conducted on December 24 of the same year, and a total of 20 manufacturers participated in the land selection with the amount of investment exceeding NTD 100 billion. The local industries will be upgraded, and the direction of development will move toward AIoT to develop industries including semiconductor, aerospace, smart machinery, precision health and industrial innovation. In the future, Ciaotou Science Park will connect STSP, Shallun Smart Green Energy Science City, and Kaohsiung Science Park in the north, with the Kaohsiung Nanzih Technology Industrial Park and Asia New Bay Area in the south, making the technology corridor more complete.



Ciaotou Science Park

- ▶ A total area of 262.39 hectares, 163.94 hectares for plant establishment
- ▶ Expected to be provided for manufacturers to enter and set up plants in September, 2022
- ▶ Expected to create an annual output of approximately NTD 100-180 billion and create 7,500-11,000 job opportunities

◀ Notional diagram of the industrial planning in the Ciaotou Science Park

Chiayi Science Park

Chiayi Science Park is located in Taibao Farm in Taibao City, with a total area of 88 hectares, and the substantive planning procedures including permit for non-urban land development and environmental assessment are in process. In the future, industries including precise health industry, smart vehicles, smart agriculture and other emerging technologies will be introduced into this park. The public works and the plants are both expected to start in April, 2023, and it is expected to create an annual output of approximately NTD 32.5-38 billion and 4,900~5,700 job opportunities, promoting the vision of "Introducing technology industry into the agricultural and industrial county" for Chiayi County.

Chiayi Science Park

- ▶ The substantive planning procedures including permit for non-urban land development and environmental assessment are in process
- ▶ A total area of 88 hectares, 40.68 hectares for plant establishment
- ▶ Expected to be provided for manufacturers to enter and set up plants in April, 2023
- ▶ Expected to create an annual output of approximately NTD 32.5-38 billion and create 4,900~5,700 job opportunities

Notional diagram of the industrial planning in the Chiayi Science Park ▶



Pingtung Science Park

Pingtung Science Park is located in the designated area for Pingtung High Speed Railway. STSP Bureau and Pingtung County Government organized the 2021 Exchange Meeting for the Future Industrial Development of Smart Agriculture and Medicine in the Great Pingtung Region on October 1, 2021, gathering the industry, government, academia, research institutes and medical circles to discuss the combination of local characteristic resources and the linkage of the current capacity of the park. In the future, Smart Agriculture and Smart Medicine, green materials, space technology and other emerging technologies will be introduced to promote Pingtung's visions of "Industrial Innovation, Pingtung Renovation" .



Pingtung Science Park

- ▶ The substantive planning procedures including permit for non-urban land development and environmental assessment are being handled.
- ▶ A total area of 73.83 hectares, 38.17 hectares for plant establishment
- ▶ Expected to be provided for manufacturers to enter and set up plants in April, 2023
- ▶ Expected to create an annual output of approximately NTD 30.5-36 billion and create 4,800~5,400 job opportunities
- ▶ Notional diagram of the industrial planning in the Pingtung Science Park

Note: The information above is as of the end of December, 2021

Special Column-Taking the Lead in Building a 5G Field to Assist Industrial Technology Innovation

Work and life patterns are gradually changing in the post-epidemic era. Therefore, the need for industrial transformation and technological innovation in Taiwan are imminent. 5G technology has obviously become the key to transformation and innovation. However, the 5G field and technology in Taiwan are still immature. The AI_ROBOT base took the initiative in building an experimental field for 5G private network application, which not only provides manufacturers willing to develop 5G a free field for scenario testing, but also proposes solutions in response to the needs of various units, including conducting development testing by combining 5G with AR, VR, and other technical capabilities,



Video record of the Result Presentation and Matchmaking Event

focusing on the practical solutions to problems in the industry. Many manufacturers are very optimistic about the future results in this regard.

The Result Evaluation and Presentation & Matchmaking for the 5G AIoT Field Demonstration Project was held in the AI_ROBOT Base, showing the empirical results of assisting companies with innovation with 5G technology. To accelerate the development of 5G combined with AIoT application technology and provide a field for enterprises and opportunities for market trials, the themes were set up for manufacturers targeting at three major fields based on the needs of manufacturers, institutions, and market demands, including 5G industrial control (smart manufacturing), unmanned vehicles (monitoring, logistics, UAM), and precision health (smart care). It is hoped that through the cross-industry cooperation, diverse development resources can be obtained to prepare relatively mature and marketable 5G AIoT technology for project development and field verification to meet the needs for the field and users.



Result Evaluation and Presentation & Matchmaking for the 5G AIoT Field Demonstration Project



On-site evaluation of technology development of the empirical project

Special Column-Advanced Disaster Education and Training Center

To improve workers' occupational safety and health knowledge and enhance their ability to identify hazards, the Occupational Safety and Health Administration of Ministry of Labor and STSP Bureau jointly promote the "Occupational Safety and Health Multi-somatosensory Extended Reality (XR), Disaster Prevention Simulation Training Field Project". At the opening of 2021 Industrial Safety and Environmental Protection Month & Kaohsiung Science Park Joint Defense, Occupational Safety and Health Administration of Ministry of Labor, park manufacturers and experts were invited to experience the training.

More Extended Reality (XR) Disaster Prevention Simulation Training courses will be developed in the field in the future, including joint operation of lifting and hanging of multiple operators, live line operation induction hazard simulation, confined space hazard prevention, chemical use safety, simulation of fall disaster prevention, plate support safety management, simulation training of industrial safety accident review, emergency response commander training and others. The courses are inter-combined with the dynamic equipment built in the field to enable the students to feel the potential danger in the workplace.

Virtual reality technology Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR)

XR software platform

The XR software platform is a field course management system with 6 major functions, including personnel management, course development, distance teaching, grading, operation timing, and statistical analysis of results. It has built-in functions for distance teaching, and with a computer or VR related equipment, immersive learning experience is possible. It also has a student positioning system in the field to understand the evacuation status of students in case of a disaster.



XR software plat-form



Distance teaching function


Positioning function of
personnel in the field

Training courses that
have been completed
in the Extended

XR
software
platform

XR CE

Silane gas cylinder replacement operation

Silicon methane (SiH_4) is a high-risk gas commonly used in high-tech industries. Cases of silicone fire and explosions are referred for the design and a plant with physical gas cylinder cabinets and virtual gas cylinders is provided. Trainees are equipped with AR equipment to operate the virtual panel and replace the physical cylinders. Hazardous situations will be triggered when there are mistakes. Trainees can thus understand the correct procedures to lower errors during operations.


Virtual operation panel of gas
cylinder cabinet


Fire due to operation error



Cylinder installation

Silane gas
cylinder
replacement
operation

Extended Reality (XR) Disaster Prevention Simulation Training Field is the first and most advanced Occupational Safety and Health Multi-somatosensory Extended Reality (XR) Simulation Training Field in Taiwan. The virtual reality design of the course with somatosensory interaction allows students to have immersive experience as if they were on the scene to instill safety and health knowledge required in the workplace and make them have an in-depth understanding of the hazards in the workplace to prevent the occurrence of occupational disasters.

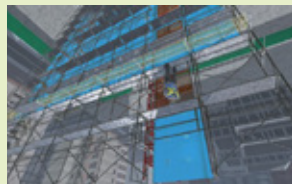


Classroom planning for the Extended Reality (XR) Disaster Prevention Simulation Training Field ▶

5th Generation Mobile Communication Technology (5G) Artificial Intelligence Internet of Things (AIoT)

High-altitude Operation

The most common industrial safety accidents are falls from heights. The wearing of safety equipment is completed by wearing the VR helmet and vibrating floors. After that, inspection and related operations are conducted, and maintenance and repair of unsafe facilities and equipment is conducted. If the measures are not perfect, corresponding occupational disasters will occur, and the self-safety awareness is thereby strengthened.



Experiencing scaffolding



Virtual scene of aerial work platform operation



Inspection before aerial work platform operation

Confined space operation

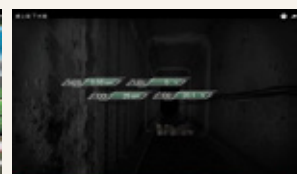
Confined space such as underground pipes, manholes and so on are prone to hazards of hypoxia, carbon monoxide poisoning, flammable gas, and so on. This course is equipped with a touch panel and the projection of a tunnel. Before using the touch panel to enter the manhole for operation, the students should be accurately equipped with safety protection equipment and relevant safety and health facilities before entering the virtual scene of the sewer. Once the above procedures are not completed, the corresponding hazards will be triggered. The students can familiarize themselves with the SOPs of the confined space operations.



Ground equipment erection



Operation for gas detector



Sewer scene

Reality (XR) Disaster
Prevention Simulation
Training Field

High-
altitude
Operation

Confined
space
operation

Special Column-The Opening of the Little Bear Baby Care Center, Luzhu Science Park Branch

To create a friendly working environment for employees in Kaohsiung Park and to reduce the burden of parents, a high-quality childcare facility, the Little Bear Baby Care Center was introduced. After the interior decoration and registration process, this facility was opened on Feb. 20, 2021 to provide affordable childcare services to employees in the park, which also strengthens the investment incentives of Kaohsiung Park.

Curtain unveiling by VIPs ▶



Ribbon cutting by VIPs



The Little Bear Baby Care Center located in Kaohsiung Park (Address: 1F-3-5, No. 37, Houxiang Rd., Luzhu Dist., Kaohsiung City) uses 5-star facilities and equipment to provide affordable and professional nursery services. Exclusive activity space such as the crawling/walking area, bathing areas, sleeping areas and so on are planned, and professional babysitters and preschool teachers will take care of your little ones. This baby care center takes infants and young children from 2 months old to under 2 years old. Priority will be given to the children and grandchildren of employees in the Kaohsiung Park, with the capacity of 45 infants and young children at most.

Interior decoration ▶



Abundant teaching aids ▶



Nursery service for children aged 1~2 years ▶





1

IMPLEMENTATION OF SUSTAINABLE MANAGEMENT



To implement sustainable operations and to promise the determination of value creation for our stakeholders, the STSP Bureau has established a complete mechanism. Substantive analysis was introduced in the compilation of this Sustainability Report the issues of the stakeholders' concern were identified through a systematic analysis model, serving as the reference basis of information disclosure of this Report for effective communication with all stakeholders. The identification process is divided into five steps.



1

Identification of stakeholders

Through internal discussions within STSP Bureau and by referring to the stakeholders identified in the same industry and other benchmark enterprises, the seven categories of stakeholders for 2021 were 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.



2

Collection and deduction of sustainability topics

The sources for the topic collection were based on the 34 topics of the GRI Standards and the indicators of the SDGs and Task Force on Climate-related Financial Disclosures (TCFD) were also referred to. After internal discussion, a total of 30 topics were summarized for the design of the stakeholder questionnaire.



3

Questionnaire survey of the topics

STSP Bureau distributed the questionnaire to survey the issues the stakeholders of the Bureau and the internal management concerned about to strengthen the closeness of its communication with its stakeholders. The weight value of the evaluation criteria was determined based on the analysis results of the questionnaire. A total of 306 copies of the CSR questionnaire were returned.



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 (RPN) of each topic. Those averagely scored 4 and above were identified as material topics. Discussions were made for the adjustment and determination of the disclosure priority.



5

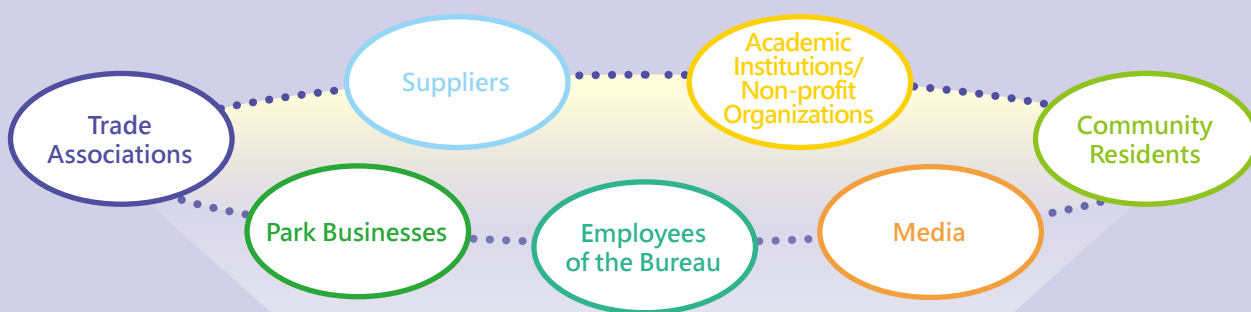
Review and discussion

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 STSP Bureau. Effective management approaches were then established for the material topics, and relevant information was disclosed in the CSR Report.

1.1 Communication with Stakeholders

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

Interaction with Stakeholders



 Employees of the Bureau	Issues of Concern	Significance to the STSP Bureau	
	- Occupational Health and Safety - Talent Development - Safe Working Environment - Level of Wage	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.	
	Method of Engagement	Frequency	Corresponding Measures
	CSR questionnaire, annual satisfaction survey, annual report	Annually	See the chapters for details.
	Monthly report	Monthly	SocialHarmonious Community
	Director-General's mailbox, Employee opinion survey	Immediately	Governance Integrity Governance

 Park Businesses	Issues of Concern	Significance to the STSP Bureau	
	- Waste Management - Energy Resources Management - Occupational Health and Safety - Safe Working Environment - Air Pollution Control	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.	
	Method of Engagement	Frequency	Corresponding Measures
	CSR questionnaire, annual satisfaction survey	Annually	See the chapters for details.
	Director-General's mailbox, Official Website of the Bureau, grievance channels	Immediately	Environment Environmental Friendliness
	Through auditing and counseling activities, labor training, and the nanny system	Immediately	SocialHarmonious Community

 Trade Associations	Issues of Concern	Significance to the STSP Bureau	
	- Waste Management - Labor Management Relations in the Park - Occupational Health and Safety - Infrastructure in the Park - Industrial Upgrading	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.	
	Method of Engagement	Frequency	Corresponding Measures
	CSR questionnaire	Annually	See the chapters for details.
	Director-General's mailbox, official documents, regular meeting of the trade associations, organization of activities	Immediately	- SocialHarmonious Community - Governance Integrity Governance

 Suppliers	Issues of Concern	Significance to the STSP Bureau	
	▶ Safe Working Environment ▶ Air Pollution Control ▶ Environmental Compliance ▶ Infrastructure in the Park ▶ Investment Promotion	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 is extremely important.	
	Method of Engagement	Frequency	Corresponding Measures
	CSR questionnaire	Annually	See the chapters for details.
	Director-General's mailbox, Official Website of the Bureau	Immediately	▶ SocialExcellent Science Park ▶ SocialHarmonious Community ▶ Governance Integrity Governance
	Audit counseling, investment service mechanism	Immediately	

 Academic Institutions/ Non-profit Organizations	Issues of Concern	Significance to the STSP Bureau	
	▶ Circular Econom ▶ Climate Change ▶ Waste Management ▶ Environmental Compliance	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.	
	Method of Engagement	Frequency	Corresponding Measures
	CSR questionnaire	Annually	See the chapters for details.
	Director-General's mailbox	Immediately	▶ Environment Environmental Friendliness ▶ SocialExcellent Science Park ▶ SocialHarmonious Community
	Course training, subsidy program, free visit activities	Immediately	

 Community Residents	Issues of Concern	Significance to the STSP Bureau	
	▶ Environmental Compliance ▶ Energy Resources Management ▶ Waste Management ▶ Industrial Upgrading	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.	
	Method of Engagement	Frequency	Corresponding Measures
	CSR questionnaire	Annually	See the chapters for details.
	Director-General's mailbox, Official Website of the Bureau	Immediately	▶ Environment Environmental Friendliness ▶ SocialHarmonious Community
	Club organization activities, charity activities	Immediately	

 Media	Issues of Concern	Significance to the STSP Bureau	
	▶ Occupational Health and Safety ▶ Waste Management ▶ Air Pollution Control ▶ Investment Promotion	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.	
	Method of Engagement	Frequency	Corresponding Measures
	CSR questionnaire	Annually	See the chapters for details.
	Director-General's mailbox, Official Website of the Bureau, spokesman	Immediately	▶ Environment Environmental Friendliness ▶ SocialExcellent Science Park

STSP Bureau attaches great importance to the communication with its stakeholders. Through the establishment of various websites, major information and news on the Southern Taiwan Science Park Official Website is released on both regular and irregular basis, providing related publications for the stakeholders to download and read. Through the use of charts and simple texts, readers can understand more easily the expectations, efforts, and performance in terms of sustainable management while providing real-time as well as correct information of the science park to the stakeholders. And an English version of the Corporate Sustainability Report was issued, while the English version of the website was also published online for a more international outlook. In addition, the Bureau has also established the STSP 543 Facebook Fanpage to share information in the science park, bringing our stakeholders closer to STSP.



STSP Official Website



STSP's CSR Website



STSP Annual Report



STSP Newsletter



Sustainable Green LOHAS Website



Industrial Safety Newsletter



STSP 543



STSP Public Art

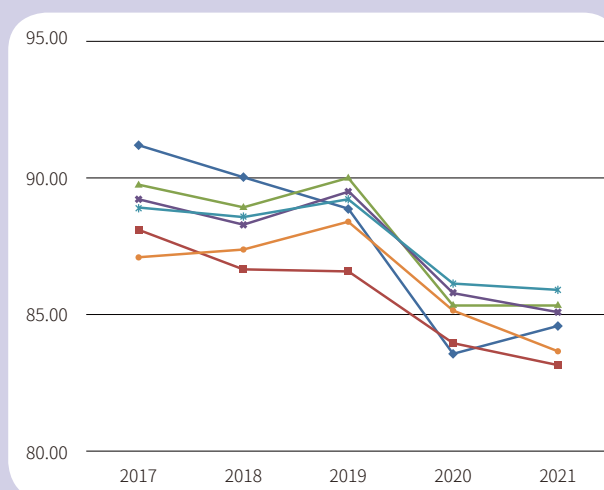


To listen to the staff's voices, STSP Bureau has set up various communication channels such as the Director-General's mailbox in the Secretariat Office and the complaint hotline of the Personnel Office and other compliant channels. Meanwhile, through various programs and plans, we help our staff solve 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.

■ Satisfaction Survey of the STSP

STSP 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 2021, the overall satisfaction of STSP was 83.74 points. Among all the aspects, "park image" and "loyalty and trust" scored the highest, and all aspects scored above 83 points. Indicators with significantly decreased scores in 2020 were the adequacy and stability of water supply, which was mainly because of the situation of water shortage during the satisfaction survey. Regarding this, STSP Bureau has cooperated with the park association and manufacturers, MOEA, Taiwan Water Corporation, Construction and Planning Agency and relevant units, together with the public and private sectors to carry out many times of drills for transporting water, make use of reclaimed water, carry out water conservation measures, and provide the secondary water in the sewage treatment plants and flood detention ponds to park manufacturers for them to maintain normal operation. In addition, in terms of the aspects with relative lower scores, such as power supply, transportation, industrial and commercial service functions, landscape and the quality of green space maintenance, the Bureau has discussed the opinions and feedback of the surrounding residents and park manufacturers through satisfaction survey and set up the park improvement policy to continue to pay attention to the stakeholders' needs and to provide assistance and services.

Satisfaction Survey of the STSP



	2017	2018	2019	2020	2021
✳ Park image	89.07	88.51	89.07	86.03	85.81
■ Resources for park development	88.10	86.95	86.84	84.06	83.51
✳ Park service quality	89.22	88.46	89.31	85.68	85.08
● Overall satisfaction	87.28	87.38	88.58	85.24	83.74
◆ Complaint handling	91.32	89.94	89.13	83.83	84.67
▲ Loyalty and trust	89.87	88.84	89.72	85.30	85.22

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 2021, there were a total of 369 petition cases, among which, 331 cases were handled through the Director-General's mailbox while 38 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
- ▶ Director of Personnel Office complaints hotline : +886-6-505-0848
- ▶ STSP Bureau Address: No. 22, Nanke 3rd Rd., Xinshi Dist., Tainan City ; No.23, Luke 5th Rd., Luzhu Dist., Kaohsiung City
- ▶ Accessible environment complaint hotline: +886-7-607-5545, ext:7123; Contact person: Wen-Chien Chang

2021 Number of complaints received

Construction Management Division		Environment & Labor Affairs Division		Business Division		Secretariat	
1		22		3		0	
Planning Division	Land Development Division	Investment Services Division		Personnel Office	Civil Service Ethics Office		
6	4	2		0	0		
Total							
38							

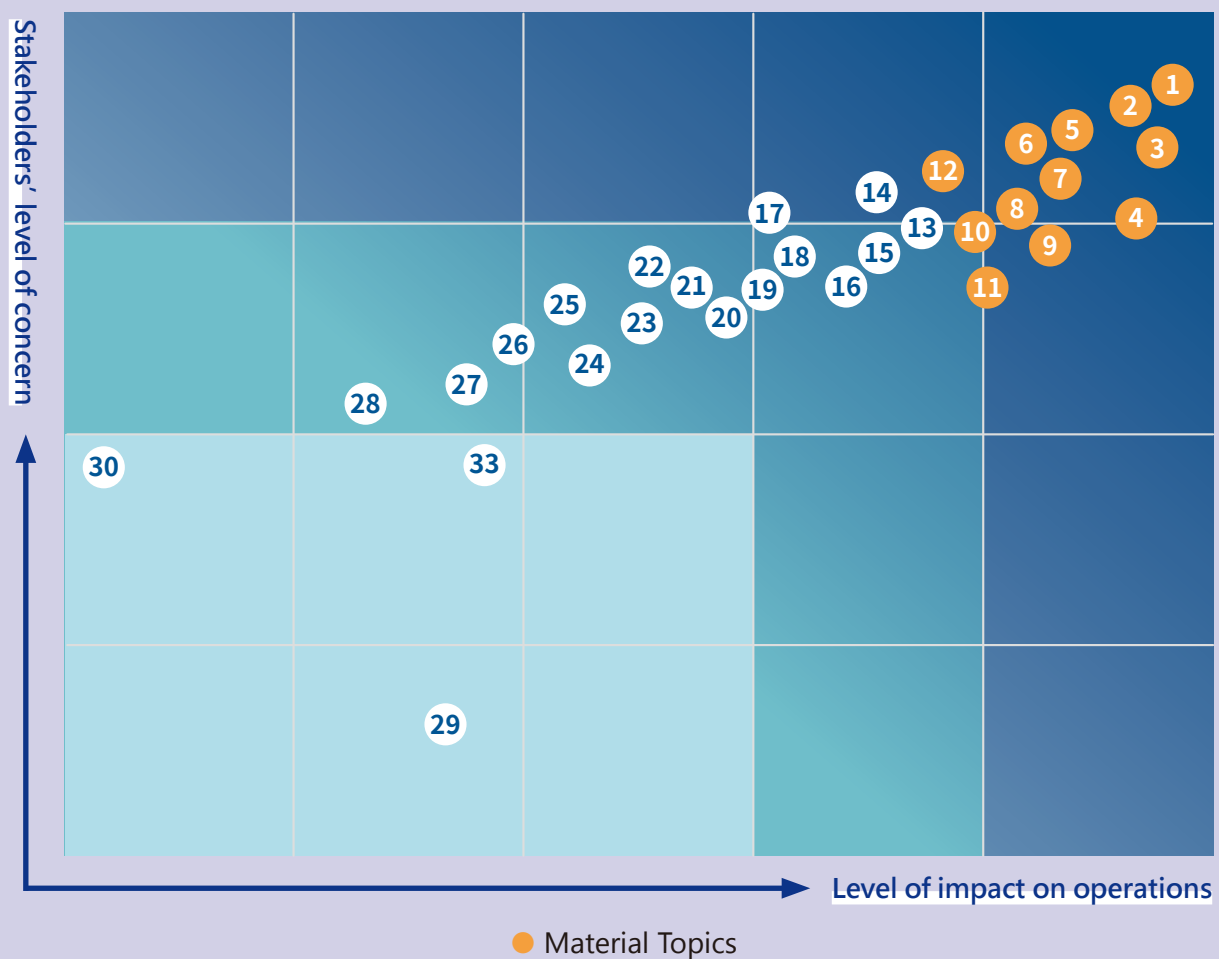
Report of Public Integrity Incidents

Tel: +886-6-5051001#3005 (Civil Service Ethics Office)

Email: ethics@stsp.gov.tw

1.2 Identification and Objectives of Materials Topics

STSP Bureau's CSR Editing Team adjusted the titles of the original corresponding GRI topics and the custom topics and integrated the original 39 topics into 30 to facilitate focused communication with its stakeholders. Discussions were made based on the results of the questionnaire analysis and combined with the results of discussions with the stakeholders over the years, a total of 12 material topics were identified. Compared with the material topics in the previous Report, the newly added ones include "Climate Change", "Ecological and Environmental Conservation", "Safety in the Working Environment", "AI for Industries", "Labor Management Relations in the Park", and "Infrastructure in the Park". Management approaches were then established for the 12 material topics, and relevant information is disclosed in this Report.



List of topics				
① Waste Management	⑦ Energy Resources Management	⑬ Supplier Environmental Assessment	⑰ Information Security and Customer Privacy	⑮ Level of Wage
② Occupational Health and Safety	⑧ AI for Industries	⑭ Integrity Management	⑳ Human Rights	⑯ Industrial Upgrading
③ Climate Change	⑨ Investment Promotion	⑮ Air Pollution Control	㉑ Customer Health and Safety	㉑ Freedom of Association and Collective Bargaining
④ Ecological and Environmental Conservation	⑩ Labor Management Relations in the Park	⑯ Circular Economy	㉒ Supplier Social Assessment	㉒ Security Practices
⑤ Environmental Compliance	⑪ Talent Development	⑰ Employment and Labor Relations	㉓ Material Management	㉓ Taxation
⑥ Safe Working Environment	⑫ Infrastructure in the Park	⑱ Socioeconomic Compliance	㉔ Supply Chain Management	㉔ Public Policy

Management of the Objectives of the Material Topics

Note: ⊙ means direct impact; ○ means indirect impact.

Environment

Environmental Friendliness

Waste Management (306)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	⊙	○			○
2021 Target Implementation Status					
▶ The reuse volume of the industrial waste in the science park reached 407,152.49 tonnes, and the reuse rate reached 90.62%.					✓ Achieved
Short-term Objectives (2022)	Mid-term Objectives (2025)		Long-term Objectives (2027~)		
▶ To continue to keep the reuse rate of the industrial waste in the science park at 85% and more. ▶ To strengthen the counseling and inspection of environmental compliance of the industrial waste treatment in the park	▶ Continue to be compliant with waste-related environmental regulations and conduct autonomous management to meet public expectations.		▶ To maintain the reuse rate of industrial waste in the park, improve the compliance of industrial waste treatment regulations, and promote sustainable resource circulation.		

Energy Resources Management (302 ~ 303) Climate Change (Custom topic)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	⊙	○			○
2021 Target Implementation Status					
▶ Completed energy conservation counseling to 6 and water conservation counseling to 5 manufacturers.					✓ Achieved
▶ The construction of Anping and Yongkang Reclaimed Water Plants as well as the ones built by the park manufacturers are still under construction.					+ Continued
▶ The capacity of the solar power generation system installed is about 4.62 MW.					✓ Achieved
Short-term Objectives (2022)	Mid-term Objectives (2025)		Long-term Objectives (2027~)		
▶ Continue to conduct energy conservation counseling to 6 and water conservation counseling to 5 park manufacturers. ▶ The amount of reclaimed water used in the park to reach 28,000 CMD. ▶ The capacity of the solar power generation system installed is about 2.81 MW.	▶ Continue to conduct energy and water conservation counseling for park manufacturers. ▶ The amount of reclaimed water used in the park to reach 28,000 CMD. ▶ Continue to promote the amount of renewable energy obligatory installations to reduce GHG emissions.		▶ To reduce energy consumption, lower GHG emissions to reach the goal of a green science park while creating economic benefits ▶ To continue the handling of relevant energy saving work and promote the use of reclaimed water so as to achieve optimal distribution to achieve the purpose of stabilizing the water and power supply in the park.		

Ecological and Environmental Conservation (304)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	◎	○		○	○
2021 Target Implementation Status					
▶ Among the birds observed, 6 species in Tainan Science Park and 10 species in Kaohsiung Science Park are the protected birds announced by the Council of Agriculture, which is shared through online media.					+ Continued
▶ A total of 23 sessions of environmental courses were organized, with a total of 792 participants					✓ Achieved
Short-term Objectives (2022)		Mid-term Objectives (2025)		Long-term Objectives (2027~)	
▶ To commission ecological conservation groups to conduct ecological survey in the science park to analyze the changes in the number of the population. ▶ To organize environmental education courses and related activities and incorporate environmental related issues.		▶ To engage in ecological restoration work, increase the number of restorations, and expand the scope of restoration. ▶ To share the ecological resources in the science park and publicize the environmental conservation in the parks.		▶ To increase the resources for natural education and ecological display in the park in the future.	

Social

Excellent Science Park Harmonious Community

Investment Promotion (Custom topic) AI for Industries (Custom topic)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	◎	○	○	○	
2021 Target Implementation Status					
▶ Introduced 20 new manufacturers with the investment amount of NTD 7.55 billion. Among them, 2 have the unit output value per hectare more than NTD 1 billion.					✓ Achieved
▶ The 5G private network computing platform provides situational demonstrations cases such as the digitalization of production logistics, quality monitoring of smart manufacturing equipment, behavior optimization of unmanned trucks, AI product inspection and information security of private network.					✓ Completed
Short-term Objectives (2022)		Mid-term Objectives (2025)		Long-term Objectives (2027~)	
▶ To introduce 20 new manufacturers with the investment amount of NTD 5 billion. ▶ To boost the investment of resources in the local industrial chain to attract innovative self-makers to gather and accelerate the realization of creative technologies, enabling creative talents, innovative products, and high-end technological achievements to enter the market; to improve investments in domestic AI robot industry and product technologies.		▶ To integrate industrial clusters and set up investment strategies for manufacturers to settle and invest. ▶ To become a single window for start-ups and enterprises in the park, providing innovative application and development services of AI robot related product technology, production process, and service models, making AI_Robot Base at STSP the value-added service center for industry intelligentization technologies.		▶ To understand the future layout and development needs of manufacturers, analyze the gap in the industrial chain, introduce key manufacturers to attract top manufacturers in the world for the creation of a cluster of technology industry. ▶ To construct a complete AI Robot industry ecosystem to attract benchmark manufacturers at home and abroad to station in the park.	

Social

Excellent Science Park Harmonious Community

Infrastructure in the Park (203、413)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	◎	○	○	○	○
2021 Target Implementation Status					
▶ The EIA of the Ciaotou Science Park was approved and has entered the investment development stage.					+ Continued
▶ Tainan Science Park Phase III Expansion Project has entered EIA development stage.					+ Continued
▶ Completed the construction of the Little Bear Baby Care Center, Luzhu Science Park Branch					✓ Completed
Short-term Objectives (2022)		Mid-term Objectives (2025)		Long-term Objectives (2027~)	
▶ Continue to handle the preparation work for the establishment of the park.		▶ Establish the software and hardware facilities in the science park to improve the quality of services.		▶ To complete the construction of Pingtung Park and Chiayi Park. ▶ To implement sustainable green park and maintain environmental friendliness.	

Occupational Health and Safety (403) Safe Working Environment (Custom topic) Labor Management Relations in the Park (402)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	◎	◎	○		
2021 Target Implementation Status					
▶ The occupational disaster rate per thousand people was 1.09‰, a decrease of 11% compared with the 3-year average.					✓ Achieved
▶ Organized on-site counseling, publicity meetings, education & training, emergency response drills, and sharing sessions, with 129 sessions in total.					✓ Achieved
▶ Completed 1,011 sessions of labor inspection (926 sessions of occupational safety and health inspections and 85 sessions of labor condition inspections).					✓ Achieved
▶ Completed mediation of 85 labor disputes.					+ Continued
▶ Launched the "Occupational Safety and Health Multi-somatosensory Extended Reality (XR), Disaster Prevention Simulation Training Field Project" and completed the XR software platform and 3 disaster prevention simulation training courses.					+ Continued
Short-term Objectives (2022)		Mid-term Objectives (2025)		Long-term Objectives (2027~)	
▶ To maintain the decrease of occupational disaster rate per thousand people by 10% and more. ▶ To organize 51 sessions of on-site counseling, publicity meetings, education & training, emergency response drills, and sharing sessions. ▶ To carry out 477 sessions of labor inspection. ▶ To set up employee communication and grievance channels to avoid labor disputes and promote walk-through interviews in all units to publicize relevant policies and laws.		▶ To increase the health care penetration rate to 100%. ▶ To have 100% coverage rate of autonomous safety and health management system. ▶ To have 100% coverage rate of exposure assessment of chemical management and the hierarchical management system. ▶ To maintain 100% award coverage rate of excellent industrial safety units (personnel). ▶ To reduce labor disputes and establish a friendly working environment. ▶ Continue to develop training courses of "Occupational Safety and Health Multi-somatosensory Extended Reality (XR), Disaster Prevention Simulation Training"		▶ To establish an excellent working environment, encourage park manufacturers to implement various labor laws and regulations to protect the rights and interests of the workers in the science park. ▶ To construct a sustainable and disaster-free working environment with zero work-related injuries and zero occupational accidents.	

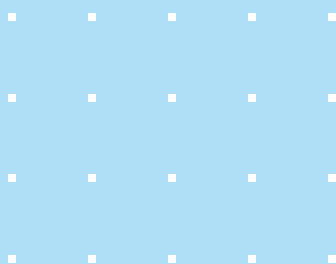
Governance

Integrity Governance

Environmental Compliance (307)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	◎	◎	◎	○	○
2021 Target Implementation Status					
▶ Complied with environmental laws and regulations, and there were no major environmental pollution incidents.					✓ Achieved
▶ Organized 2 briefings on environmental protection.					✓ Achieved
Short-term Objectives (2022)		Mid-term Objectives (2025)		Long-term Objectives (2027~)	
▶ To handle relevant business in accordance with environmental regulations. ▶ Continue to organize more than 2 sessions of environmental protection-related seminars, briefings or observation meetings every year.		▶ To continue the environmental compliance and organize related briefings on regulations and education and training. ▶ To provide park manufacturers with related education and training when the laws and regulations are updated to reduce operational risks.		▶ To fulfill our corporate social responsibility, observe environmental-related laws and regulations, aiming at reaching zero violation of major regulatory incidents.	

Talent Development (404)	Boundary of Value Chain Impact				
	STSP Bureau	Park Businesses	Suppliers	Academic Institutions/ Non-profit Organizations	Community Residents
	◎				
2021 Target Implementation Status					
▶ The total training hours of the STSP Bureau staff were 5,624 hours., with an average of 42 training hours.					✓ Achieved
Short-term Objectives (2022)		Mid-term Objectives (2025)		Long-term Objectives (2027~)	
▶ All staff receive more than 20 hours of training in business-related education and training every year.		▶ To provide general management training, professional training and other related training to the personnel in the Bureau so strengthen and improve their administrative management, professional skills and information processing capabilities. ▶ To provide on-the-job training and development (such as leadership training, management development training, supervisor training) and other training to middle and high-level civil servants.		▶ To promote the innovation and progress of the organization, form a good learning organization, increase resilience and competitiveness and establish a high-quality service team.	

Note: ◎ means direct impact; ○ means indirect impact.



1.3 Sustainable Development Goals

The United Nations proposed the 17 Sustainable Development Goals (SDGs) to serve as the reference guideline for all countries to transform their sustainable development policies. The National Council for Sustainable Development of Executive Yuan completed Taiwan's SDG based on this reference guideline. In response to the global sustainable development actions and to stay in line with global trends while taking into account the needs for localization development, STSP Bureau applies its own core capabilities to respond to 15 of SDGs and Taiwan's SDGs and practices. The Bureau is dedicated to implementing the UN's SDGs, and the achievements of the Bureau's sustainable management are presented.

Corresponding SDGs	Corresponding Taiwan Sustainable Development Goals	2021 Implementation Behavior
	Target 1.1: Increase the self-support rate of the financially vulnerable.	There are 5 physically and mentally disabled employees (2 severely disabled) in STSP Bureau, and for the employment of persons with severe disabilities, each person shall be calculated as 2 persons (the employment rate is 5.6%).
	Target 1.4: To promote the protection and equal rights of all citizens, particularly the disadvantaged groups, in entrepreneurship, employment, loans, financing, housing and land ownership, etc.	STSP Start-up Workshop coached 11 new start-up teams to participate in the FITI Program in the first half of 2021 and 16 in the second half of 2021.
	Target 2.3: Improve agricultural productivity and increase farmers' income through safe and equitable land, production resources, knowledge, financial services, markets, and value-added mechanism.	Assisted local farmers with the promotion of agricultural products and held events to encourage orders of pineapples among park manufacturers. On the day of the event, the order volume reached 2,500 boxes, with the weight of 18,000 kg. Online marketing activities were also carried out to support local mango farmers in Tainan.
	Target 3.9: Reduce the health hazards from air, water, and other pollution.	- By regulating all business units to operate in accordance with the content in 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. A total of 421 environmental permits were reviewed in the park. - To accurately grasp the environmental impact the pollutants caused during the construction period, STSP 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.
	Target 4.4: Proportion of youths and adults with Information and Communications Technology (ICT) skills and increase the number of youths and adults who have relevant skills, including technical and vocational skills for employment.	- Organized the FRC 2021 simulation competition, 23 teams from all over Taiwan gathered for competition, with a total of 420 participants. - Science Park Talent Cultivation Subsidy Program provided subsidies to 13 projects, granting a total of NTD 7.951 million. There were 10 implementing schools of the cultivation projects, providing 13 modular courses and corporate internship courses. It is expected to train 735 people.
	Target 5.5: Encourage administrative organs at all levels to increase the proportion of seats held by women in leadership, female police officers, and female managers of listed companies	The promotion of 2 female supervisors shows STSP Bureau's efforts in the promotion of gender equality. Females accounts for 66.7% of the top management.

Corresponding SDGs	Corresponding Taiwan Sustainable Development Goals	2021 Implementation Behavior
	Target 6.3: Improve living sanitation and water quality of rivers; strengthen the promotion of proper wastewater treatment; recycle water discharged from the public sewage plant after secondary treatment as the emerging water sources, improve the efficiency of water resources utilization, reduce the needs for the development of traditional water resources; strengthen the inspection and control of industrial wastewater and sewage discharge, investigate suspicious sources of pollution to prevent water pollution; optimize water quality of rivers to protect the health of people and maintain the ecological system; strengthen the flow of chemical substances and improve management efficiency.	Sewage discharged from the factories in the park is collected by the sewer pipeline, and the acceptance rate reaches 100%. In 2021, 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.
	Target 7.2: Increase the installed capacity of renewable energy generation equipment. Target 7.3: Increase the coverage of energy consumption under mandatory energy consumption regulations and reduce energy intensity.	The cumulative electricity generated by the solar panels installed in the park reached 59,140 kW, reducing 37,926 tonnes of CO₂e. The energy intensity of the park reduced by 19% compared with 2020.
	Target 8.1: To sustain moderate economic growth with innovation, employment, and distribution as the core values. Target 8.6: Implement the knowledge-action integration and training measures to strengthen the youth employability. Target 8.7: Promote safety in the working environment and protect the rights of female workers to participate in trade unions.	The turnover amounted to NTD 1,948.84 billion, and the growth rate reached 29.15%. A total of 339 hours of training courses were organized for the Professional and Technical Talent Training Plans, with 3 sessions of comprehensive and 2 sessions of large-scale talent or technology matchmaking, and there were approximately 480 participants in total. The Occupational disaster rate (per thousand people) of the park was 1.09‰, a decrease of 11% compared with the 3-year average.
	Target 9.1: Increase the traffic volume of public transportation, Taiwan Railway, and High Speed Rail	There are 7 e-shuttle buses in STSP, with a total of 592 passengers per day, and the average daily mileage is about 733.35 km.
	Target 10.3: Strengthen publicity and education on laws and regulations regarding gender equity and elimination of employment discrimination.	- The electronic bulletin board in the park would post gender equality in employment related propaganda slogan from time to time; gender equality case promotion materials are also produced (including promotion films). - Set Cheering Station for Gender Equality in Employment for large-scale event to provide explanations of laws and regulations concerning gender equality in employment and employment discrimination (approximately 465 copies of questionnaire were completed). - Organized 2 sessions of Workplace Equality and Sexual Harassment Prevention Seminar and convened committees on employment discrimination and gender equality in employment. 363 hours of training on employee equality and human rights and 648 hours of gender equality training.

Corresponding SDGs	Corresponding Taiwan Sustainable Development Goals	2021 Implementation Behavior
	Target 11.7: Provide green public facilities and space meeting universal design, safety, integration, and high accessibility. Special attention is paid to meet the needs of the elderly, the infirm, women with children, and the disabled.	The Bureau continuously plans the landscape improvement project in the science parks every year to replace poor-growing arbores or aging shrubs. In 2021, a total of 203,010 arbores and 703,957 m ² of shrubs were planted in the park area.
	Target 11.9: Strengthen the social security net, ensure social stability, strengthen public security maintenance, and curb violence and crime.	The Second Corps of the Security Police has added the Siraya Division in Tainan Park, and the jurisdiction is bordered on the original Nanke Division by the Siraya Avenue. In the future, it will be responsible for the maintenance of traffic flow, public security, crime fighting, criminal investigation and other affairs.
	Target 12.1: Implement the green factory system, promote the Cradle to Cradle (C2C) design concept, encourage enterprises to produce green and low-carbon products, establish green standards for products and cleaner production, actively implement the relocation of polluting factories to industrial parks.	As of 2021, there were a total of 72 Green Building Marks/ Green Building Candidate Certificates. Tainan Science Park was once again awarded the EEWH-EC Green Building Label (residential category) change assessment (Continued).
	Target 12.4: Reduce waste generation through green production, improve technical capabilities of waste recycling and treatment, promote the development of resource recycling industry for higher efficiency, and manage chemical substances and waste in accordance with international conventions.	The reuse volume of the industrial waste in the science park reached 407,152.49 tonnes, with the rate of reuse reaching 90.62%.
	Target 12.6: Encourage enterprises to take measures for sustainable development and disclosure of sustainable development information and at the same time ensure the accuracy and quality of the information.	As of 2021, there were 56 business units that had published CSR Reports.
	Target 12.7: Promote green procurement in the public and private sectors. Target 12.a: Handle projects related to the promotion of sustainable consumption and production and eco-friendly technologies.	As of 2021, the total amount of green product procurement amounted to NTD 12,002,777, and among them, 49 procurement projects had 100% of the designated products procured with environmental protection or energy labels. The annual performance evaluation rating of green procurement is "excellent" every year.
	Target 13.1: Strengthen the adaptive capacity and resilience to climate change and reduce vulnerability	Refer to Climate-related Financial Disclosure (TCFD) recommendations to identify climate change risks and countermeasures.
	Target 13.3: Improve sustainable education on climate change and public literacy	To reach the goal of energy conservation, carbon reduction and decrease in public electricity consumption with LED streetlamps in the park, the lamps were replaced by LED lights. As of the end of 2021, the streetlights had been completely replaced with 2,772 LED lamps in Tainan Science Park and 1,647 in Kaohsiung Park.
	Target 15.1: Protect, maintain, and promote the sustainable use of terrestrial and inland freshwater ecosystems	There are ecological protection area and artificial wetland in the science park, which is the second ecological protection area with legal basis. Land with an area of 30 hectares is planned for ecological protection to preserve bird habitats, setting the best example of symbiosis between development and ecological conservation.
	Target 15.9: Incorporate the values of ecological system and biodiversity into the national and local planning and development processes	Among the birds observed, 6 species and 10 species are the protected bird announced by Council of Agriculture observed in Tainan Science Park and Kaohsiung Science Park respectively.



ENVIRONMENT

ENVIRONMENTALLY FRIENDLINESS

2

The reuse rate of the industrial waste in the science park was **90.62%**.

Provided energy conservation counseling to **6** business units

Provided water conservation counseling to **5** business units

100% of discharged water met the Effluent Standards

Installed the solar power generation system with the capacity of **4.62MW**

3,167 vehicles obtained the exhaust emission mark in the Self-management Program of Diesel Vehicle Exhaust

23 SESSIONS of environmental education courses, with a total of **792** participants

6 SPECIES observed in **TAINAN SCIENCE PARK** and **10 SPECIES** observed in **KAOHSIUNG SCIENCE PARK** are the protected birds announced by the Council of Agriculture

Management Approach

Corresponding SDGs



Corresponding material topics	Waste Management, Energy Resources Management, Ecology and Environmental Conservation
Significance to STSP Bureau	The GHG effect caused the global climate change and the occurrence of extreme weather, leading to possible rainstorms or water shortages, resulting in damage to production capacity of park manufacturers. STSP Bureau attach importance to the value of "Production, Living, Ecology and Life" and promote environmental policies of water conservation, power conservation, green electricity, recycling of resources and transplanting of trees to reduce the impact of production on the ecological environment for the construction of a high-quality industrial environment.
Purpose of Management	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 to avoid the science park operations from exceeding the environmental load.
Goals and Targets	▶ 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 GHG emissions while creating economic benefits to achieve the goal of a green science park.
Responsible Units	Environment and Labor Affair Division, Construction Management Division
Resources Invested	▶ Set up an Environmental Engineering Center in Tainan Science Park and a wastewater treatment plant and the Resource Recycling Center in Kaohsiung Science Park and entrust professional providers for the operations. ▶ Conduct water and energy conservation counseling for park manufacturers and regular GHG inventory. ▶ Entrust an ecological survey team to carry out ecological survey and make regular record of the current status. ▶ Collect monthly statistics of water and electricity consumption of park manufacturers. ▶ Promoted the Self-management Program of Diesel Vehicle Exhaust.
Grievance Mechanism	Refer to 1.1 Communication with Stakeholders
Assessment and Management	▶ 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. ▶ Implement 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. The construction operation method is adjusted in a timely manner to take effective preventive measures. ▶ 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. ▶ Conduct inspections in accordance with the Waste Disposal Act on an irregular basis.

2.1 Energy Resources Management

STSP Bureau

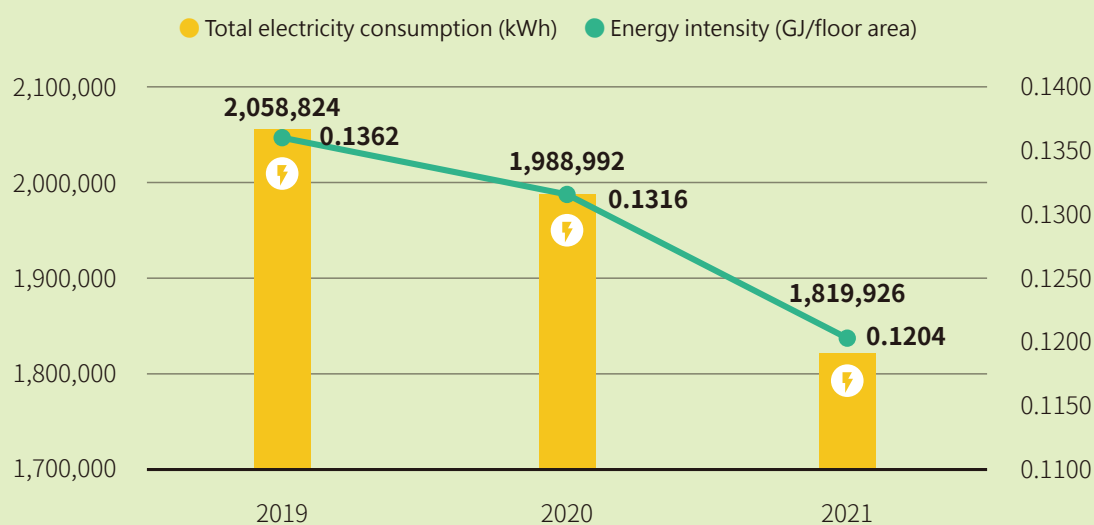
Management of Electricity Use

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. The target of electricity consumption management at STSP Bureau is to consume less electricity compare with the previous year. The electricity consumption in 2021 reduced by 8.5% compared with that in 2020, showing significant improvement of the energy saving measures the Bureau has implemented.

Item	2019	2020	2021
Electricity consumption (kWh)	2,037,879	1,968,037	1,807,396
Solar power consumption (kWh)	20,945	20,955	12,530
Energy consumption (GJ)	7,411.77	7,160.37	6,551.73
Floor area of STSP Bureau (m ²)	54,407.25	54,407.25	54,407.25
Energy intensity (GJ/floor area)	0.1362	0.1316	0.1204
GHG emission intensity (ton CO ₂ e/floor area)	0.0193	0.0184	0.0168

Note:

1. The total energy consumption within the organization is calculated in accordance with the GRI Standards with joule or its multiples as the unit, every 1 kilowatt-hour of electricity= 1kWh= 3,600 joules.
2. The GHG emission intensity of the Bureau was calculated based on the EPA's Greenhouse Gas Emission Coefficient Management Table 6.0.4 version. The re-editing of the data would be for calculation factor adjustment.
3. The reorganization of the data in 2019 was for the inclusion of electricity consumption in the Kaohsiung Administration Building.
4. The source of electricity at STSP Bureau is from Taiwan Power Company and solar power.



● 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. In 2021, STSP Bureau included the water consumption of Kaohsiung Administration Building. Aside from the water consumption of 1.5 million liters of Kaohsiung Administration Building and due to the people flow control or closure in public areas for the impact of the epidemic, the water consumption of Tainan Administration Building reduced by 1.46 million liters compared with 2020.

Item	2019	2020	2021
Water consumption (million liters)	10.07	10.57	10.61
Floor area (m ²)	42,565.70	42,565.70	54407.70
Water intensity (million liters/ m ²)	0.000237	0.000248	0.000195

Note:
 1. Water intensity is calculated with the floor area of the administration building of the Bureau serving as the denominator.
 2. Starting from 2021, the water consumption data reported to STSP Bureau of Energy will include the customer number of Kaohsiung Administration Building so that comparison between the two administration buildings at STSP can be made when the statistics are complete to facilitate the promotion of water conservation measures.

● 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.

Southern Taiwan Science Park

In the process of pursuing sustainable development, the grasp and effective utilization of resources and energy have become the one and only way to ensure the win-win situation for economic development and environmental protection. STSP Bureau adheres to the concept of green and sustainable development and conducts energy and resources management based on the balanced development among energy conservation, economic development, and environmental protection, aiming at becoming a science park with environmental and economic efficiency.

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. Due to the plant expansion of the park manufacturers in 2021, the power consumption increased. But because of the significant growth of annual turnover of the park business which exceeded NTD 1,000 billion, the energy intensity decreased by 19% compared with 2020.

Item	2019	2020	2021
Electricity use (kWh)	11,280,777,692	13,200,148,196	13,891,455,793
Energy consumption (GJ)	40,610,799.69	47,520,533.51	50,009,240.85
Annual turnover of park businesses (NTD 100 million)	7,432.40	8,477.31	10,948.84
Energy intensity (GJ/NTD 100 million in revenue)	5,464.02	5,605.61	4,567.54

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=3,600 kilojoules.
3. Energy intensity is calculated using the total turnover of STSP in the current year as the denominator.
4. The source of electricity in STSP all came from Taiwan Power Company.

Water Resources

The main water intake in the science park comes from tap water. 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. Due to the plant expansion of the park manufacturers in 2021, the water intake increased. But because of the significant growth of annual turnover of the park business which exceeded NTD 1,000 billion, the water intensity decreased by 18% compared with 2020.

Item	2019	2020	2021
Water intake (million liters)	53,886.39	63,728.60	67,461.41
Water discharge (million liters)	40,945.65	45,852.19	48,891.68
Water consumption (million liters)	12,940.74	17,876.41	18,569.73
Annual turnover of park businesses (NTD 100 million)	7,432.40	8,477.31	10,948.84
Water intensity (million liters /NTD 100 million in revenue)	7.25	7.52	6.16

Note:

1. Water intensity is calculated using the total turnover of STSP in the current year as the denominator.
2. Water consumption = water intake – water discharge

● Stable Water Consumption

Spring rain was relatively less in 2021, and the orange drought alert (reduced water supply) started in Tainan and Kaohsiung from April 1, and the red drought alert (regional water rationing) started in Miaoli from April 6. The water storage capacity of major reservoirs gradually decreased, and the water supply conditions in the southern regions became increasingly tight. To cope with the changes in water conditions, STSP Bureau has taken the following drought-resistant measures to stabilize the water demand for industrial operation in the park.

1

Cross-departmental cooperation for the review of the water supply condition on a rolling basis :

We actively cooperate with the Central Drought Emergency Response Center and flexibly review the countermeasures with the Water Resources Agency, Taiwan Water Corporation and other agencies to reduce the impact of water shortage.



2

Set up an emergency response team, strengthen communication of water conditions, and strictly control the goals for water conservation:

An emergency response team is set up and manufacturers as well as relevant units are invited to understand the water conditions at each stage, discuss the countermeasures, and promote water conservation among manufacturers. We work with the policies of Water Resources Agency for water rationing measures at each stage and implement a cap control. Water meter reading data of park manufacturers are collected weekly, and large water users are invited to review water saving situations, aiming at controlling the water saving effects to reach the goal of water conservation.

3

Strengthen guidance and inspection :

For the inspection of self-reported water saving effects from large water users, the water saving effects will be discussed through meetings, mails, phone follow-ups and on-site visits and counseling to reach the goal of water conservation.



4

Coordination for response among park manufacturers :

1. Reduce water consumption of tap water in the factory area and suspend the supply for unnecessary water use.
2. Improve the reuse rate of recycled water during the process.
3. Add or prepare the water-saving equipment in the production line in the factory area.
4. Open water intake from detention ponds and sewage plants for secondary water use.
5. Activate the water wheel mechanism in a timely manner to stabilize industrial operation and public water demand.

The rise of advanced process industries in the science park has increased the demand for water. To strengthen the stability of water supply system in the science park, the Bureau started to take inventory of the water supply equipment and the status of water pipelines and has set equipment repair and maintenance as well as function improvement plans. The 2020 project to repair and maintenance of water supply facilities was completed in May, 2021, and the replacement of 17 water control valves in Tainan Science Park, connection of water pipes in the park, replacement of liquid level gauges in 3 water distribution tanks, pipeline pressure monitoring of 9 important nodes in the water supply pipeline network in Tainan Science Park, and monitoring of pipe pressure and water flow in the main water pipes in the three science parks were all completed, enabling more immediate, intelligent and flexible maintenance of water supply equipment, pipe network monitoring and water scheduling operations. We will continue to replace and update the water valves in Tainan and Kaohsiung Science Parks, improve the pumping performance of the water distribution pools, strengthen the proper rate and stability of public water supplying facilities in the park to create a friendly environment for the technology industry free from the worries about water.

● Counseling of energy and water conservation

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 51,800 tons of carbon dioxide emissions were reduced in 2021, equivalent to the amount of carbon reduction of 133 Daan Forest Parks. 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.

Note: Daan Forest Park absorbs approximately 389 tons of carbon dioxide emissions annually.

Source: https://ghgregistry.epa.gov.tw/Information/Information_Infor.aspx?r_id=1748

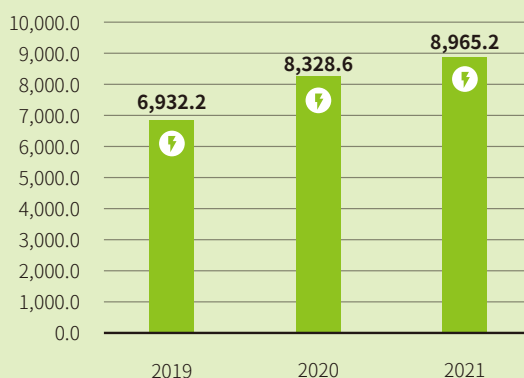
We handled energy conservation counseling for 6 park business units in 2021 and have completed counseling for 62 park business units so far since the implementation of the counseling service. In terms of the actual results of the energy conservation measures, the total power saved was approximately 89.652 million kWh annually, equivalent to the reduction of 45,005.3 tons of carbon dioxide emissions in a year.

Item	2019	2020	2021
Cumulative power saving potential (10,000 kWh)	6,932.2	8,328.6	8,965.2
CO ₂ reduction (tons CO ₂ e)	35,284.9	41,809.6	45,005.3

Note:

1. The power coefficient for 2021 was calculated with 0.502 kgCO₂e/kWh (in accordance with the table of GHG emission coefficient management v. 6.0.4 released by Environmental Protection Administration in 2020).
2. The 2020 data was reorganized based on the coefficients announced of the current year and the values were recalculated.

Cumulative power saving potential (10,000 kWh)



Visit to ThinFlex

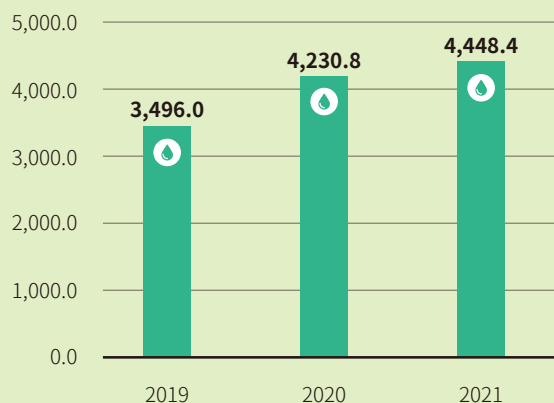
We handled water conservation counseling for 5 park business units in 2021 and have completed counseling for 124 park business units so far since the implementation of the counseling service. In terms of the actual results of the water conservation measures, the water saved was approximately 44.484 million tons/year, equivalent to the reduction of 6,761.6 tons of carbon dioxide emissions in a year.

Item	2019	2020	2021
Cumulative water saving potential (10,000 tons)	3,496.0	4,230.8	4,448.4
CO ₂ reduction (tons CO ₂ e)	5,244.0	6,430.8	6,761.6

Note:

1. According to the announcement of Taiwan Water Corporation (TWC) in 2020, approximately 0.152kg of CO₂e emission can be reduced for every ton of tap water saved.
2. The 2020 data was reorganized based on the coefficients announced of the current year and the values were recalculated.

Cumulative water saving potential (10,000 tons)



Visit to ScinoPharm Taiwan, Ltd.

2021 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	UMC 12AP5-6	Innolux Corporation Plant B (Fab5)
Manufacturer with small water (electricity) consumption	Coretronic Corporation Nanke Branch	Semiconductor Taiwan Co., Ltd.

Innolux Corporation, Kaohsiung was certified the 2021 Global Lighthouse of smart factories by the World Economics Forum (WEF). In addition to the increase in product output and employee productivity, the overall electricity consumption decreased 2%. The coaching team suggested granting the award of excellent manufacturer for energy conservation to Innolux Corporation.

● Greenhouse Gas Inventory

The Bureau conducted the 2020 annual GHG inventory in 2021, and the organizational boundaries of the organization were Tainan Science Park and Kaohsiung Science Park, and the total emission of carbon dioxide amounted to 7,790,844.7858 tons. Due to the expansion projects of park businesses in 2020, 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)	1,440,037.7661	61,012.3087	1,501,050.0748
Scope 2 (tons of CO ₂ e)	5,674,909.2422	614,885.4688	6,289,794.7110
Total (tons of CO ₂ e)	7,114,947.0083	675,897.7775	7,790,844.7858
Turnover (NTD 100 million)	7,924.89	552.42	8,477.31
Intensity (tons of CO ₂ e/ NTD 100 million)	897.7976	1,223.5216	919.0232

Note:

1. 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.
2. The verification of GHG inventory will be completed in October, 2021.
3. The GHG emission coefficient referred to the table of GHG emission coefficient management v. 6.0.4 released by Environmental Protection Administration, and GWP value for the CO₂e conversion was from IPCC Fourth Assessment Report: Climate Change 2007 (AR4).
4. Types of greenhouse gases include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

Green Building Label

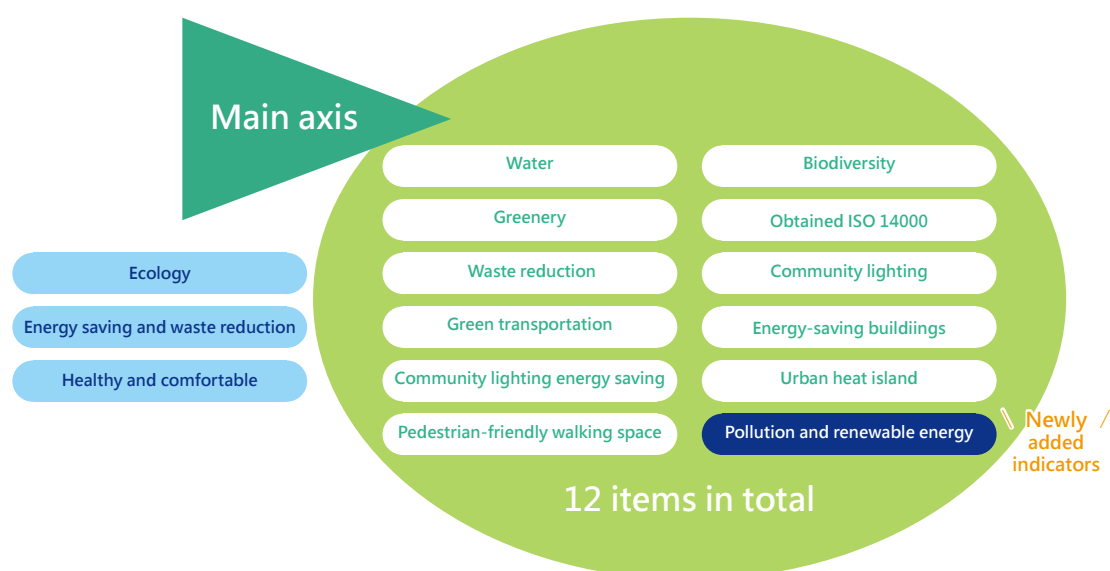
STSP Bureau promotes green buildings and the mutualism between the buildings and the environment, implements energy conservations of the buildings, and continues to reduce energy consumption and the emissions of carbon dioxide, making STSP the science park with the highest density of EEWB diamond grade green buildings. Tainan Science Park and Kaohsiung Science Park have obtained the diamond grade of the Ecological Community Evaluation System (EEWH-EC), accounting for 2/5 of the diamond grade EEWB- Eco Community in Taiwan. The area of green buildings accounts for 25.1% of the total floor area of the building in the science park.

Statistics of Green Building Achievements

2021 Number of Green Building Labels/ Green Building Candidate Certificates

Certified cases	Bronze cases	Silver cases	Gold cases	Diamond cases	Total
16/19	3/2	7/1	7/1	16	72

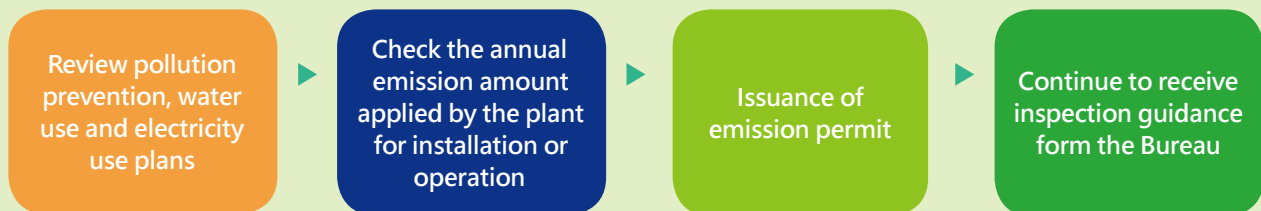
STSP Bureau has been committed to constructing an excellent manufacturing environment with the values of Production, Living, and Ecology. Tainan Science Park was certified the diamond grade Community in 2013 and obtained the label of diamond grade Ecological Community Evaluation System (EEWH-EC) in 2016. We continue the promotion of the ecological community balance and promote the concept of sustainable ecological environment. In 2021, we obtained the EWH-EC Green Building Mark once again, and this time we applied assessment change under three main axes. On the basis of the existing indicator, the “renewable energy” was added. Taiwan Architecture & Building Center invited Ecological Community Assessment Committees to conduct on-site inspection in the park in March, and Tainan Science Park passed 12 indicators, and among them, 4 indicators, including “Water Cycle” , “Acquiring ISO 14000” , “Energy-saving Buildings” , and “Waste Reduction” were given the full score, and the Green Building Label remained at the highest level of “Diamond” grade. These are all evident examples that STSP Bureau has continued its original intention to maintain sustainable development and environmental friendliness over the years.



Tainan Science Park could win this distinguished honor not only because of the efforts our associates in the park have made in the maintenance of environment, it is also evident that the common value brought by sustainable development recognized by the park manufacturers has become the mainstream trend for us to move toward an innovative, low carbon and energy saving future. Based on the foundation of an eco-friendly community, STSP Bureau will continue to safeguard this land with the goal of sustainable environment.

2.2 Pollution Prevention and Control

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.



Review of 421 environmental permits in 2021

122 permits for fixed pollution source

138 water pollution permits

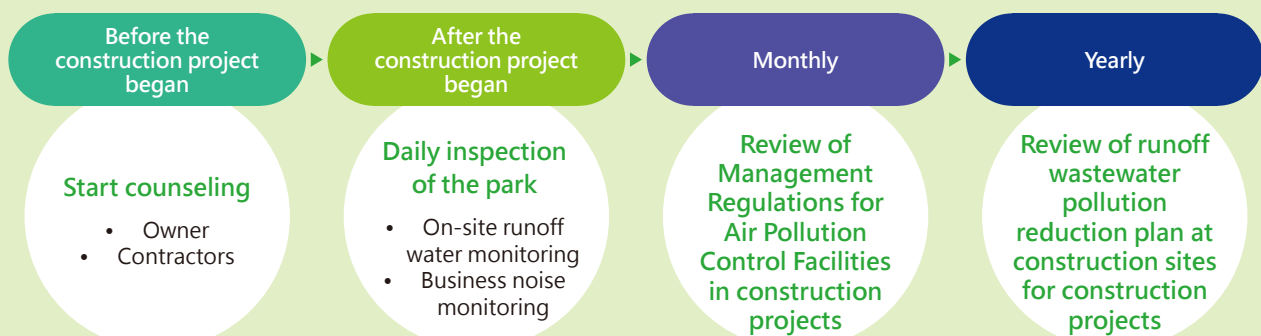
155 permits for waste

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.

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.

In addition, the review of Management Regulations for Air Pollution Control Facilities and review of runoff wastewater pollution reduction plan at construction sites for construction projects in Tainan and Kaohsiung Science Parks were made. Regarding the environmental protection facilities in the science park, in addition to random inspection and monitoring by dispatched personnel, environmental protection authorities such as the EPA, the Environmental Protection Bureau of Tainan City and Kaohsiung City would also carry out inspections from time to time since the sewage treatment volume and waste disposal volume both reach a certain scale.



Monitoring of the Environment



Environmental monitoring data query

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 STSP Bureau. Please go to the "Environmental Monitoring Data" section for details. In 2021, STSP Bureau received 4 odor events, and all were investigated and handled immediately.

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	✓	✓

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: tons

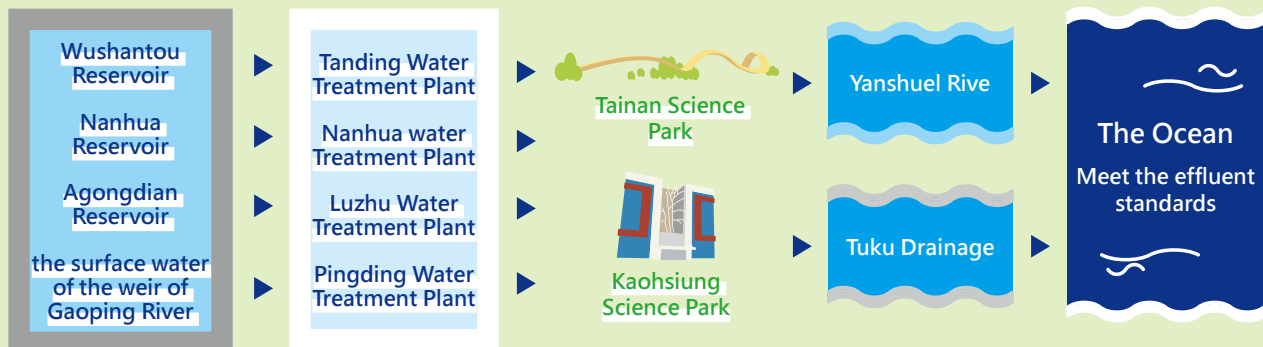
Item	Tainan Science Park	Kaohsiung Science Park
Nitrogen oxides (NO _x)	427.9	34.9
Sulfur oxides (SO _x)	95.4	10.3
Volatile organic compounds (VOCs)	434.8	97.7
Particulate matters (Par)	70.9	8.6

Note: The figures in the table were the permitted emissions of pollutants in Tainan and Kaohsiung Science Parks as of the end of 2021 (tons/year).

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 2021.

Wastewater Treatment

Sewage discharged from the factories in the park is collected by the sewer pipeline, and the acceptance rate reaches 100%. In 2021, 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 and the discharged water eventually flow to the sea. Part of the discharged water is recycled for equipment cleaning, plant watering and landscape ponds.



2021 Overview of wastewater treatment at STSP

Unit: million liters

Item	Tainan Science Park Sewage Treatment Plant	Kaohsiung Science Park Sewage Treatment Plant	Sum
Amount of tap water	82.53	2.56	85.09
Amount of influents	46,600.68	3,215.50	49,816.18
Amount of effluents	45,781.30	3,110.38	48,891.68
Amount of water recovery	557.57	62.41	619.98
Total dissolved solids average monitoring value (mg/L)	3,860	2,850	-

Note:

- The amount of influents is the industrial wastewater discharged by park businesses to Wastewater treatment plant in Tainan Science Park and Wastewater treatment plant in Kaohsiung Science Park.
- The amount of effluents is the effluents discharged from Wastewater treatment plant in Tainan Science Park and Wastewater treatment plant in Kaohsiung Science Park to the ocean.

Overview of water recovery at STSP from 2019 to 2021

Item		2019	2020	2021
Recycling rate of wastewater	Tainan Science Park Sewage Treatment Plant	0.63%	0.68%	1.20%
	Kaohsiung Science Park Sewage Treatment Plant	3.26%	1.83%	1.94%
Usage rate of recycled water	Tainan Science Park Sewage Treatment Plant	74.04%	78.48%	87.11%
	Kaohsiung Science Park Sewage Treatment Plant	99%	96.42%	96.06%

Note:

1. Wastewater recycling rate= recovered water/influents.

2. Usage rate of reclaimed water= reclaimed water usage/ (reclaimed water usage+ tap water usage).

3. Spring rain was relative less in 2021, and the orange drought alert (reduced water supply) was issued, so recycled water was used for suppressing dust on the ground of Tainan Science Park Sewage Treatment Plant.

4. In 2019, Kaohsiung Science Park Sewage Treatment Plant provided water for 6 park landscape ponds 24/7, but the water level of the ponds was often too high and overflow. Therefore, starting from 2020, the time for refilling the landscape ponds with recycled water is adjusted from 8:00 to 17:00, leading to the reduced reuse rate of recycled wastewater.



Tainan Science Park Sewage Treatment Plant

To ensure the water quality in the park, Tainan Sewage Treatment Plant is equipped with a water quality inspection room, and the testing and evaluation of the testing capabilities of the inspection room is done through an impartial, objective, and independent third party. In addition, the second sewage plant has been completed. The exterior of the building is based on the theme of water purification to present the image of layered filtration and dynamic water flow. Currently, its permitted capacity of sewage treatment has reached 143,000 tons per day. Sewage is treated through Secondary (Biological) Process and trinary filtration and the treatment of the sludge adopts mechanical thickening and dewatering. The amount of waste sludge in 2021 was 19,221 tons, which was handed over to the Resource Recycling Center for incineration treatment and to qualified treatment companies for heat treating.

In response to the increase of sewage volume from the factory expansion projects of park manufacturers and the quality control of ammonia nitrogen in the discharged water, Tainan Sewage Treatment Plant is currently working on the Phase II 3-stage AO+MBR project with the daily treatment capacity of 65,000 CMD. The first stage is expected to be completed in April, 2022, and the second stage in December in the same year.

Kaohsiung Science Park Sewage Treatment Plant



Kaohsiung Sewage Treatment Plant is located in the east side of the science park, with an area of 7.79 hectares. The designed water treatment capacity in Phase I is 45,000 tons, and the current permitted sewage treatment capacity is 16,500 tons daily. Sewage is treated through Secondary (Biological) Process and trinary filtration and the treatment of the sludge adopts mechanical thickening and dewatering. The amount of waste sludge in 2021 was 474 tons, which was handed over to the Resource Recycling Center for incineration treatment and to qualified treatment companies for final treatment. There is an EPA certified lab in the plant, and the water quality of each unit in the factory and from the manufacturers is regularly analyzed. In addition, A/O treatment system has also been added for ammonia nitrogen treatment to reduce the discharge of nitrogenous substances, reducing the load of the sewage treatment system and environmental impact.

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 2021 reuse volume of the industrial waste in the science park reached 407,152.49 tons, with the reuse rate of 90.62%.

Science Park \ Item	2021		
	Production volume (tons)	Reuse volume (tons)	Reuse rate(%)
Tainan	435,962.70	396,728.79	91.00
Kaohsiung	13,341.93	10,423.70	78.13
The whole park	449,304.63	407,152.49	90.62

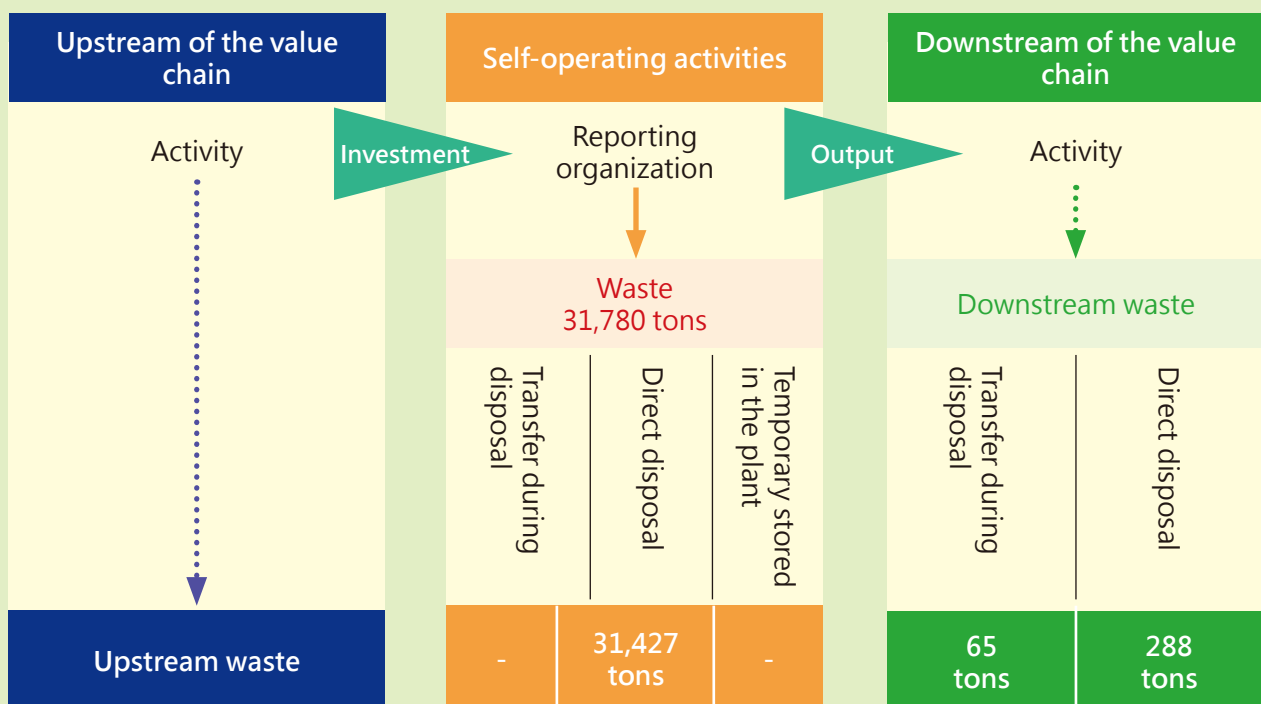
In addition, to cope with the diverse types and characteristics of waste produced in diverse industries in Tainan Science Park, the Bureau has established a well-equipped Resource Recycling Center with waste removal equipment and treatment facilities to properly remove and dispose waste in the park. The process of waste transfer is entrusted to legal operators for removal, incineration, and a real-time tracking system (GPS) is installed on the removal and transportation equipment for management. In 2021, the Resource Recycling Center properly processed 31,780 tons of waste.

By promoting the third phase of construction of the landfill site of the Resource Recycling Center in Tainan Science Park, 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. 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.

Composition of waste		Hazardous waste		Non-hazardous waste		Remarks
Method of treatment		On-site	Off-site	On-site	Off-site	
Transfer during disposal	Other disposal operations	-	-	-	65	The Resource Recycling Center removes and transports the recyclables in the dorm area, and Sinshih Cleaning Squadron does the recycling and disposal
	Subtotal	-	-	-	65	
	Total	-	-	-	65	
	Sum	-	-	-	65	
Direct disposal	Incineration (including energy recovery)	4,729	-	22,665	288	Off-site (transfer to large incineration plant during the annual overhaul period)
	Landfill		-	3,954	-	bottom ash, fly ash, etc.
	Other disposal operations	3	-	76	-	Physical/Chemical Treatment, solidification
	Subtotal	4,732	-	26,695	288	
	Total	4,732		26,983		
	Sum			31,715		
Temporary stored in the plant				-		
Total amount of waste				31,780		

Note:

1. The weight of waste is in tons.
2. "On-site" refers to the area within the physical boundary or administrative control of the reporting organization; "off-site" refers to the area outside the physical boundary or administrative control of the reporting organization.
3. Part of the industrial waste in Tainan Science Park is transported to the treatment agencies by the park manufacturers themselves; all industrial waste in Kaohsiung Science Park is transported to the treatment agencies by the park manufacturers themselves.



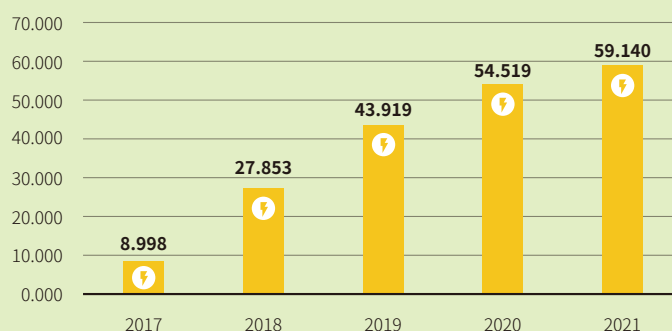
2.3 Renewable Green Energy

STSP promotes the steps toward “sustainable environment and a green park” to keep moving forward. Renewable energy systems are installed while park equipment is replaced to reduce GHG emissions.

■ Renewable Energy System

STSP Bureau has actively installed solar panels in the science park (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). Statistics are in the table below. In 2021, the solar panels installed in the science park generate 4.62 MW of electricity, with the cumulative power generation of 59.14 MW, reducing 37,926 tonnes of CO₂e/year. The power generation is increasing while the emission of CO₂e is dropping year by year, reaching the effect of environmental protection.

Installation of solar panels (MW)



Item	2017	2018	2019	2020	2021
Installation of solar panels (MW)	8.998	27.853	43.919	54.519	59.140
Annual power generation (10,000 kWh)	1,379	3,477	4,969	6,965	7,555
Reduction in carbon dioxide emissions (tons/year)	7,297	18,532	25,294	35,450	37,926

Note:

1. The power coefficient for 2021 was calculated with 0.502 kg CO₂e/kWh (in accordance with the table of GHG emission coefficient management v. 6.0.4 released by Environmental Protection Administration in 2020).
2. The 2020 data was reorganized based on the coefficients announced of the current year and the values were recalculated.

■ Energy-saving LED Street Lights

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 streetlight products available in the market, LED streetlights with appropriate illuminance and luminous efficiency are chosen. From 2010 to 2017, the lights were all replaced by LED ones. As of the end of 2021, the streetlights had been completely replaced with 2,772 LED lamps in Tainan Science Park and 1,647 in Kaohsiung Park. In addition, the high beam lights in the parking lot were also replaced by LED lamps. A total of 374 lamps have been replaced as of the end of 2021.

■ Electronic Shuttle Bus

Currently, the Bureau has 7 e-shuttle buses in Tainan Science Park, with a total of 592 passengers per day, an average daily mileage of about 733.35 kilometers, reducing the use of diesel by 183.34 liters averagely every day (e-vehicle mileage/4 kms per liter of gas) and reducing 477.48 kg CO₂e averagely every day in 2021.

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 5 consecutive years. In 2021, STSP Bureau has obtained a total of (cumulative) 3,167 exhaust emission marks.

2021 Excellent Unit for Environmental Protection Certification for Self-management of Diesel Vehicle Exhaust ▶



2.4 Ecology Conservation

As the science park develops, STSP Bureau has planted various flowers, plants and trees in the science park and taken good care and implemented conservation of these plants to strengthen the ecological conservation and restoration of the science park. We also make long-term plans to promote green buildings and encourage park manufacturers to build green buildings, hoping to create a more environmentally friendly green science park.

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		2019	2020	2021
 Arbores	Tainan Science Park	128,679	123,219	116,155
	Kaohsiung Science Park	92,366	92,293	86,855
 Shrubs	Tainan Science Park	561,215	537,635	543,733
	Kaohsiung Science Park	112,489	139,976	160,224

Note:

1. Information of the number of shrubs planted in 2020 has been reorganized as a calculation adjustment.
2. The above-mentioned statistics is the greenery amount in public space, park, green space, and factory area.
3. There are still development projects in progress in the public area in Kaohsiung Science Park, including the area of newly planted shrubs. Therefore, after the completion of the projects, the maintenance unit in the science park will take over the shrub area. As the factory expansion projects increase, more shrubs will be planted, and there will be more increase in shrubs areas.



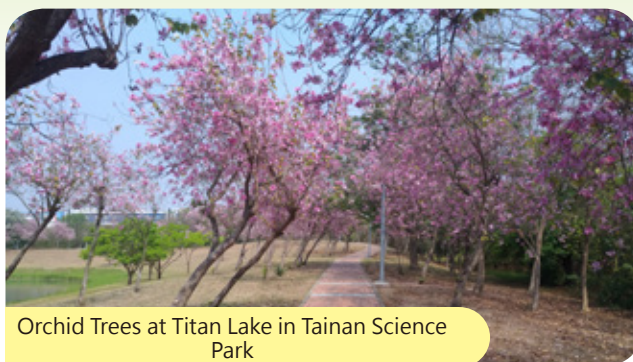
Cosmos flowers at the Yinxi Lake in Tainan Science Park



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



Golden Trumpet Trees on Huandong Road in Tainan Science Park



Orchid Trees at Titan Lake in Tainan Science Park



Gliricidia sepium at the Yinxi Lake in Tainan Science Park



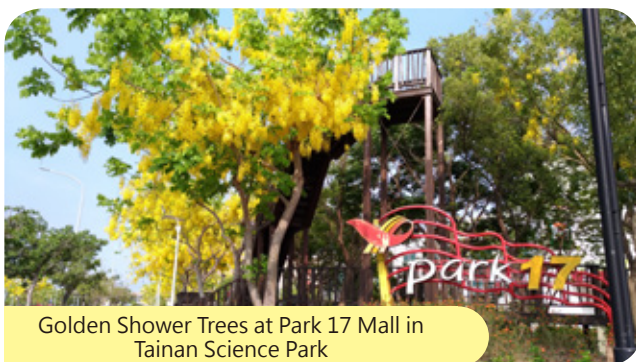
Bead Tree at the Yinxi Lake in Tainan Science Park



Rosy Trumpet Tree at the Gongqi Park 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

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 2021, Tainan and Kaohsiung Science Parks totally produced 713 tons of deciduous compost and 91 tons of wood chips. Based on the statistics, a total of 5,760 tons of compost and 2,502 tons of wood chips were produced during 2013 and 2021.

■ Adoption of Beach Cleanup

From 2017 to 2021, 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. The hours participated in Beach Cleanup Activity in 2021 amounted to 45 man-hours.



▲ Resource Recycling Center's Beach Cleanup Activity

■ Aggregation of Ecosystem

STSP Bureau aims at becoming a sustainable green science park, and there are ecological protection area and artificial wetland in the science park, which is the second ecological protection area with legal basis. 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. The Bureau entrusts an ecological survey team to carry out regular ecological survey 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 2020 are as follows.

	 Birds	 Amphibian	 Butterfly	 Odonata
Tainan Science Park	78 species and 36 families	5 species and 4 families	28 species and 5 families	21 species and 3 families
Kaohsiung Science Park	84 species and 39 families	4 species and 4 families	25 species and 5 families	19 species and 3 families

Among the birds observed, 6 species and 10 species are the protected bird announced by Council of Agriculture (not in the IUCN Red List) in Tainan Science Park and Kaohsiung Science Park respectively.

Item		Tainan Science Park	Kaohsiung Science Park
Endemic subspecies		Bambusicola sonorivox, Pomatorhinus musicus, Psilopogon nuchalis, Pycnonotus sinensis, Hypsipetes leucocephalus, Dendrocitta formosae, Prinia inornate, Dicrurus macrocercus, Hypothymis azurea, Streptopelia orientalis, Turnix suscitator, Apus nipalensis, Accipiter trivirgatus, Caprimulgus affinis, Phasianus colchicus	Bambusicola sonorivox, Pomatorhinus musicus, Psilopogon nuchalis, Acridotheres cristatellus, Pycnonotus sinensis, Hypsipetes leucocephalus, Dendrocitta formosae, Prinia inornate, Cisticola exilis, Dicrurus macrocercus, Hypothymis azurea, Sinosuthora webbiana, Turnix suscitator, Apus nipalensis, Spilornis cheela, Accipiter trivirgatus, Caprimulgus affinis, Phasianus colchicus
Protected species	Class III	Glareola maldivarum, Lanius cristatus	Glareola maldivarum, Lanius cristatus
	Class II	Oriolus chinensis, Elanus caeruleus, Accipiter trivirgatus, Phasianus colchicus	Acridotheres cristatellus, Hydrophasianus chirurgus, Rostratula benghalensis, Elanus caeruleus, Spilornis cheela, Accipiter trivirgatus, Phasianus colchicus, Falco tinnunculus
Frogs		Duttaphrynus melanostictus, Hylarana guentheri, Fejervarya limnocharis, Microhyla fissipes, Kaloula pulchra	

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.



Acridotheres cristatellus



Dicrurus macrocercus



Ardea intermedia



Psilopogon nuchalis



Hypolimnas bolina



Gallinula chloropus



Gallinago gallinago


Brachydiplax chalybea
flavovittata Ris


Lanius cristatus



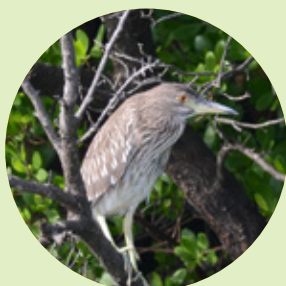
Pycnonotus sinensis



Prinia flaviventris



Streptopelia tranquebarica



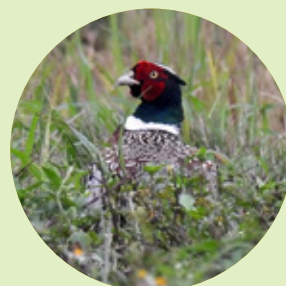
Nycticorax nycticorax



Motacilla alba



Hirundo tahitica



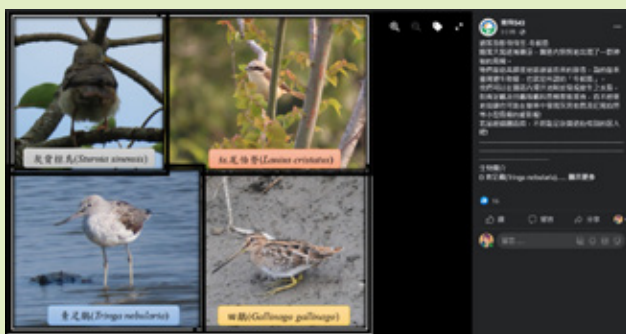
Phasianus colchicus

■ Disclosure of Park Ecological Information

On the roads park employees must use to and from work every day, and at every corner in the science park, many small creatures are inhabiting. To promote ecological conservation and restoration, the Bureau actively shares the ecological information through online media and introduce common species in the park with interesting pictures, texts, or videos, enabling the public to have a glimpse of the ecological resources and the wonders of nature. The concept of environmental conservation in the science park can also be promoted.



STSP 543



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. Nanke Environment Education Park developed 4 courses, namely Source of Life-Water, Garbage Magician, Nature Explorer, and Rain and Me. In 2021, 3 sessions of Source of Life-Water Course were organized, with a total of 102 participants; 5 sessions of Garbage Magician were attended by 171 people in total; 14 sessions of Nature Explorer were provided to 479 participants; 1 session of Rain and Me was attended by 40 participants. Overall, a total of 23 sessions of environmental education courses were organized, and the total number of participants amounted to 792. We introduced more environmentally friendly concepts and measures to create a green science park with sustainable development. In response to the epidemic, measures such as disinfection and temperature measurement were implemented for physical classes. In 2022, it is initially planned to provide online courses as an alternative for some courses.



Source of Life- Water: Coagulation Experiment



Source of Life- Water: DIY of Water Filter



Garbage Magician: DIY of Recycled Paper



Garbage Magician: Visit a model of waste treatment process



Nature Explorer: Observing outdoor plants and animals



Nature Explorer: Group game of small animals crossing the street



Rain and Me: photo taken in class



Rain and Me: Guided tour to the central control room of the Flood Control Center

2.5 Smart Disaster Prevention and Response System

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 that 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. 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

Governance	Environment and Labor Affair Division, Construction Management Division, Planning Division, and Investment Division are the management units for climate change risk prevention and response, responsible for reviewing the potential risks of the main business, and based on the review, the potential risk identification table and risk distribution are revised, and the information is compiled by Environment and Labor Affair Division.
Strategies	We discuss and evaluate the impact on the operation/strategy/financial planning of STSP with relevant units. To strengthen climate change adaptation and mitigation actions in response to climate change and to refer to the policy of Ministry of Science and Technology and upgrade the advanced R&D technology of disaster prevention and relief so as to strengthen disaster resistance and resilience of the society with smart disaster prevention, the implementation strategies include the followings. ▶ Dedicated to establishing Decision Support System for Disaster Response with smart disaster prevention as the main axis and 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 and cooperate with the government's Open Government Data policy and provide disaster information sharing platform services. ▶ Establish a "STSP Integrated Disaster Risk Response System" and organize annual relevant drills and training. ▶ Establish a "Flood Prevention and Utilities Response System" to maintain the safety and proprieties at STSP. ▶ Provide guidance to park manufacturers to implement energy conservation and carbon reduction and conduct GHG reduction-related publicity and briefing sessions. ▶ Promote the installation of renewable energy and make use of reclaimed water. ▶ Provide guidance to park manufacturers for waste reduction and recycling.
Risk Management	Based on the climate-related risks and opportunities provided by the TCFD framework, the climate-related risks are divided into transition risks related to low-carbon economy and physical risks related to climate change. Efforts made to mitigate and adapt climate change will create opportunities for the organization, including improving resource efficiency and cost conservation, adopting low-carbon energy resources, developing new products and services, entering new markets, and improving supply chain resilience. Climate-related risks and opportunities are assessed by the impact on park operations and probability of occurrence.
Indicators and Targets	▶ Linked with the description of objectives of 1.2 Identification and Objectives of Materials Topics

Consequence Probability	Negligible (1)	Moderate (2)	Critical (3)
Very likely to occur (3)	3- Medium risk level 4	6- High risk level	9- High risk level
May occur (2)	2- Low risk level 7 2 4	4- Medium risk level 1 2 1	6- High risk level
Unlikely to occur (1)	1- Low risk level 8 9 10 5	2- Low risk level 5 6 3	3- Medium risk level 3

Transition risks	Physical risks
① Cap and trade	① Change in average rainfall and water stress
② New technology investment and low carbon technology transformation	② Tropical cyclones
③ Mandatory declaration	③ Extreme temperature changes
④ General environmental regulations	④ Floods
⑤ Carbon tax	⑤ Sea-level rise
⑥ Fuel tax/ Energy tax	
⑦ Changes in customer preferences due to possible bad reputation	
⑧ Renewable energy regulations	
⑨ International Convention/Agreement or Voluntary Agreement	
⑩ Customer behavior change and uncertainty of market information	

STSP Bureau implements various contingency system plans and intelligent management of the park in response to the operational challenges and opportunities brought about by climate change. We have provided counseling and guidance for water and energy conservation since 2004 and 2010 respectively and have improved the use efficiency of energy resources. We also encourage manufacturers to make use of renewable energy and reclaimed water resources to lower the risk of interruption of energy and resource supply. As for the waste in the park, we guide park manufacturers through the publicity and promotion to reduce the sources and recycle resources to facilitate the implementation of circular economy. We also cooperate with suppliers to commit to green procurement, promote the realization of climate change solutions, and reduce GHG emissions for the implementation of sustainable development.

■ 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 in 2017, 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.

In case of a power accident (such as voltage drop, power outage) that influences the power supply in the science park, the Bureau will immediately coordinate with Taipower Company to look into the cause and restore it as soon as possible. Meanwhile, through the mechanism, we can understand the impact status the park manufacturers. We also work with Allied Association, Taipower Company, and manufacturers and hold power quality improvement meeting to review causes of the accident and discuss advanced measures to reduce the impact of the power supply accident.

■ 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



Gather typhoon information and strengthen precautions against typhoons



Install a flood monitoring system



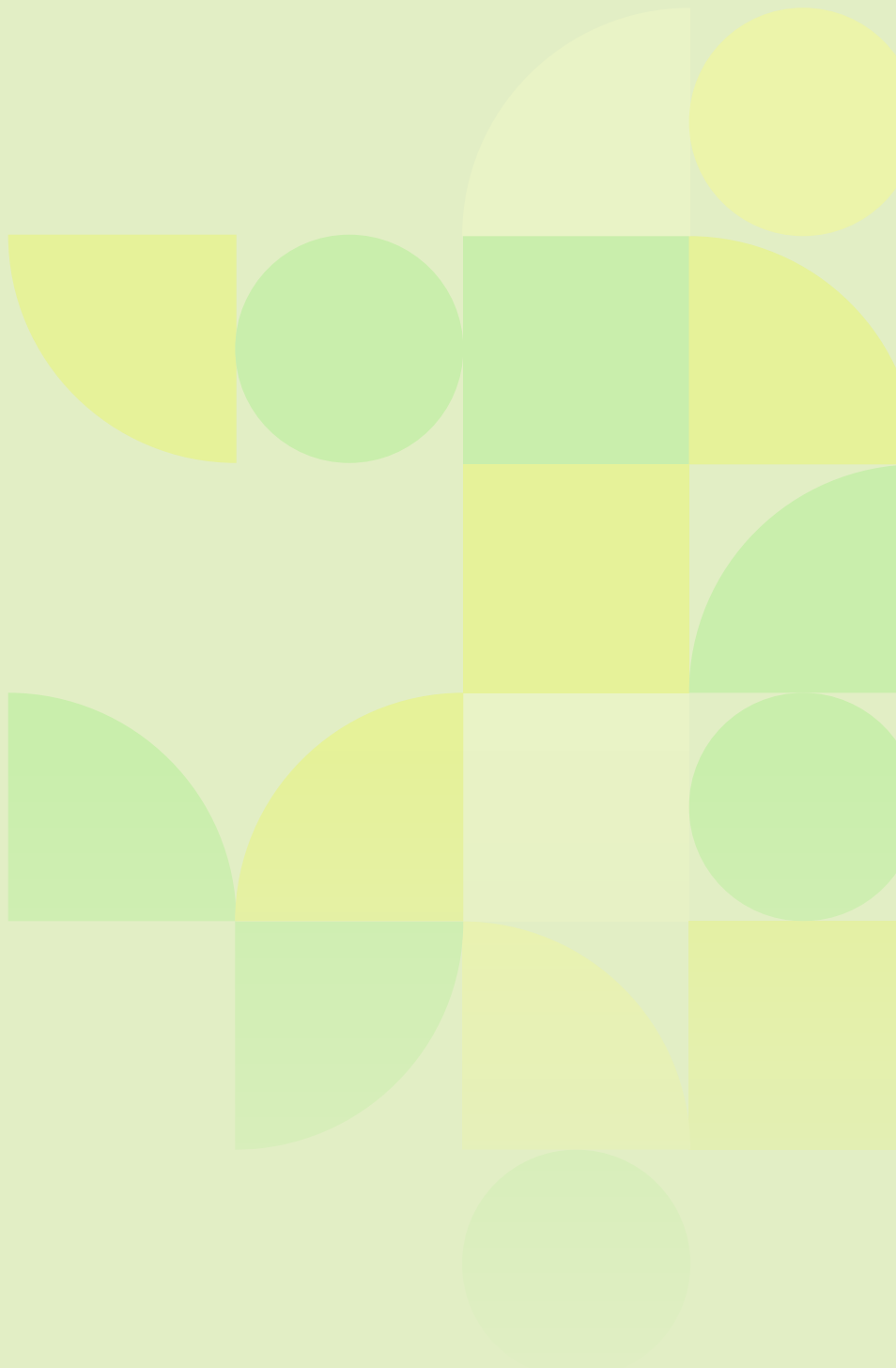
Organize flood prevention education and training annually

■ 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 230 manufacturers and 7,576 chemical records have been registered in the Earthquake Early Warning and Smart Disaster Prevention System, and 2 domestic Utility Patents and 3 Invention Patents were obtained.

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.







SOCIAL

3

EXCELLENT SCIENCE PARK

Annual turnover of STSP in 2021 amounted to
NTD 1948.84 BILLION

An cumulative total of **254** validly approved manufacturers

20 new manufacturers

Established an **EXPERIMENTAL FIELD FOR 5G PRIVATE NETWORK APPLICATION**

Ciaotou Science Park has **PASSED THE EIA** and entered investment attraction and development stage.

Completed the construction of the **LITTLE BEAR BABY CARE CENTER, LUZHU SCIENCE PARK BRANCH**



Management Approach

Corresponding SDGs



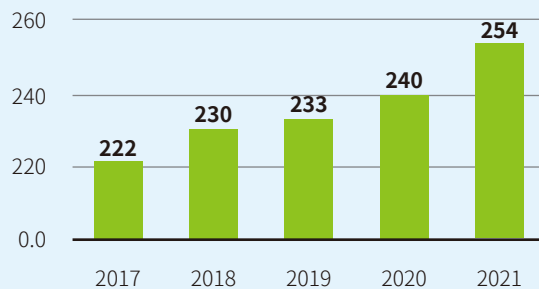
Corresponding material topics	AI for Industries 、 Investment Promotion 、 Infrastructure in the Park
Significance to STSP Bureau	STSP Bureau encourages sustainable innovation and R&D of the manufacturers and actively creates industrial clusters and construction to attract industries to settle in the science park, attracting economic output value and bringing employment opportunities so as to boost the growth of local industries and provide necessary infrastructure for industrial production, aiming at reaching the vision of sustainable operation of the science park.
Purpose of Management	Continue to drive industrial competitiveness, prepare land for industrial development, gather resources for industrial development, and maintain the normal operation of the park.
Goals and Targets	Continue to expand the industrial clusters to cooperate with the Executive Yuan in the promotion of industrial innovation development, grasp the world trend of digital intelligence, support industrial innovation with science and technology, and strengthen the R&D of key industrial technologies to further drive the transformation and upgrade of the industries, plan complete functions of public facilities, improve life functions of the park and perfect infrastructure to meet the development needs.
Responsible Units	Business Division 、 Investment Services Division 、 Construction Management Division 、 Environment and Labor Affair Division,
Resources Invested	▶ To continue the promotion of the development of high-tech industries in Taiwan, we co-organize the joint investment promotion seminars to publicize the great investment environment in Taiwan to create business opportunities. ▶ Introduce various life function service providers to improve the convenience of life for employees in the park.
Grievance Mechanism	Refer to 1.1 Communication with Stakeholders
Assessment and Management	▶ Relevant operations are handled in accordance with the Operation Directions on Selection of Land for New Science Parks ▶ Review in accordance with the Environmental Impact Assessment Act to prevent and mitigate adverse impacts of development activities on the environment. ▶ Organize the monthly statistics of new investment amount of park manufacturers and the list of new manufacturers.

■	■	■	■	■
■	■	■	■	■
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■	■	■	■	■

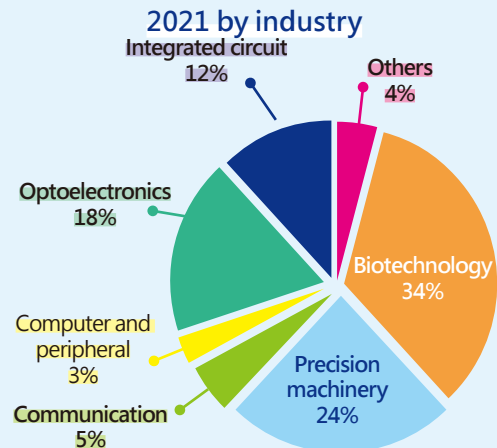
3.1 Overview of Development

The high-quality environment of STSP attracts manufacturers at home and abroad. In 2021, 20 manufacturers (including 10 start-up companies) were introduced into STSP, with an investment amount of approximately NTD 755 million. Among the new manufacturers, 2 have the unit output value per hectare more than NTD 1 billion. There were 15 plant construction projects in the same year. The cumulative number of validly approved manufacturers as of 2021 reached 254, showing that the investment attraction power of STSP continues to grow.

Number of validly approved manufacturers



Number of validly approved manufacturers in



In 2021, the annual turnover was driven by the integrated circuit industry and supported by the optoelectronics industry, totally not impacted by the epidemic. In the 26th year of the establishment, the turnover of STSP surged to over NTD 1,000 billion, reaching NTD 1,948.84 billion, with the growth rate of 29.15%. In addition, driven by the butterfly effect of the magnetic attraction of industrial clusters, enthusiastic investment from upstream and downstream international manufacturers continued. Looking into the future, STSP will enter a golden era of high revenues and high growth.



Integrated circuit industry

The demands for both advanced and mature processes are strong because of the significant increase in the semiconductor content of many end products

Revenue reached
NTD 755.652 billion

↑ 38.25%



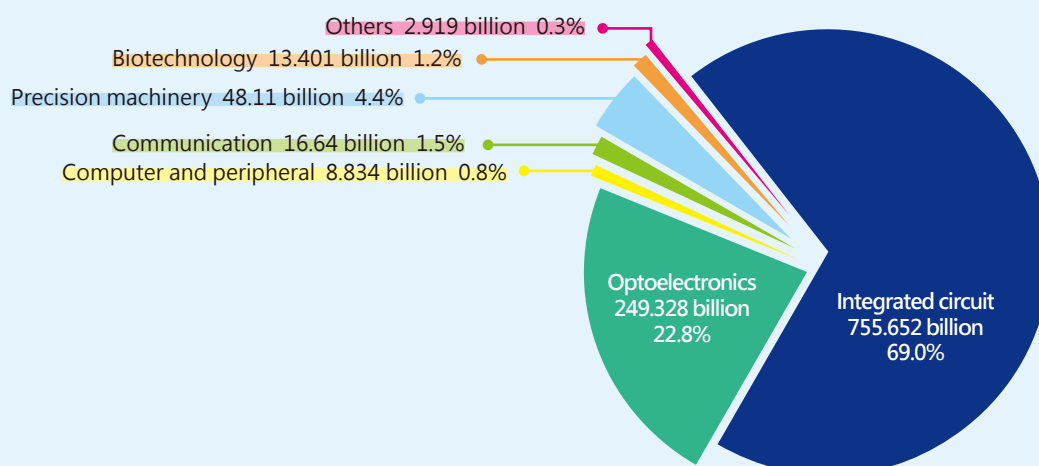
Optoelectronics industry

The demands for TV and IT panels are strong, and manufacturers continue to develop new high-value applications such as automotive and medical panels

Revenue reached
NTD 249.328 billion

↑ 17.45%

2021 Turnover by industry



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. Despite the great impact of severe pandemic of COVID-19 on global industries and economy, STSP still attracted 20 manufacturers to enter the science park thanks to the proper control of the epidemic and the booming development of semiconductor and 5G industries.

Deployment in advance! 20 manufacturers rushed into Ciaotou Science Park, investing more than NTD 100 billion!



▲ Launch Ceremony for Site Selection and Investment Promotion at Ciaotou Science Park

The Launch Ceremony for Site Selection and Investment Promotion at Ciaotou Science Park was held on December 24, 2021. In addition to the introduction of the investment environment of Ciaotou Science Park, the groundbreaking ceremony for No.1 and No. 2 main roads was also conducted. Ciaotou Science Park Development Project is the recent one with the largest release of industrial land in Taiwan. It is also the only science park that is eligible for business income tax reduction under the New Town Development Act. It has attracted major manufacturers

in semiconductor, electric vehicle, ICT, aerospace, and health precision industries, such as ASE Group, Foxconn, YAGEO Corporation, and Phison Electronics Corp., and the estimated total investment has exceeded NTD 100 billion. The industrial cluster of semiconductor industry has gradually formed in southern Taiwan, and the electric vehicle industry will also be introduced here. This shows the industries in Taiwan are moving south, and it will drive the return of talent and economic activities here, making the industrial and local development in the southern area of Taiwan more prosperous.

Increased investment from Taiwan Tohcello Functional Sheet, Inc., adding wings to the semiconductor industry at STSP

The first-phase plant of Taiwan Tohcello Functional Sheet, Inc. in Kaohsiung Science Park has started its operation, and the groundbreaking ceremony of the second phase new construction project was held on Aug.4, 2021 with the investment of over NTD 2.4 billion. The new plant is scheduled to enter official operation in Oct. 2023. The company's production capacity for semiconductor process tape will then reach 7.6 million m². This is the first overseas production base for semiconductor process tape of the parent company of Mitsui Chemicals Inc. in Japan.



▲ The groundbreaking ceremony of Phase I New Plant Construction Project of Taiwan Tohcello Functional Sheet, Inc. in Kaohsiung Science Park

Groundbreaking Ceremony of electronic material supply equipment manufacturer



The groundbreaking ceremony of Merck Ltd. Taiwan (Kaohsiung Plant) was held on Dec.16, 2021, which is the largest investment by Merck KGaA in Taiwan over the years. It will invest NTD 17 billion in the coming 5-7 years, bringing more than 400 job opportunities in 5 years. A large-scale semiconductor material production and application R&D center will be set up in Kaohsiung Park, and together with the new electronic material supply equipment manufacturing plant, and the needs for rapid growth of Taiwan's semiconductor industry will be greatly supported.

◀ Group photo taken at the groundbreaking ceremony of Merck Ltd. Taiwan (Kaohsiung Plant)

3.2 Expansion of Industrial Clusters

To assist with the development of an industrial cluster, STSP Bureau cooperates with the MOST's development plan and actively assists with the industrial upgrading to build an high-quality R&D environment, promote the linkage of the R&D results and industrial needs, deepen the linkage between the industry and academia and exert the synergy of resources integration to improve the innovative ecological environment and link with the international market and resources to facilitate industrial innovation and competitiveness in the global market.

Technology Upgrade Promotion Program for Aerospace Critical System in STSP

Southern Taiwan is an important production base for domestic aerospace engine. To link the aerospace capacity of southern Taiwan, STSP Bureau cooperates the Executive Yuan's policy to actively promote the development of aerospace technology in Taiwan and held a STSP Aerospace Industry Business Opportunity Briefing on March 8, 2021, aiming at providing opportunities for manufacturers at home and abroad to work together, boosting the effect of industrial cluster of domestic aerospace industry and providing business opportunity matchmaking. Industry-academia R&D units in the aerospace field, international manufacturers, F-16 maintenance centers outsourcing business, National Space Organization, Taiwan Space Union, STSP manufacturers, manufacturers in domestic aerospace field all attended this briefing. Explanation of the 10-year, NTD 25.1-billion Third Phase Long-term Plan for the Development of Space Science and Technology business outsourcing is made, providing chances linking domestic and foreign aerospace manufacturers together, driving the effect of domestic industrial cluster of aerospace industry and matchmaking business opportunities, linking industry-academia-research resources to lead the industry to be aligned with government policy and gear to the global trend. In the future, STSP Bureau will continue to promote the link between aerospace manufacturers, F-16 maintenance centers and basic training aircraft to enable the aerospace project at STSP to have greater effect on the development of Taiwan's aerospace industry.



STSP Aerospace Industry Business Opportunity Briefing

Looking back on the 4-year flash flag project of Technology Upgrade Promotion Program for Aerospace Critical System in STSP from 2017 to 2020, guidance was provided to develop key aerospace technologies, the aviation quality system and special process certification was also established, with a total investment of approximately NTD 170 million, leveraging about NTD 7 billion of manufacturer investment and output value.



Excellent performance

Facilitated **56** cases of upgrading and certification of key aerospace technologies

20 International technical cooperation projects

32 manufacturers invested in the aerospace industry

Assisted **15** manufacturers with supply chain advancement

Assisted **138** cases to obtain aerospace certification

6 manufacturers entered STSP

Plant expansion of **8** manufacturers



★ Highlights of project

- ◆ Taiwan Hodaka Technology transformed from manufacturing industrial aluminum materials to aerospace aluminum rods, tubes and other materials, and has officially become the Boeing Company's aluminum material supplier.
- ◆ Gudeng Precision has stepped into aerospace industry from the semiconductor manufacturing industry, and has officially won the orders of actuators from major US manufacturers.
- ◆ Gongin Precision Machine has obtained orders from the major American aviation corporation, SpaceX, supplying low-orbit satellite components.

◀ Four-Year Achievement Booklet

These are the benchmarks for Taiwanese manufacturers to enter global aerospace supply chain. To present the outstanding performance of STSP aerospace manufacturers, the Bureau published the Four-Year Achievement Booklet and launched the achievement presentation video, and will continue to lead the aerospace industry to gear to the international market, making STSP and southern Taiwan an important supply base for the global aerospace industry.

■ Precision Health Industrial Cluster Promotion Project in Southern Taiwan

The biomedical industry in STSP has experienced 10 years of development. STSP Bureau has successively assisted companies in the biomedical industry in passing verification from Taiwan Food and Drug Administration (TFDA) of Ministry of Health and Welfare and the Quality Management System (QMS) of Medical Equipment, as well as the verification of China's State Food and Drug Administration (CFDA), FDA of foreign countries and EU Declaration of Conformity (CE Certificate). 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. There are currently approximately 90 manufacturers in the STSP biomedical cluster, which is one of the major biomedical clusters in Taiwan.



Precision Health Industrial Cluster Promotion Project in Southern Taiwan



Objectives of the project

To construct a STSP-centered medical device cluster with characteristics

To develop innovative technologies and products based on precision health industry

To promote trust-based clinical experience

To establish an integrated industrial alliance-based marketing model

key Industries



International Certification, Excellent Quality

5 manufacturers passed the inspection registration of artificial tooth root

14 manufacturers passed the Act for the Development of Biotech and Pharmaceutical Industry

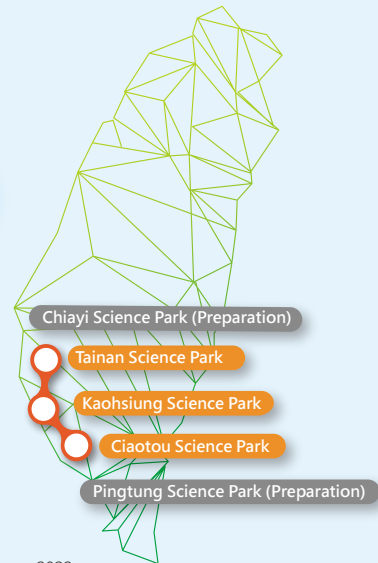
43 manufacturers obtained TFDA

21 manufacturers obtained FDA

43 manufacturers passed QMS

23 manufacturers obtained CE

As of February 2022



STSP Biomedical Service Platform

Introducing international innovative momentum

Accelerator / International Innovation Company/ Innovation Incubation Center

TransMedx Accelerator

- Top international coaches
- One-on-one guidance
- Introducing international funds

Cross-disciplinary talent training

Industrial Bridge Platform

- Customized training course
- Internship matchmaking
- Industry forum
- National Research Institute Soka Platform

Attract flagship manufacturers to cooperate with park manufacturers

large-scale businesses working with small scale corporations / Creating system products and services/ Integration of hardware and software

- Discover excellent products with market potential
- Attract investment

Integrate international industry, academia, research and medical clusters, diversified layout in the global market

Deep educational cultivation / Domestic production and sales/ International clinical use / Increased trust

Experience visits

- Provide clinical physicians opportunities to use domestic products
- Development of new technologies
- Clinical trial collaboration

International education training center

- Connecting with international sister schools to foster decision-making physicians at home and abroad

Demonstration field to assist international sales promotion

KOL endorsement/ International Exhibition/ Demonstration field

Malaysian Operation Center

- Adjacent to Twin Towers Kuala Lumpur
- Combine product demonstration and education and training
- Provide one-stop service

iBIOMED FLAGSHIP HALL

- High-quality domestic products
- A venue to hold workshops, training courses and business meetings

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 2021, there were 47 applications and among them, 19 were selected and subsidized, and the total amount of subsidies approved amounted to NTD 54.8 million. At the end of 2021, there were 87 manufacturers in total, with the turnover reaching NTD 13.4 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.



2021 Bio Asia Taiwan

2021 Bio Asia Taiwan showcased biotechnology manufacturers in science parks, showing the abundant biotechnology research and development energy of the science parks. STSP Bureau set the smart biomedicine as the main axis for the exhibition and gathered 10 manufacturers to participate in this event. STSP Bureau will keep upholding the spirit of serving park manufacturers with enthusiasm and will continue to lead them to embrace a new era of biomedicine.



▲2021 Bio Asia Taiwan Opening of MOST



- Charsire Biotechnology Crop.' s Celludoxa Sanovazo trauma dressing was awarded the Ministry of Health and Welfare / Ministry of Economic Affairs Pharmaceutical Technology & Research Development Award



- SIDSCO Biomedical is a one-stop professional experimental commission service, providing more accurate analysis and histopathological interpretation by professional pathological veterinarians.



- KRISAN BIOTECH CO., LTD initiated the development and OEM of vaccine adjuvants (nucleic acid, peptides, and natural molecules) with its professional technology platform.



- JUN ZHI Biomedical Co., Ltd. specializes in accurate detection of nanometer mass spectrometry, and is able to assess the risk degree for cancer by using blood tests.

- LiveStrong Optoelectronics Co., Ltd. is an Optoelectronics manufacturer stepping into the biomedicine field, providing biomedical testing technology information and technical consultation.

- Ducollege Biotechnology Co., Ltd. utilizes exclusive technology – Extre2Cold to extract collagen from fish skins for the healing of wounds and damaged skin.

- Taigama Biotech Inc., Ltd demonstrated the use of nano-material microencapsulation technology to accelerate wound healing and repair.

- G&E Herbal Biotechnology Co. Ltd. displayed its Hepanamin with the dissolution data as high as 98.3%, completely broke the absorption bottleneck and is compliant with the Pharmacopoeia specifications.

- Visionatics Inc. has researched and developed molecular detection and immunodiagnosis, detection and diagnosis of circulating tumor cells and other technologies, capable of simultaneous detection of a variety of different pathogens in one experimental reaction.

- Sunmax Biotechnology Co., Ltd. is the first domestic manufacturer of R&D and production of biomedical grade collagen which is marketed throughout EU, USA, China and Taiwan.

2021 Medical Taiwan (Medical Taiwan)

STSP Bureau aimed at the future trend of precision health and formed a strong team of 7 park biomedical manufacturers to participate in the 2021 Medical Taiwan held in Taipei Nangang Exhibition Center, fully demonstrating the high-quality products and R&D technology of the park manufacturers.

To work in line with the Six Core Strategic Industries Promotion Project and the Five Plus Two Industrial Innovation Plans, STSP actively works on the layout of the precision health industry and enhances the linkages between the industry, government, academia, research, and medical sectors to form a complete industrial cluster of precision health industry. In the post-epidemic era, with the existing ICT technology and BIO energy in the park, it is hoped to grasp the development opportunity for the development of this industry and to assist park manufacturers in expanding domestic and foreign markets through this exhibition so as to build a brand image for the industrial cluster to attract cross-domain link and investment for new ventures, which will enable the park manufacturers in the biomedical industrial cluster to grow and thrive. Products on display in the exhibition included Pvox Oral AR from EPED Inc., Osteoporosis screening kit- X1 Imaging from Biomedica Corp., high/ low speed dental handpieces from Codent Technical Industry Co. Ltd., health management devices from Voltcom Microelectronics Co. Ltd. (formerly Cloudmed), TAICEND Wound Patch from Taicend Technology Co., Ltd., biomedical grade collagen products from Ducoleg Biotechnology Co., Ltd., and TGM liquid wound protection spray from Taigama Biotech Inc., Ltd., these products are best products to be used in the field of precise diagnosis, precise treatment and precise care.



Science Park Emerging Technology Application Project

To implement the main axis of the high economic efficiency and industrial innovation policy to encourage scientific businesses to form alliances with different industries or the academic circles to jointly engage in the R&D of emerging technologies, STSP Bureau started the promotion of Science Park Emerging Technology Application Project in 2021 to introduce the energy from academic and research institutes while forming industry alliances based on industrial needs to facilitate the joint engagement in the development of industrial integration and key technologies. The aim is to promote talent cultivation for innovative technology, solve market problems, nurture start-ups and create talent value to achieve the win-win situation for innovative transformation of industries and the synergy of derivative industries.

1. Those with the goal of creating high economic benefits or those with high innovation and development potential: such as increasing output value, entering the international supply chain, increasing market share, etc.
2. Transfer specific R&D results of the academia to the industry and cooperative enterprises for commercialization for the commercialization of the R&D results and cultivate professional talents.
3. Those who develop innovative technology R&D and obtain utility patent.
4. Other R&D technologies that meet the priority subsidy mentioned in Point 4 of the Key Points of Plan Implementation.

The final decision was made to approve subsidies to the 2021 R&D projects of 9 manufacturers in biotechnology, optoelectronics and precision machinery, with a total subsidy amount of NTD 35.44 million.

Number of journal papers (including technical reports)	Number of talents cultivated by academic and research institutions	Number of derivative patents		Number of technical transfers
		Number of application	Number of patent obtained	
51	42	25	0	51

*Note: The 2021 Science Park Emerging Technology Application Project was still ongoing before the completion of this Report, and the figures were estimated benefits.



Science Park
Emerging Technology
Application Project

3.3 Start-up Momentumt

To encourage new ventures, investment in development and self-manufacturing of AI robot related products and cultivation of cross-disciplinary innovative talents, STSP Bureau provides new ventures with entrepreneurship counseling, professional instructors from the industry, linkage with the industry and capital matching to introduce new start-ups into the science park to deepen the root of technology in the science park and revitalize the development of STSP.

■ The Start-up Workshop

STSP Bureau has set up the Start-up Workshop and introduced a one-stop matchmaking platform for entrepreneurial resources, providing start-up teams with a field for entrepreneurial development, coupled with the cooperation with the manufacturers and industry experts, basic prototype trial production equipment and resources, exclusive guardian and application for project grants, enabling these start-up teams to successfully start their own business under the assistance of STSP Bureau.

For Start-up Workshop to help the teams obtain long-term funds, the Bureau and NCKU Startup Accelerator co-organized the Experience Sharing Meeting on Applying for the NFD' s Business Angel Investment Program on January 18, 2021, and winners in 2020 were invited to share their application and fundraising experience, attracting nearly 50 attendees. The Hong Kong Polytechnic University and National Cheng Kung University co-organized the NCKU X PolyU LEAN LAUNCHPAD, a 10-week Entrepreneurship Development Program from August 31, with a total of 19 start-up teams from Hong Kong and Taiwan to learn together. The coaching team took actions to practice entrepreneurship to actually understand the market demand, and repeatedly verified the entrepreneurial concept and operation model to create products and services meeting the market demands. In addition, the 16th National Innovation and Entrepreneurship Competition attracted more than 400 teams across the country and after 2 months of fierce competition, only 72 teams were shortlisted for the final review. In the end, 5 groups of start-ups coached by Start-up Workshop won the grand prize.

The Start-up Workshop cooperates with MOST's From IP to IPO Program (FITI) to bridge the gap between innovation and entrepreneurship, implement the goal of promoting innovation economics and tech transformation, and actively coach and train start-up teams to participate in FITI program. The main fields include biomedical industry, innovative technology and design, and information application and services, with each session lasting 6 months. It is hoped to link entrepreneurship counseling resources in the 6-month systematic training to help young students move toward the path of innovation and entrepreneurship, and to further drive the domestic trend of entrepreneurship. In the first half of 2021, 11 start-up teams received guidance participated in the program. Among them, HanDo Lab was honored with the Outstanding Entrepreneurship Award and the prize of NTD 2 million and VM-Fi won the Startup Potential Award. In the second half of 2021, 16 start-up teams coached participated, and among them, Tender Light Scientific won the Outstanding Entrepreneurship Award.



▲ Group photo of the winning teams from STSP



Start-up Workshop



From IP to IPO Program (FITI)

Since its establishment in 2013, Start-up Workshop has coached and guided a cumulative 103 start-up teams to set up start-up companies. The total capital of these startups amounted to more than NTD 3.7 billion. Among them, 9 teams entered the incubation center in STSP, and 18 teams have become scientific enterprises in the science park.

■ Establishment of STSP's AI_ROBOT Base and Support of Start-up Business Development

With the advantages of the smart machinery in STSP, combined with the park manufacturers and surrounding scientific research institutions, a flagship human-oriented AI_ROBOT Base has been created to implement integration and innovative application of robot software and hardware, foster innovative cross-field talents for hands-on work. STSP's AI_ROBOT Base focuses on AI, robotics, and other related technologies, using the self-production field and facilities to assist with development. Furthermore, accelerators are introduced to guide start-ups to cooperate with enterprises for co-creation, facilitating growth for start-ups and enterprise innovation while encouraging start-up companies to become scientific enterprises to keep the technology rooted in the science park. As of the end of 2021, the AI_ROBOT Base has guided cumulative 206 start-ups, and 79 start-ups have settled in AI_ROBOT Base and among them, 8 start-ups including SIDSCO Biomedical, E SmarTech, JUN ZHI Biomedica, JUMBO LASER, DeepWave, Coretronic Robotics, Algae Gold, and AccuAR Digital have been approved to be stationed in STSP as park businesses. It also assisted in raising NTD 357 million for the start-up companies.

Taiwan AI Robotics Accelerator (TAIRA) in the AI_ROBOT Base assisted the start-up teams in accelerating the creation of AI and robotics-related solutions. The core spirit of TAIRA is

“innovation through field domains and transforming industries through startups” and the accelerator leads start-ups to work on AI solutions and Robotics to gain access to corporate resources and business partnership opportunities. The cooperation mode of large-scale businesses working with small scale corporations and the provision of R&D subsidies and business cooperation opportunities attract high-quality start-ups to Southern Taiwan for cocreation of innovation with businesses, linkage with international resources to access to the international cooperation network, assisting these entrepreneurs with rapid growth in the most direct way.



AI_ROBOT Base at STSP

TAIRA and Digitimes co-organized the Smart Medicine Results Presentation

At D Forum 2021, Taiwan AI Robotics Accelerator (TAIRA) was invited to present products and technology.

- ▶ Taichung Session (Dec. 10): Portable X-ray machine: New robotic medical tool for humans by Energy Resources International Co., Ltd.
- ▶ Tainan Session (Dec. 17): Precision medicine to safeguard female health and AI-assisted screening system by Biomedica Corp., and Telemedicine by Sync Vision.

The products displayed at the booth in this event were shared in the forum or demonstrated at the booths could bring more business opportunities. A total of 10 park manufacturers set up booths in the event, and more than 150 people participated in the event.

Start-up manufacturers TAIRA guided made a presentation of their products at D Forum 2021. ▶



TAIRA and ACW SOUTH co-organized the Results Presentation of Manufacturing Field Cooperation

TAIRA Accelerator worked with ACW SOUTH and added value of the information security protection in the innovation technology in the manufacturing field and the results presentation of ACW SOUTH was held on Dec. 13, to publicize the cooperation results. Approximately 100 people participated in this event.

- ▶ The corporate mentor, Might Electronic led the start-up teams, 5Voxel, Spatial Topology, and ArcRan to jointly demonstrate the technology of Real-time Monitoring and Protection of Smart Manufacturing Information Security System
- ▶ Yallvend demonstrated the Smart Vending Machine Mobile Payment and IoT Information Security



Start-up manufacturers TAIRA guided made a presentation of innovative results of information security at ACW SOUTH

FIRST Robotics Competition Teams

FRC, FIRST Robotics Competition, formed in the United States, is the largest robotics competitions in the world. The main purpose of it is to cultivate students to become leaders in the fields of science and technology. To cultivate future talents needed in the new generation of industries, STSP Bureau actively built the AI_ROBOT Base at STSP and assists participating teams in the regional competitions to receive courses and guidance from the professional groups. Practical courses, intensive training camps and FRC simulation competitions are planned every year to deepen the education of self-manufacturing.

Due to the epidemic in 2021, the RFC Regional Competition was carried out online, and participants could not experience physical competition. This time, 23 teams with a total of 420 participants from northern, central and southern Taiwan joined a series of simulation competition in April, 2021. The rules of this competition system allowed teams to have both competitive and cooperative relationships, which would test the strategies and cooperation among the participating teams.



FRC 2021 simulation competitions

In the second half of the year, we continued to actively engage in the FRC-related training. We tutored the KIBO Robot Programing Challenge hosted by National Space Organization and won the second and third place in the Taiwan preliminaries respectively. The Bureau held the STSP FRC Summer Training Camp, attracting a total of 109 students from 19 schools nationwide. In the STSP FRC Achievement Presentation held in October, 2021, 88 people from 10 schools around Taiwan participated in this event for annual results presentation and team exposure.

In December, 2021, we participated in the Mega Maker Day held in Pier-2 the Dagang Mzone in Kaohsiung and carried out promotional activities such as the Maker Show presented by the FRC teams, the FRC robot parade, the interactive demonstration of robots, and booth decoration.



Creating the excellent corporate image of FRC sponsors to the public

3.4 International Exchanges

Due to the impact of COVID-19 epidemic, the visiting groups from home and abroad were not as many as before. There were 36 visiting groups in 2021, with a total of 1,702 visitors. However, with the thriving development of the semiconductor and biomedical industries at STSP, there were still foreign envoys, important industries and investors visiting the science park to grasp the development trend of the park. Important visiting groups and distinguished guests show that STSP plays an important role in the development of technology industry in Taiwan.

Jan.

- ▶ Sunlit Chemical
- ▶ Mr. Sung-Ho Liu, Section Director of Laser Application Technology Center (LATC), ITRI

Feb.

- ▶ Taiwan Fu Hsing Industrial Co., Ltd.

Mar.

- ▶ Mr. Hsieh-Chin Ho, Chairman of Wealth Magazine
- ▶ Southern Taiwan Industries Visiting group of
- ▶ Legislator, Ms. Chih-fen Su

Apr.

- ▶ Si Wan College of NSYSU visited Kaohsiung Science Park
- ▶ Mr. Shui-Yi Kuo, President of Chunghwa Telecom
- ▶ International Partners Southern Taiwan S&T Tour, MOST
- ▶ Inspection from Committee on Educational and Cultural Affairs, Control Yuan

May.

- ▶ Mr. Wen-Guang Chen, President of ASML Taiwan

Aug.

- ▶ Commonwealth Magazine visited Kaohsiung Science Park
- ▶ Mr. John Kee, Chairman of Merck KGaA
- ▶ Mr. Ren-Jen Shiue, President of E-ONE MOLI ENERGY CORP.

Sep.

- ▶ Visiting group of Malaysian Friendship and Trade Centre to STSP Precision Health Industrial Cluster

Oct.

- ▶ Mr. Hsieh-Chin Ho, Chairman of Wealth Magazine and investment alites from various sectors visited Kaohsiung Science Park
- ▶ Mr. Wei-Jin Dai Chairman of Research, Development and Evaluation Commission, Tainan City Government

Nov.

- ▶ Mr. Kuo-Wei Chang, Chairman of STARLUX Airlines and other VIPs
- ▶ Mr. Wei-Jen Chang, Physician of Taipei Medical University Hospital visited the iBIOMED FLAGSHIP HALL in STSP
- ▶ Mr. Yu-Hsin Su, Chairman of Gongin Precision Machine
- ▶ Daxin Materials Corp

Dec.

- ▶ Director Chang, Innofux Corp.
- ▶ Director Lin, Hermes-Epitem Corp.
- ▶ Hanns Touch Solution Inc.
- ▶ Chung Jung Christian University visited Tainan Science Park
- ▶ Mr. CT Chiao, Deputy President, and Director Anna Chou of Lam Research Corp

International Partners Southern Taiwan S&T Tour



Chairman Kuo-Wei Chang of STARLUX Airlines led the visiting group



Chairman Hsieh-Chin Ho of Wealth Magazine led the investors to visit Kaohsiung Science Park



Chairman Hsieh-Chin Ho of Wealth Magazine led the investors to visit Tainan Science Park



Group photo of Committee on Educational and Cultural Affairs, Control Yuan led by President Chen Chu, STSP Bureau Director, and STSP associates





SOCIAL

HARMONIOUS COMMUNITY

4

Overall health service rate of the science parks within STSP reached **99.80%**

57 SESSIONS of on-site Counseling of Occupational Safety and Health

4 MANUFACTURERS and 10 employees in the science park were awarded the Excellent Industrial Safety Unit (Personnel)

The occupational disaster rate per thousand people was **1.09‰**, a decrease of 11% compared with the 3-year average.

Organized **129 SESSIONS** of on-site counseling, publicity meetings, education and training, response drills and sharing meetings

Carried out **1,011 SESSIONS** of labor inspections

APPROXIMATELY 85 CASES of labor dispute mediation

Opening of the **OCCUPATIONAL SAFETY AND HEALTH MULTI-SOMATOSENSORY EXTENDED REALITY (XR), DISASTER PREVENTION SIMULATION TRAINING FIELD** and completed the XR software platform and 3 disaster prevention simulation training courses

Management Approach

Corresponding SDGs



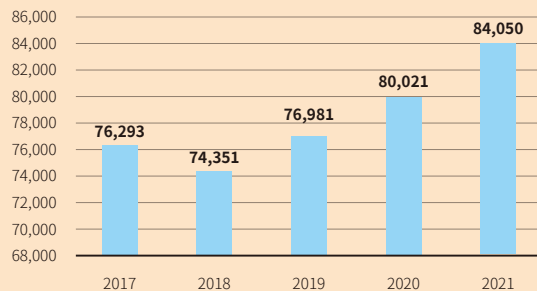
Corresponding material topics	Occupational Health and Safety 、 Safe Working Environment 、 Labor Management Relations in the Park
Significance to STSP Bureau	As the highest labor inspection agency in the science park, STSP Bureau has to lead by example and make effective management to reduce the occurrence of labor dispute. In addition the Bureau also attaches great importance to the health and safety of all the workers in the science park, strengthens the substantial management of the implementation of occupational safety and health to enhance the employees' attention to and efforts in a safe and healthy working environment, and assists in coordinating the labor-management relations, creating a sustainable working environment for a smart park with health and safety.
Purpose of Management	To establish an excellent working environment, prevent manufacturers from violating human rights and labor-related regulations, reduce occupational safety risks, focus on applying innovative and smart technologies into disaster prevention, take the emerging occupational diseases into account, improve workers' health and innovate disaster prevention to have healthy labor force, creating a healthy science park.
Goals and Targets	To establish a sustainable working environment with health, safety and sanitation for all employees in the smart science park.
Responsible Units	Environment & Labor Affair Division
Resources Invested	▶ Assist in labor dispute mediation (coordination), facilitate labor-management harmony and reduce labor disputes. ▶ Carry out occupational safety and health management targeting at the park businesses, provide Association for Promotion of Park Industrial Safety with counseling, and conduct workplace health promotion and other industrial safety and emergency response related businesses.
Grievance Mechanism	Refer to 1.1 Communication with Stakeholders
Assessment and Management	▶ Comply with relevant regulations, such as Act of Gender Equality in Employment, Labor Standards Act and other relevant government regulations. ▶ Conduct on-site inspections, on-site counseling and labor inspection in accordance with Occupational Safety and Health Act and supervise as well as provide guidance for improvement based on the inspection results

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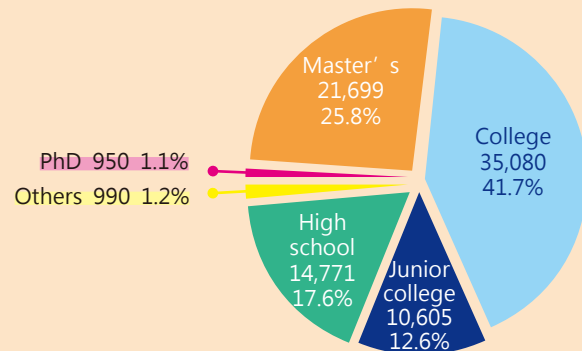
4.1 Employment of Talent

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 to co-organize a number of talent recruitment activities every year. As of December, 2021, the total number of employees in STSP has reached 84,050, an increase of 5% compared with the same period in 2020. We hope to attract more excellent talents to join STSP and bring vitality to the science park.

Employed population



Level of Education of Employees as of the end of 2020



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.

2021 Winter Camp-A Visit to STSP

The 2021 Winter Camp- A Visit to STSP was held during winter vacation. The themes of the winter camp included environmental engineering, biomedical technology, semiconductors, and optoelectronics, allowing students majoring in relevant departments to "visit STSP and learn about what is needed for future employment" and have a basic understanding of the industry.

The winter camp was held in Tainan Science Park and Kaohsiung Science Park. In addition to the introduction of the living environment of the science parks, STSP Employment Service Station and Gangshan Employment Service Center also explained the situation of talent needs at STSP. Various itineraries were planned for different sessions, including visits to iBIOMED FLAGSHIP HALL in Kaohsiung Park (on the theme of biomedicine), the Resource Recycling Center and the wastewater treatment plant (on the theme of environmental engineering). Park manufacturers were also invited to guide these students and have exchanges with them.



Group photo with the students at STSP

Work in Kaohsiung Job Fair

STSP Bureau and Labor Affairs Bureau of Kaohsiung City Government co-organized the 2021 Work in Kaohsiung Job Fair at Shou-Tian Temple in Gangshan on Sep. 25, 2021, with 10 manufacturers including Innolux Corp., Walsin Technology, and Winbond Electronics, providing more than 600 job opportunities for those interested to be a member in the technology industry.



The distunished guests wished the event a great success

Living and Working in Tainan Job Fair

STSP Bureau and Labor Affairs Bureau of Tainan City Government co-organized the 2021 Living and Working in Tainan Job Fair on March 27 in Shanhu Community Center. The participating 16 manufacturers included TSMC, Innolux Corp., ChipMos Technologies, Taiwan Hodaka Technology, Sumika Technology and so on. In addition to the recruitment of 9,000 people throughout Taiwan of the year by large semiconductor manufacturers, other park manufacturers offered more than 800 job opportunities, attracting talents in other fields to come and settle in STSP.



Opening Ceremony of the Job Fair

4.2 Nurturing Key Person

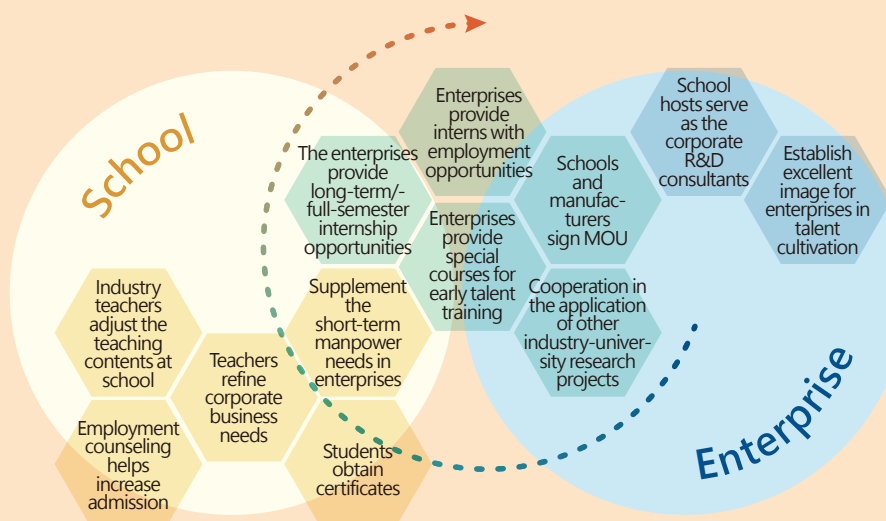
■ Science Park Talent Cultivation Subsidy Program

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.

This program facilitates exchange opportunities between schoolteachers and the industry in teaching and researching through industry-university collaboration projects, which further increases the employment opportunities for students. In 2021, STSP Bureau has confirmed 13 projects, with a total subsidy of NTD 7.92 million. A total of 10 schools actually implemented the talent cultivation projects, providing 13 module courses and corporate internship courses, cultivating 735 people. In addition, the cultivation results included 6 competitions, 5 categories of certification, 60 certificates in total, 3 session of results presentation and 3 industry-university collaboration projects.



Science Park Talent Cultivation Subsidy Program



Shou University visited Kaohsiung Exhibition Center Corp.



Instruction conducted by industry expert of Huang Liang Precision Enterprise Co., LTD.



Students receiving practical training in the Industrial Technology Research Institute's southern branch



Students learning the operation of the evaporation equipment in the practical class



The Personnel director of ScinoPharm Taiwan, Ltd. came the department to recruit intern students

Professional and Technical Talent Training Program

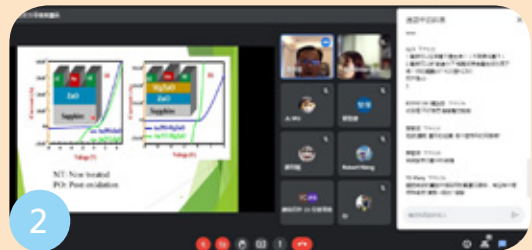
To improve the professional and technical knowledge and capabilities of the park employees and to reserve the capacity of talents for the future advancement of the park, multiple professional courses in the fields of semiconductor, optoelectronics, precision machinery, information communication, and management that are needed for park employees and the exchange and matchmaking events were held to reserve all kinds of talents needed by the park industries and enhance the park employees' competitiveness, the innovative management thinking, and the R&D capacity. Through the construction of an exchange platform for industry-academia services at STSP, various resources of industry, government, academia, and research institutes can be more effectively utilized and integrated to give full play to the maximum benefit of resource sharing to serve the park.

Due to the impact of COVID-19 epidemic in 2021, the talent training course and matchmaking activities were affected and restricted. The needs for talents and training were partly addressed through online courses and online matchmaking for STSP.

- A total of 339 hours of classes were provided, including 2 short-term modules paid courses in semiconductor and smart manufacturing, 22 open classes, 21 customized corporate classes, and 3 salon series lectures, with a total of 1,361 trainees. Part of the classes were provided online, with more than 60% of trainees from park manufacturers, 60% of trainers from corporate industries, and 21 units of linked enterprises and corporates, training professional talents for STSP.
- 3 sessions of comprehensive and 2 sessions of large-scale talent or technology matchmaking events were organized, participated by a total of 480 people from 25 schools, 22 park companies, and 18 external companies, assisting park businesses with the online briefing and cross-school talent matching during the epidemic.
- 2 exchange symposiums for HR and senior executives were held to understand the talent needs of the enterprises. Participants also visited the Tainan Base of the Taiwan Semiconductor Research Institute. The 2 symposiums were attended by 58 HR and executives from 37 manufacturers, enabling the industries to understand relevant training and technical cooperation and testing related cooperation.



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- ① taken in the talent training course in semiconductor process and testing techniques: The lecturer introducing the coating materials in the Clean Room
- ② Online course students asked questions in the message area
- ③ 2021 Human Resources Master Lecture and Face-to-Face Matchmaking for Talent and Enterprises: Senior Manager Zhou from ASML and Manager Liu jointly answered questions from the students
- ④ Group photo of the Achievement Exhibition of Smart Manufacturing Cross-domain Integration Talent Cultivation Alliance and STSP Enterprise Special Talent Matchmaking Association

4.3 A Friendly Workplace

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.

■ 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 addition to making short films to advocate gender equality, STSP Bureau also organized workshops and invited professionals to have lectures on Act of Gender Equality in Employment, case study of workplace sexual harassment, and practical case study of employment discrimination. 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. Slogans and messages concerning gender equality in employment are shown on the electronic bulletin board in the science park from time to time, and relevant propaganda and materials about gender equality in employment and a friendly workplace are posted on Facebook Fanpage.
2. Materials are made 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. In 2021, 8 sessions of playing the propaganda short film on gender equality before the movies were arranged on STSP Movie Night, and the contents of the short film included parental leave without pay, childcare allowance and CEDAW promotion to strengthen the promotion of the gender equality concept.
3. In 2021, the Cheering Station for Gender Equality in Employment was established in 3 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 465 copies of questionnaire were completed in total).



Propaganda on the friendly workplace on the Facebook Fanpage



Slogans on the electronic bulletin board in the science park



Propaganda short film on gender equality played before the movies on STSP Movie Night



Cheering Station for Gender Equality in Employment



Workplace Equality Zone



Workplace Equality and Sexual Harassment Prevention Seminar

4. We planned a "Workplace Equality Zone" in large-scale talent recruitment events to introduce the winners of park manufacturers implementing workplace equality, sharing various friendly measures and practical experiences to enhance the corporate image of the manufacturers.
5. We organized 2 sessions of "Workplace Equality and Sexual Harassment Prevention Seminar" in Tainan Science Park and Kaohsiung Science Park each on October 26 and October 19 respectively, with 35 representatives from 28 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.

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 2021.

In 2021, the Bureau convened 2 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 gender discrimination and 1 case of sexual harassment in the workplace were completed to safeguard the rights of the complainant to promote a friendly workplace and environment in the science park.

■ Promotion of Recognition of Workplace Equality in the Science Park

To safeguard labor rights, promote a friendly working environment, facilitate harmony between labor and management to reduce labor disputes, and to commend park employees for their contribution to the construction and economic development of STSP, the Bureau organizes the Award-Giving for Promotion of Work Equality in the Workplace for excellent business units and Excellent Employees in Southern Taiwan Science Park to encourage enterprises to actively implement labor laws and regulations and construct a harmonious working environment. In 2021, a total of 66 excellent employees and 11 manufacturers promoting work equality in the workplace won the awards.



■ Protection of Trade Secrets and Maintenance of Public Safety in STSP

To strengthen the awareness of trade secrets protection, STSP Bureau and the Intellectual Property Office of MOEA organized the Seminar on Legal System and Practices of Corporate Trade Secrets Protection on October 1 in the Performance Hall at the Tainan Science Park. People from all sectors were invited, and the Tainan District Prosecutor's Office of the Ministry of Justice, the Investigation Bureau of the Ministry of Justice, the Second Special Police Corps, and companies in STSP also attended this seminar. The content of the seminar ranged from the legal system of the trade secrets, reasonable protection measures for trade secrets and for enterprises, to the practical case study, allowing participants to have a deeper understanding of trade secrets so that they can cooperate with the amendments of Trade Secrets Act to maintain the industrial competitiveness of the science park and ensure the safety of national economic development.

In the meantime, as the manufacturers expand their plants, the order production capacity continues to increase, with nearly full land rental rate. Tens of thousands of construction workers and park employees come in and go out of the science park, making it a big challenge in terms of traffic impact and public security protection. The Second Corps of the Security Police has added the Siraya Division in Tainan Park on March 30, and the jurisdiction is bordered on the original Nanke Division by the Siraya Avenue, with the area north of Siraya Avenue belonging to the Siraya Division and that south of it belonging to the Nanke Division. In the future, it will be responsible for the maintenance of traffic flow, public security, crime fighting, criminal investigation and other affairs to allow manufacturers to invest and park employees to work at ease.



Industrial Safety and Environmental Protection Month

The activities for the Industrial Safety and Environmental Protection Month not only focus on how to enhance industrial safety and health management but also continue the promotion of “Promoting Exercising, Keeping Healthy” as the main axis of planning, which are in line with the policy goals of healthy exercise promotion, work stress relief and physical and mental well-being.

Deep Cultivation of Environmental Education

The Science Park has spared no efforts 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. The eco-tour activity was held in 2021, with a total of 180 participants.



Gaomei Wetland Visitor Center- Ecological Interactive Experience Area



Volunteers resorted the endemic *Bolboschoenus planiculmis* in Gaomei Wetland



Gaomei Wetland Boardwalk Guided Tour- Explanation of the wetland conservation and ecology

● Cycling Trips

To promote eco-friendly, cost-saving, healthy and stress-relieving cycling activities, STSP Bureau and the Cycling Clubs of the park manufacturers co-organized cycling trips. The activity was divided to two groups. The roaming group had a biking trip to Tsou Ma Lai Farm while the endurance group had a biking trip to Nanhua Reservoir. There were 150 participants in total.



The roaming group biked in Tsou Ma Lai Farm



The endurance group went as far as to Nanhua Reservoir

● 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 February, 2022, a total of 237 issues of the e-newsletter have been published since the issuance, with a total of 2,562 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.

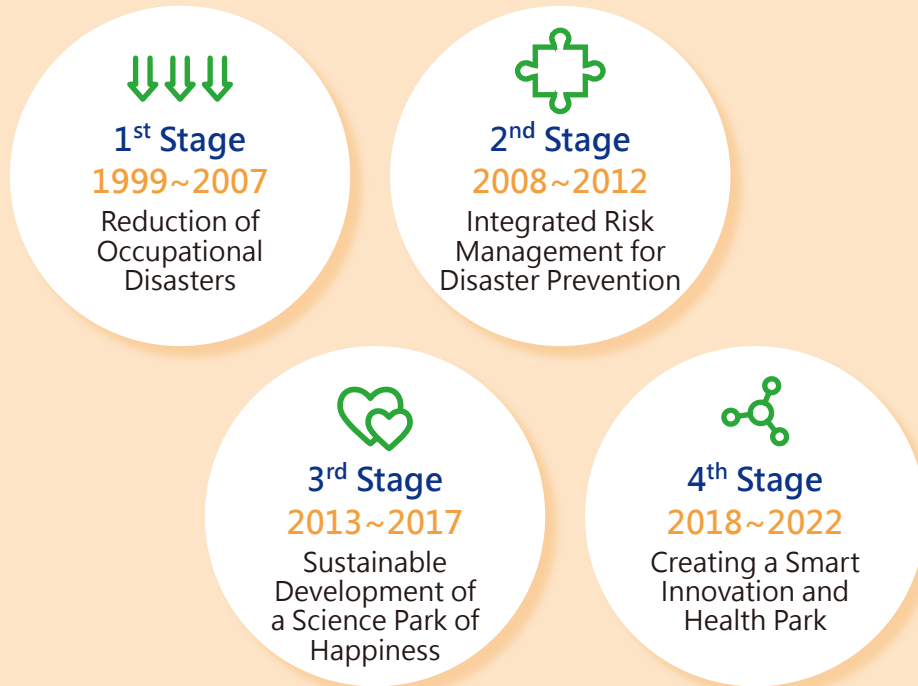


STSP Industrial Safety E-paper

 南科工安電子報 第236期 (111.1) since 91.5	
南科重大事故通報中心 緊急聯絡電話：(日)(06)5051069 (夜)(06)5051069 地址：臺南市東區東一路一號2樓	
廠商資訊 防災器材 化學物質 歷史資訊 地圖資訊 協助災情 創刊日期：中華民國九十一年五月 發行人：陳義雄總機 發行所：科技創新部科學園區發展處 地址：臺南市新市區南科三路22號 總經理助理：鄭秀斌	勞動 統計 勞動人口統計110年12月 經專案科調查每月從業人員人數、兩位勞工百分率、行業別之比率及人口成長趨勢圖
 勞動 檢查 中心 業務 宣導	1. 勞動部環境衛生局執行111年東區科學園區勞動檢查。 2. 請事業單位及營造工程加強春節期間勞作安全。
111年1月7日勞動部職業安全衛生署會同本府勞動檢查員對臺南科技創新園工地進行安全檢查，計發現7項缺失，已依職業安全衛生法請事業單位改善。	1. 請知勞動部職業安全衛生署110年12月30日公布之「 <u>甲種工作場所動態評估之安全評估實施要點</u> 」，請事業單位工作場所動態評估於春節期間時，應即辦理。 2. 請知勞動部職業安全衛生署110年12月29日公布之「 <u>推動中小企業職業安全衛生改善計畫</u> 」。 3. 請知勞動部111年1月3日公布之「 <u>職業安全衛生管理辦法</u> 」第3條、第4條修正。 4. 請知勞動部職業安全衛生署委由臺灣職業衛生發展學會辦理「 <u>勞工健康保護機制修正實施研討會</u> 」，請事業單位踴躍參加。
園區重大事故通報資訊 24小時重大事故通報專線 06-5051069 地震預警暨智慧防災資訊系統 https://ers.stsp.gov	
工安 時事 新聞 勞動部推動111年安全計畫，強化勞動安全與健康。(資訊區)	

4.4 Safety and Protection

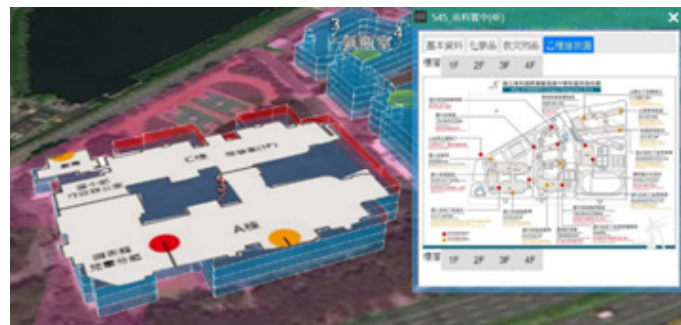
We have been devoted to creating a safe, healthy and happy science park as our core work, aiming at developing high-quality labor force and increasing the attention and efforts of occupational safety and health in the working environment among the employees. In terms of occupational safety and health, 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

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.



■ Increase health care penetration rate to 100%

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. 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 from the year 2019 to 2021 and organized neighborly ball games and night runs to create a healthy and sporty atmosphere at STSP.

We organized 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, we focus on whether medical personnel are employed or contracted in accordance with the law to conduct health management, occupational disease prevention, health promotion, and other activities to ensure the health and protection of laborers.

The number of counseling sessions in the plants for the past 3 years (2019~2021) reached 157

Manufacturing safety and health	Construction industry	Health promotion projects
44 sessions	92 sessions	21 sessions

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 December, 2021), the overall health service rate of the science parks within STSP has reached 99.80% (the number of manufacturers that should employ or contract medical personnel was 91 to serve a total of 78,143 employees. Among them, 89 manufacturers completed system filing, serving 77,994 employees. The service rate was $77,994/78,143 = 99.80\%$).

■ 100% coverage rate of chemical management exposure assessment and hierarchical management system

According to statistics, as of 2021, the number of reported manufacturers was 230, and the report of chemicals amounted to 7,576 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 Earthquake Early Warning and Smart Disaster Prevention System to control the chemicals of the park manufacturers and to enhance our disaster response capabilities.
3. Follow-up Supervision Measures:
 - a. 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.
 - b. 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.

■ 100% coverage rate of the self-management system of safety and health and on-site counseling for the improvement of the safety of the working environment

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.

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 so as to reduce the occurrence of occupational disasters. In 2021, a total of 57 sessions of counseling were conducted, which included:

1. 6 sessions of on-site counseling of occupational safety and health in Class A and C dangerous workplaces.
2. 10 sessions of on-site counseling of occupational safety and health in the manufacturing industry.
3. 10 sessions of on-site counseling for physical and mental health management and protection.



Manufacturing Industry/ Innolux Corporation D (Fab 7) (Counseling of 5-year reevaluation of Class A and C dangerous workplaces)



Industry/ Showa Denko Semiconductor Materials (Taiwan) Co., Ltd. (Counseling of physical and mental health management and protection)



Chiao Sheng Machinery Co., Ltd., (Counseling of manufacturing industry)



SMC Fab 18 New Construction Project (P6) (Counseling of manufacturing industry)

A total of 3 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 scaffolding construction standards and operation safety, open excavation work safety, regulations for anoxic work in confined spaces that often occur in the construction sites, and the 12-hour on-the-job training for occupational health nurses. 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.



Safety and Health Promotion Seminar for Construction Industry



Safety and Health Promotion Seminar for Manufacturing Industry



Safety and Health Promotion Seminar for Health Promotion



There are diverse types of industries in STSP, and if not careful, accidents and emergencies like occupational disasters, earthquakes, fires, natural disasters and others are likely to cause major property losses and casualties. Therefore, various firefighting training should be organized continuously and should also be well-planned. We organize firefighting training with Industrial Safety and Environmental Protection Month activities to help park manufacturers strengthen the awareness and training of fire safety so that their employees can be familiar with fire disaster relief and equipped with emergency preparedness capabilities. Finally, we will continue to improve the overall firefighting capabilities in the science park through public emergency response drills.

Course	Implementation effects
1. Real fire extinguishing training course	The training course was held in Kaohsiung Science Park on August 27, with a total of 76 trainees.
2. Relocation training of Joint Emergency Response Organization	The 2-day training was held in the Southern Emergency Response Training Center of Toxic Substances in National Kaohsiung University of Science and Technology (First Campus) from Nov. 15-16, with 40 trainees in total.
3. Emergency response drill in Kaohsiung Science Park	The fire rescue response drill was held on Sep. 24 in Magnate Technology Co., Ltd., with 110 attendees in total.
4. Emergency response drill in Tainan Science Park	The Composite Earthquake Disaster Emergency Response Drill was held on Nov. 4 in Corning Display Technologies Taiwan Co., Ltd. STSP Branch, the total number of participants was 76.



oil sump fire fighting practice training



First aid practice (AED and CPR)



Practice of personal protective equipment and decontamination procedures in the Relocation Training of Joint Emergency Response Organization



Emergency response drill in Kaohsiung Science Park



Emergency response drill in Tainan Science Park

■ Award coverage rate of excellent industrial safety reaching 100%

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 2021, 4 manufacturers and 10 employees in the science park won the award.

Note: Coverage rate= Number of award winners in the unit(calculated from 2018)/
Total number of people in the science park.



■ Maintaining the death rate per million workers in major occupational disasters at 20 and lower (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.



▲ Labor inspection

In 2021, a total of 1,011 labor inspections were completed (including 926 sessions of occupational safety and health inspections and 85 sessions of labor condition inspections), with the achieving rate reaching 215.1%. The occupational disaster rate per thousand people in the science park in 2021 was 1.09 ‰, 11% lower than the 3-year average, reaching the target of disaster reduction.

Item	2017	2018	2019	2020	2021
Occupational disaster rate (per thousand people)	1.6	1.39	1.14	1.08	1.09
Disabling Frequency Rate (FR)	0.60	1.30	0.55	0.55	0.55
Disabling Severity Rate (SR)	11.60	17.20	7.80	5.30	44.80
Death rate of major occupational disaster (per million people)	0	0	0	0	11.9

Note:

1. Disabling frequency rate (FR) and disabling severity rate (SR) were calculated based on the announcement stipulated by Occupational Safety and Health Administration.

(1). $FR = (\text{Total number of people injured} \times 1,000,000) \div \text{total hours worked}$

(2). $SR = (\text{number of work days lost} \times 1,000,000) \div \text{total hours worked}$

2. Data was reorganized for the unified figures (excluded data in the construction industry) since workers in the construction industry do not belong to the business unit in STSP; FR and SR were calculated with adjusted formulas.

In 2021, there were work-related accidents of a fall and a clamp by machine. Upon notification, STSP Bureau dispatched personnel to the site for labor inspection and demanded that the work suspended in accordance with the emergency response procedures for major disaster accidents in the park, followed by relevant procedures for notification of workplace disaster and related investigation and punishment in accordance with the Occupational Safety and Health Act. Business units were also advised to strengthen works for occupational safety and health protection as well as management of various operations.



▲ Labor inspection

(一) Analysis of the causes of accidents

Clamp by the machine	Fall
The worker did not follow the SOPs when conducting maintenance operations, and the interlock device of the original equipment was damaged and failed the function.	When carrying out the moving work in the place with a height over 2 meters, some openings were not covered and fixed, and safety facilities were not actually installed.

(二) Follow-up improvement measures:

1. Collect and prepare information of the disaster cases in the park and strengthen the key points in labor inspections and publicity meetings for relevant business units to prevent similar accidents from happening again.
2. Experts and scholars are regularly invited to assist with occupational safety and health inspections and counseling of improvement work related to factories and construction projects in the science park.

4.5 LOHAS at STSP

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. STSP Bureau aims at creating a high-quality environment with high efficiency, safety, health, and comfort to attract industries and talents.

To provide more complete life functions in the park, a new intelligent vending machine is installed in the north building of the Phase II Standard Factory of the Kaohsiung Park to provide fresh and fast food, snacks, late-night snacks and other diversified services round the clock. In addition, to take care of the health of the employees living in the dormitories, the single dormitory in Tainan Park has installed a vending machine selling juice to increase the employees' intake of fruits. Life service industries such as catering, shopping, exercise, leisure, childcare, and after-school classes are introduced. Please check the official website of STSP Bureau for detailed information.



STSP Official Website

Family Care and Support

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 childcare 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 30 park manufacturers received the counseling in 2021. 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, 2021, a total of 69 business units with 100 employees and more have provided childcare measures and breastfeeding rooms in accordance with regulations.



Science Park Action Wizard 2.0 ios



Science Park Action Wizard 2.0 Android



Advanced Traveler Information System

Convenient Transportation Service

In addition to providing different lines of shuttle buses for commuting passengers and for to and from trips between TRA Nanke Station or HSR Tainan Station and STSP, there is also the Holiday Commercial Line shuttle bus taking visitors to Museum of Archaeology, Tainan Branch of NMP or to the Yinxi Lake for a romantic walk. To better meet the users' demand, the STSP Shuttle Bus Green line (HSR Line) even combines the Demand Responsive Transportation System (DRTS) to receive reservation one hour before departure. 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 information.



The second phase project for the installation of STSP Traffic Control Center has completed. Through the monitoring screen, the real-time traffic condition information on the major roads in the park area can be seen. Due to the expansion projects in the science park and the increased number of park employees, the daily traffic flow in and out of STSP during rush hours in the morning and in the evening is as high as 8,000 passenger car equivalents (PCU). Through the system in the STSP Traffic Control Center, information of the traffic time, construction projects, or traffic accidents are released through diverse channels in real-time to the Advanced Traveler Information System, the APP of Science Park Action Wizard 2.0, and the roadside equipment such as the Changeable Message Sign (CMS) to allow people to get the real-time traffic condition in the park. STSP Traffic Control Center has also optimized the signal timing system plan for the congested road sections along the intersections to reduce the congestion caused by construction or accidents, effectively reducing the time to handle accidents by 15 minutes. According to 2021 statistics, there were 25 pieces of accident information in the park released by the center, which saved the time of 6.25 hours (375 minutes) handling the accidents.

■ Beautification of Buildings with Characteristics of Art

To allow park employees and visitors of the park to enjoy a unique art feast, starting from 2009, a total of 47 and 24 public artworks have been completed in Tainan and Kaohsiung Parks respectively, which won the "Excellence Award", "Public Participation Award" and "Art Creation Award" of the Public Arts Awards organized by Ministry of Culture.

The theme of the 4 pieces of public artworks installed at Shalun Smart Green Energy Science City by STSP Bureau is "Trace of Energy. Through different creation methods, it is hoped to capture the energy that cannot be seen in nature to start the interaction and exchanges among technology, ecology, and the art.



"Ode to Life" : It seems that God of Spring starts to dance, allowing people to see the trajectory of the wind.



"Coral" : It expounds that the purpose to use natural energy is to fulfill the vision of developing ecological sustainability.



"Sound of Wind" : Through Sound of Wind, we hear the breathing of buildings.



"Electro-Flash" : It points out the task of the Shalun Smart Green Energy Science City is to convert the energy of nature into low-carbon renewable electricity.

■ Recreational Events with the Promotion of Disaster Prevention

STSP Bureau promotes exercise in the science park. In 2021, the Bureau continued to organize the Exercise at STSP, including Thousand People Fitness Walking, Night Run, STSP CUP ball games and so on. The fitness walking event was joined by more than 3,000 participants, and the professional badminton player, Tai Tzu-Ying was invited for the fourth time as the spokesperson, setting off a trend of exercise in the science park again. STSP Bureau is dedicated to 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.

When organizing the Thousand People Fitness Walking event, we also keep in mind to promote the concept of epidemic prevention and disaster prevention. We set up on-site booths at the event to promote disaster prevention knowledge to the participants. The content of the publicity included drowning prevention, earthquake prevention, alarm equipment, fire response, safety information of carbon monoxide and gas and how to cherish rescue resources. The theme of residential fire alarm was particularly focused, and an electronic questionnaire was used to see how much the participants understood as a basis for the content design for the follow-up promotion activities. Those who completed the e-questionnaire could get a limited edition of mask to promote the disaster prevention knowledge.



1



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4



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- ① STSP Thousand People Fitness Walking
- ② The professional badminton player, Tai Tzu-Ying, showed up at the STSP badminton friendly match
- ③ STSP CUP Friendly Neighbor Softball Game
- ④ Night Run at the Yinxi Lake in Tainan Science Park
- ⑤ Publicity of disaster prevention knowledge to the public

■ 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. 2021 marked the 10th year of this event, and the festival was from March 20 to April 17, and people could come and enjoy the great music. On the Saturday afternoons of these four weeks, 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 were provided and there were also stalls for the purpose of public welfare to attract people working in STSP and residents in the neighboring communities to come and 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.



■ Exhibitions in Hsing-Kuang Hsier Local Culture Hall

Hsing-Kuang Hsier Local Culture Hall is a structure with the combination of religion and culture, with the second floor being the temple and the first floor being the Culture Hall for the exhibition of artworks from local individual artists (Xinshi, Shanhua and Anding Districts and the surrounding areas), joint exhibition of art society members, and works for art class at schools. At least 5 sessions (and more) of exhibitions are arranged every year, and there will be some members explaining the works in a guided tour on the spot. Every April is the most beautiful blooming season around this area. There are so many visitors here and there on the trail around the lake and the blooming pink orchid trees that take pictures and enjoy the picnic on the lawn.

During the epidemic in 2021, it cooperated with the Central Epidemic Command Center (CECC) and implemented various epidemic prevention measures at different stages to provide visitors a safe environment. A total of 5 exhibitions and performances were held, attracting many art lovers and families to visit and have exchanges. This is especially a place suitable for parents and children to travel together, making STSP not only a high-tech park but also a park with rich culture and natural ecology, namely a place with balanced development of technology and humanities.



Joint Exhibition of Sketch and Colored Pencil Drawings



Joint Exhibition of Youcheng Artists Association- Sparking Art in Pomelo Season at STSP

2021 Christmas at STSP

To embrace the coming of Christmas and New Year, STSP Bureau held a Christmas Party & Holiday Lighting Ceremony with the theme of “2021 Christmas at STSP” at Puxin Park on the evening of Dec. 17. All the lights decorated in the park were lit up when the night fell, and there were a number of wonderful performances at the Party. Free hot food was also provided to warm the participants’ stomach and for them to spend a warm night. At the end of the year, 10 park manufacturers including TSMC and UMC were invited to put up decoration lights at important intersections in the park area. People coming to STSP could enjoy the beautiful and unique lighting in many places around STSP. These decoration lights would continue to be lit until the Lantern Festival of 2022. The Bureau sincerely wished every member of the STSP big family a bright and happy new year, embracing a happy 2022 when everyone can realize their dreams!



A Visit to Museum of Archaeology

Museum of Archaeology, Tainan Branch (STSP Museum of Archaeology) has an area of 2.44 hectares and is located next to the Administration Building of STSP Bureau. STSP Museum of Archaeology has a unique exterior design, and it 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. There are various activities and promotion education inviting all to come to know and cherish this rare science park with humanities.

Lecture Activities for Park Manufacturers

To improve the professional knowledge for the preservation of the archaeological site in STSP area so that the engineering unit and practitioners can be familiar with relevant laws and regulations as well as the notification procedures, actual cases of site supervision in Tainan region and administrative procedures and related precautions were all covered in the workshop held for park manufacturers for the maintenance of the value of the cultural assets of archaeological sites. A total of 33 people participated in the workshop.



Lecture activity



Solving Puzzles in the Museum



Digital oil painting of
“The Niao Sung Family”

Solving Puzzles in the Museum

To promote the archaeological cultural connotation and local history in STSP, the Museum of Archaeology launched an event of “Solving Puzzles in the Museum” in 2021. The main axis of this event was “telling stories with cultural relics”, transforming archaeological knowledge into interesting activities, which were linked to the content of the exhibits in the Museum of Archaeology, stimulating the visitors’ interest in the cultural relics in an entertaining and educational way. By searching for the answers, participants can learn about the prehistoric culture of STSP. Due to the impact of the epidemic, this event was conducted via a puzzle-solving guided app so the public could use their own mobile devices during the process to reduce contacts for safety concerns.

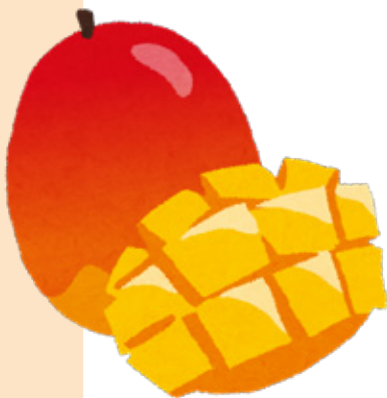
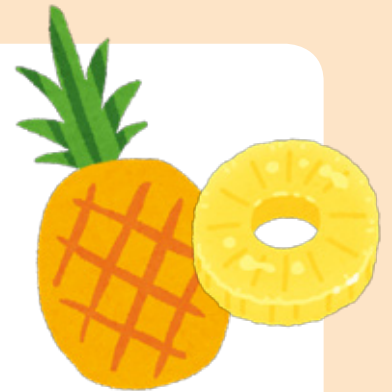
In addition, a digital oil painting activity was also launched this time. It is hoped that through the coloring and graffiti activity, the public can know the unearthed cultural relics in STSP- the human face pottery doll of the Tsutasong culture. The oil painting pattern also included the most popular public art of “The Niao Sung Family” and the Yellow Ribbon at Yinxi Lake, making it more unique with the features of Southern Taiwan Science Park.

4.6 Good-Neighborliness

■ Promotion of Local Agricultural Products

To help farmers promote their agricultural products so that people working at STSP can enjoy delicious and highly nutritious local agricultural products, actions were taken to support these local farmers.

Tainan City Mayor, Deputy Mayor, Vice President of the Allied Association for Science Park Industries, and representatives of park manufacturers jointly signed the order forms for pineapples at the press conference to encourage more park manufacturers to subscribe. High-quality pineapples and other agricultural products were on display and were sold at the venue, and park businesses jointly subscribed these products. The order volume reached 2,500 boxes (18,000 kg) on the day of the event. The goal was to market these good agricultural products to other science parks to allow more people working in science parks enjoy the local great agricultural products.



Affected by the drought from March to May in 2021, the proportion of small and medium mangoes (weighing 300-350g) was higher than previous years, but the taste, aroma, and quality were better than previous years. However, due to the impact of the epidemic, the marketing method could not be the same as before. Therefore, the legislators, Tainan City Mayor, Deputy Director General of Agricultural and Food Agency, the Director-General of the Nanhua District Farmers Association, and the Director-General of STSP Bureau jointly attended an online press conference to market these mangoes in Tainan. By cooperating with state-run enterprises, park businesses, and major enterprises, the mangoes gift boxes were open for group subscription. Furthermore, the online marketing was also promoted based on the "Taiwan Agricultural Carnival" advertised at e-commerce platforms for promotions. For mango orders over NTD 500, extra mangos worth of NTD 50 would be given. There was also a promotion project of "order in Taiwan, pick up in Japan" for mango promotion.

■ 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.

STSP Charity Month supports and cooperates with the Creation of Independent Homeland-Home and Learning Equipment Subsidies for Disadvantaged Families" through the Tainan City Social Assistance Account to improve the basic living and learning quality of the disadvantaged families in the surrounding areas of STSP. Moreover, STSP Charity Month continues to cooperate with World Vision Taiwan and Luway Opportunity Center to provide assistance in medical and emergency, early treatment for people with disabilities, and subsidies for furniture, appliances, computers and other home and learning equipment to relieve the financial pressure of disadvantaged families and improve

their quality of life. STSP Charity Month has been implemented for seven years, and the cumulative funds raised so far totaled NTD 15.21 million.

As of the end of 2021, the cumulative funds of NTD 11.21 million have been distributed to 3,465 people from 995 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
1st Year	31	NTD 715,612	211	58
2nd Year	29	NTD 1,572,720	528	117
3rd Year	37	NTD 3,153,995	524	146
4th Year	29	NTD 2,118,565	671	228
5th Year	11	NTD 1,957,004	1,100	263
6th Year	31	NTD 1,812,773	431	183
7th Year	16	NTD 3,870,414	-	-
Total	-	NTD 15,201,083	3,465	995

Note: The funds raised in 2021 will be used in 2022, so there have not been recipients and households receiving such fund yet.

■ Good Neighbor Fund

In 2021, the Bureau continued to promote the recycling of waste resources. 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 3,406,392, 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	2019	2020	2021
Amount of waste incineration (tons)	25,023	25,248	25,247
Total rebate amount (NTD)	3,376,176	3,406,392	3,406,392

GOVERNANCE

INTEGRITY GOVERNANCE

5

5,264
TRAINING
HOURS in total
for STSP Bureau
staff

Organized anti-
corruption
advocacy activities
and seminars
participated by
100 PEOPLE

NO major
environmental
pollution incidents
and was compliant
with environmental
laws and
regulations

2 SESSIONS
of briefings related
to environmental
protection



Management Approach

Corresponding SDGs



Corresponding material topics	Talent Development
Significance to STSP Bureau	Human resources are the cornerstone of the sustainable management of the park. Experience can be passed on through education and training to improve the staff's leadership and abilities of communication and coordination. It can also strengthen the cohesion among the employees.
Purpose of Management	The employees are encouraged to surpass themselves and apply systematic thinking through diverse learning channels to enhance work value and inject new vitality into the workplace.
Goals and Targets	To promote organizational innovation and progress, form a good learning organization, improve resilience and competitiveness and establish a high-quality service team.
Responsible Units	Personnel Office
Resources Invested	▶ Conduct annual legal training of the employees in terms of social, economic, anti-corruption and ethics related laws and regulations. ▶ Organized various education and training courses, lecturers and seminars related to employees' businesses in accordance with the annual education and training plans. ▶ Subsidies are provided for personnel training and education in accordance with the Main Points for Domestic Training and Education for Staff of Southern Taiwan Science Park Bureau of MOST.
Grievance Mechanism	Refer to 1.1 Communication with Stakeholders
Assessment and Management	▶ Performance evaluation is conducted regularly in accordance with the Civil Service Performance Evaluation Act.

Corresponding SDGs

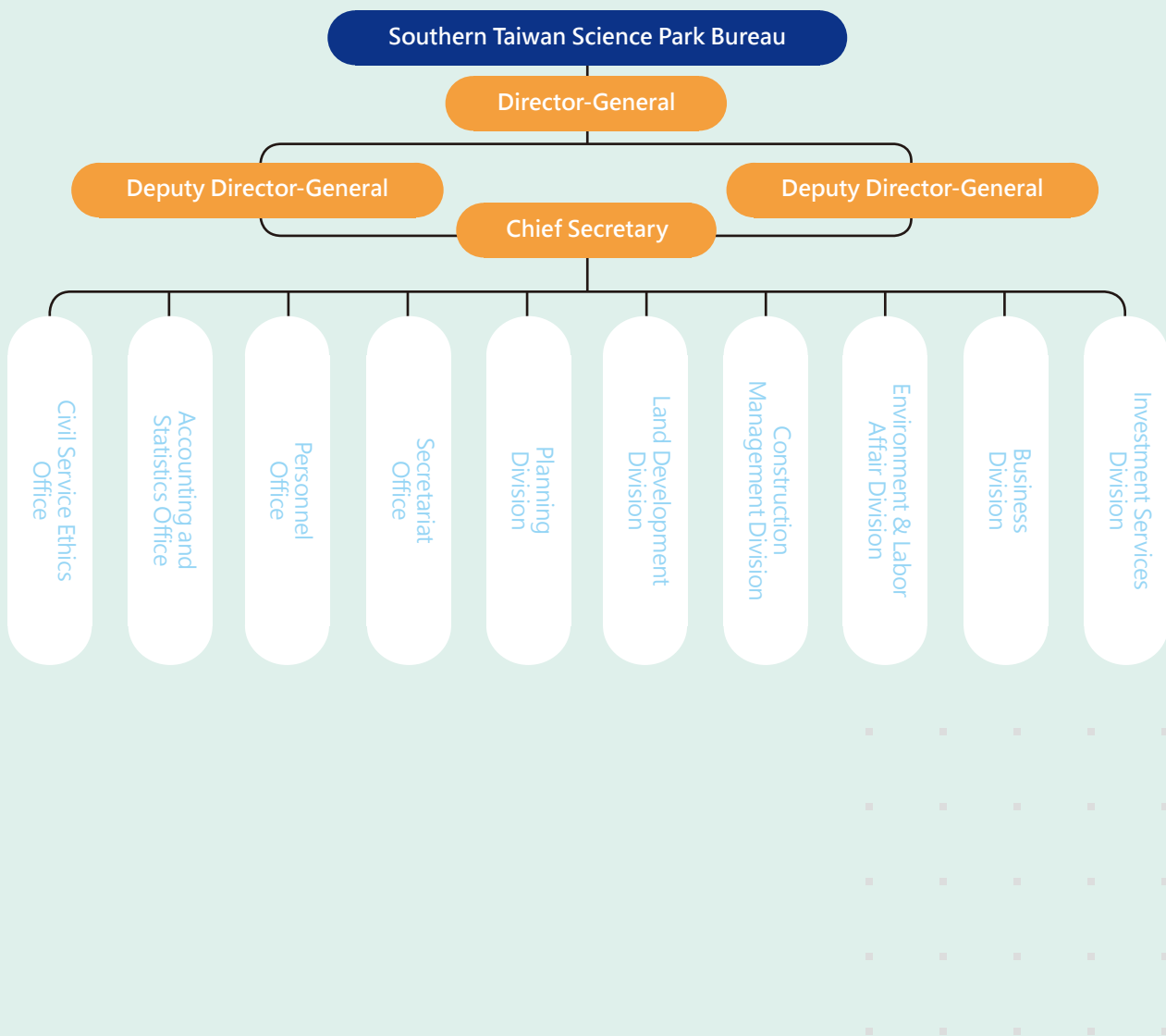


Corresponding material topics	Environmental Compliance
Significance to STSP Bureau	STSP Bureau should observe all laws and regulations and disclose information in an open and transparent manner, setting integrity and law abiding its top priority. The Bureau should also attract industries to enter STSP to create economic output and employment opportunities for people to achieve the vision of sustainable management of the science park.
Purpose of Management	To ensure all actions taken by the Bureau are compliant with social, economic and environmental policies and regulations and can continue to drive industrial competitiveness so as to maintain normal operation of the science park.
Goals and Targets	▶ To fulfill our corporate social responsibility, observe environmental-related laws and regulations, avoid accidental violations of laws and regulations, and reduce operational risks. ▶ All pollution sources should be compliant with regulations, and autonomous management should be carried out to meet the expectation of people.
Responsible Units	Environment & Labor Affair Division
Resources Invested	▶ Responsible units are in charge of legal identification to establish corresponding management measures which will be implemented by relevant units. ▶ 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.
Grievance Mechanism	Refer to 1.1 Communication with Stakeholders
Assessment and Management	Carry out inspection plans to perform evaluation and corrections in accordance with environmental regulations and take effective preventive measures.

5.1 Organizational Structure

The Bureau is a public agency. 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. The Environment and Labor Affairs Division serves as the coordinating unit, and each unit assigned a contact person as the editorial team member. The content of this Report covers the sustainable management operations in three aspects of governance, society, and environment. The Report was released upon approval by the Director-General.

The then Deputy Director-General, Chen-Kang Su, took over the position as the Director-General of STSP Bureau on January 22, 2021. On February 19, the then Chief Secretary, Ruey-Hwan Chen, was promoted the Deputy Director-General while the Chief of the Planning Division, Hsiu-Chen Lin, was promoted the Chief Secretary.



Division		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 & 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.
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 deliberation 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.
Other	Secretariat	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 Office	In charge of annual budget, accounting, and statistics affairs.

5.2 Staffing

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 125 in 2021. 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 36 supervisors in total (no one from the minority groups and no foreign employees serve as supervisors). Among the employees, 114 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 28 non-employee workers in the Bureau, who are mainly to assist with the implementation of projects within the Bureau.

In accordance with Article 38 of the People with Disabilities Rights Protection Act, STSP Bureau has actively employed employees with physical and mental disabilities and promoted measures for a friendly workplace. In 2021, the Bureau hired 5 employees with physical and mental disabilities (2 are severely physically and mentally disabled; whereas the employment of a person with severe disabilities, the person shall be calculated as 2, so the employment rate was 5.6%).

Staff Profile of STSP Bureau in 2021

Item	Female			Male		
Age	Under 30	30-50	50 and more	Under 30	30-50	50 and more
Supervisor	0	4	8	0	9	15
Non-supervisor	3	24	9	3	36	8
Hired	0	3	0	0	1	2
Total	51			74		

Notes:

1. There were no part-time employees in 2021.
2. No child labor was used as dispatched labor to perform heavy and dangerous work.

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 2021

Item	Age	Under 30		30-50		50 and more	
	Gender	Female	Male	Female	Male	Female	Male
New staff	Number of people	0	1	5	6	0	1
	Ratio*	0.00%	0.88%	4.39%	5.26%	0.00%	0.88%
Labor turnover	Number of people	0	0	4	4	0	0
	Ratio*	0.00%	0.00%	3.51%	3.51%	0.00%	0.00%

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.

■ 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 2021 Guide Governing the Year-End Working Performance Bonus and 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, Civil Service Ethics Office and Accounting and Statistics Office*1 and those on leave without pay, all the staff*2 should receive year-end performance appraisal or appraisal review while hired personnel are assessed with performance appraisal notice.

Note:

1. Staff in the Personnel Office, Civil Service Ethics Office and Accounting and Statistics Office directly reporting to the MOST (8 people in total) are regularly assessed by the Personnel Office, Civil Service Ethics Office and Accounting and Statistics Office of MOST.
2. The number of assessed staff was calculated based on 105 employees on December 1, 2021, and the percentage of employees receiving the evaluation was 100%.
3. The reason for the difference in the total number of staff members in the Bureau was that one person was on leave without pay and was not included in the performance evaluation.

■ Staff Benefits

STSP Bureau cares about every staff member 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. Our staff members are encouraged to form a habit of exercising to relieve work stress while at the same time enhance emotional exchanges among associates and enrich their lives. In 2021, the budget for cultural and recreational activities was NTD 268,000.

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 125 in 2021. 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. Retirement of staff is handled in accordance with Public Servant Retirement and Pension Act and the Labor Pension Act.

In 2021, there were no cases re-appealed and reviewed after being withdrawn by the Civil Service Protection & Training Commission.



Table tennis match on April 19



Hiking in Yuanzui Mountain on October 16



Hiking in Shibi Mountain on November 27

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 (including hired personnel and janitors) have needs for 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 leaning 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.

In 2021, four staff members applied for parental leave without pay (4 females) and two were reinstated (of the two female staff members, one belonged to current-year reinstatement and the other was cross-year reinstatement).

Item	Year	2020		2021	
	Gender	Female	Male	Female	Male
The number of employees eligible for parental leave without pay in the current year		3	1	6	3
The number of employees who were on parental leave without pay in the current year (A)		1	0	4	0
The number of employees who were expected to be reinstated after parental leave without pay in the current year (B)		1	0	1	0
The number of employees who were actually reinstated after parental leave without pay in the current year (C)		1	0	1	0
The cross-year number of employees who were actually reinstated after parental leave without pay (D)		1	0	1	0
The cross-year number of employees who were actually reinstated and has been reinstated for 12 months (E)		1	0	0	0
Reinstatement rate 1(C/B)		100%	-	100%	-
Retention rate 2(E/D)		100%	-	0%	-
Note: 1. Cross year refers to application for parental leave without pay that was not applied in the current year but a year or two years earlier. 2. One female employee belonging to cross-year reinstatement was reinstated in January, 2021 and applied for leave without pay once again in July, making the retention rate of 2021 0%. 3. Personnel Profile Statistics did not include data of the 5 mechanics and janitors.					

■ 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. The total hours worked in 2021 amounted to 251,587 hours, and the ratio of serious and accordable work-related injuries and diseases among employees and non-employee workers were both zero.

■ 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.

2021 Employee training in equality and human rights

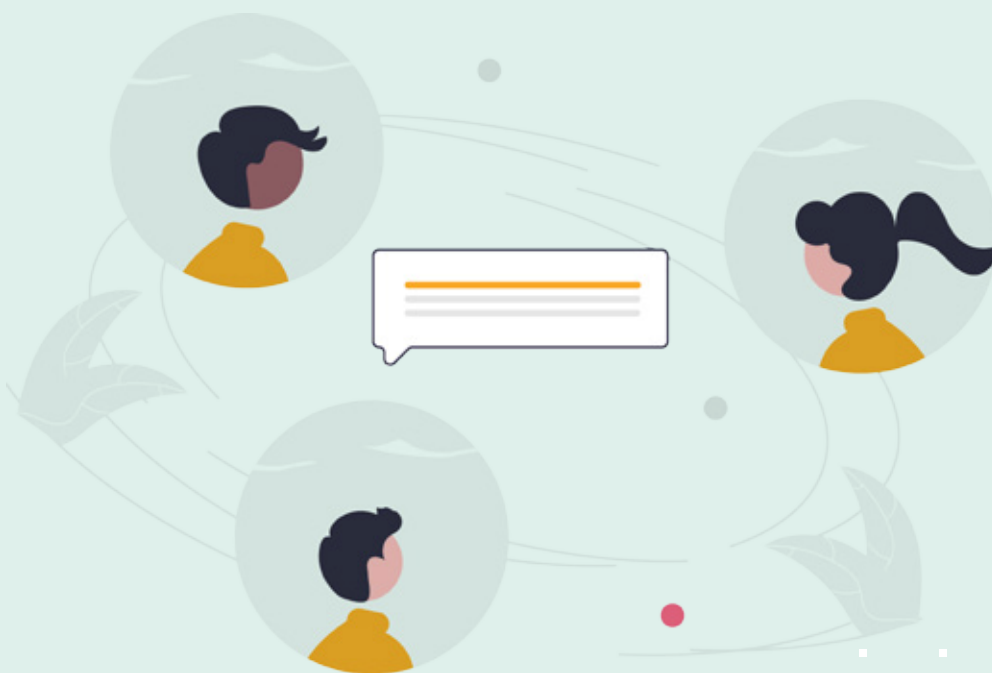
Item	Total hours (hr)	Ratio of training (%) (including physical courses, digital learning and so on)
Human rights policy training	363	88
Gender equality training	648	94



Human Rights Film/ Book Club



Lecture on gender mainstreaming



5.3 Education and Training

■ Staff Training

In 2021, 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 in business-related education and training every year (mechanics and janitors are not specifically required), which includes 10 hours of major national policy related training. Through diversified learning channels, the staff can improve professionally and inject new vitality to their workplace to enhance their work value and to achieve self-realization. The total training hours for STSP Bureau staff amounted to 5,264 hours, with an average of 42 training hours in 2021.

2021 Statistics of personnel education & training at STSP Bureau

Employment Type	Supervisors		Non-supervisors	
Gender	Female	Male	Female	Male
Number of people	12	24	39	50
Total training hours (hr)	710	744	1,827	1,983
Average training hours	59	31	47	40

Note:

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.
3. Due to the business attributes, male supervisors averagely had slightly fewer training hours compared with female ones.

The instructor explained very clearly, and I learned a lot.

I hope there will be more courses like this in the future.

The course is really great. Thank HR Dept. for their hard work!

The movie is so touching! Thanks for the great course.



■ Subsidy for Training and Education

To encourage our staff members to apply for on-the-job education to enhance the overall competitiveness, STSP Bureau provides 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. In 2021, 2 staff member was subsidized.

5.4 Compliance and Internal Control

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. There were no incidents of information leakage in 2021.

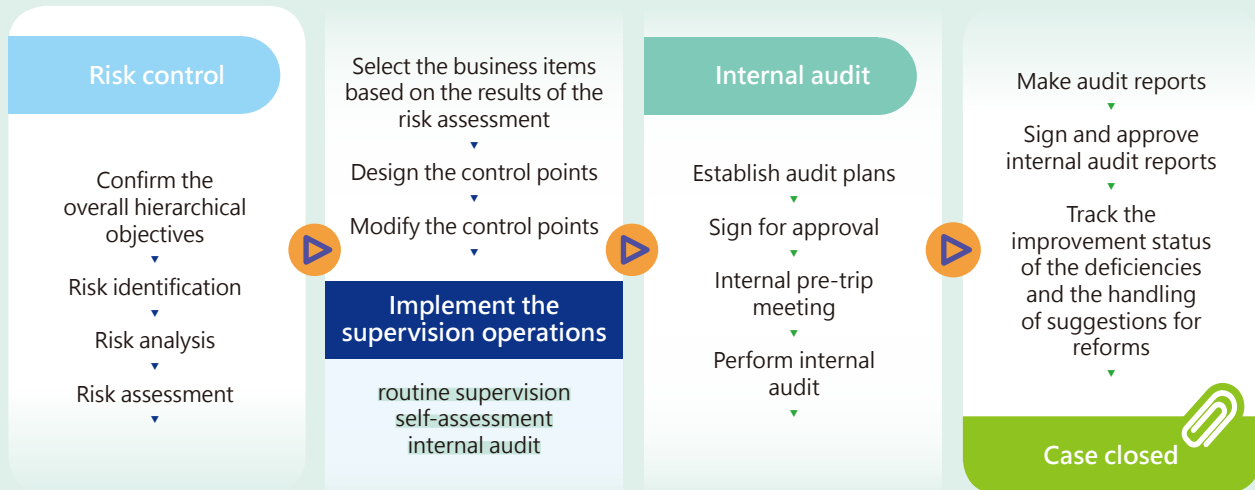
Social Compliance	Environmental Compliance
▶ No corruption. ▶ No incidents violating laws and regulations. ▶ No involvement in political contributions. ▶ No violation of socioeconomic regulations.	▶ Compliance with environmental regulations. ▶ No major incidents of environmental pollution. ▶ Observation 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	Human Rights 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.	▶ 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)	
▶ When exercising the functions and powers, the government agencies and departments should comply with regulations and implement anti-corruption laws and regulations. ▶ Strengthen anti-corruption, honesty, transparency, and accountability among public servants, implement code of conduct of public servants, and establish a model for the government.	

■ Internal Control Management

To enable sustainable management of the science park, STSP Bureau cooperated with the Implementation Regulations Governing the Strengthening of Internal Controls formulated and proclaimed by Executive Yuan and established the Internal Control Team of the Southern Science Park Bureau of MOST to conduct 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 report of the internal control was completed on November 30, 2021, and 17 items had the completion rate of 95% while 5% 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 2021 was completed on December 22, with a total of 8 audit items and there was only one suggestion item in “First-time Calculation and Collection of Sewage Charges and Collection of Overdue Payments”. In this operation, it is suggested that for those included in the “List of first-time billing manufacturers” that are newly added in the sewage pipeline system, it is necessary to specify whether their charging number and information have been established in the sewage billing management system and whether the charging starts. It is suggested that brief notes be made on the incident report at the same time for the business management unit to immediately understand the management status of the first calculation and collection of sewage charge of the park manufacturers. Other than this one, there were no items to be improved. The internal audit report is made and submitted to the Director General for approval, and then the report will be sent to all units for reference and implementation of the internal control system so as to reduce or avoid the impact of risks and thereby, improve the operational performance and service satisfaction.

Flow chart of the internal control system



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, promoting the implementation of preventive measures, advocacy of integrity, 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 2021.



2021 Anniversary of STSP Bureau and Anti-corruption Advocacy Activity

Number of Participants
More than 100

We designed “integrity and anti-corruption” posters, information board, and Fun STSP Anti-corruption Jigsaw Puzzle Game to interact with the participants and convey the anti-corruption information and the integrity-related measures the Bureau has taken. This not only expanded scope of social participation in anti-corruption but also enhanced the image of integrity of STSP Bureau.

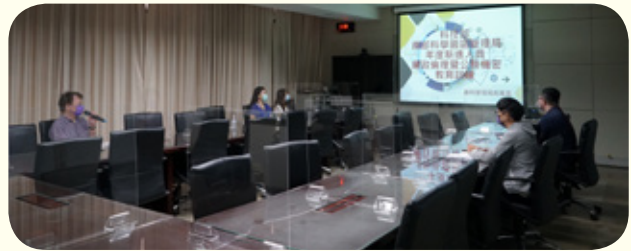


The public had enthusiastic participation in the Anti-corruption Advocacy Activity



Anti-corruption themed Jigsaw Puzzle Game

New-entry civil servants are one of the targets of the anti-corruption and integrity education in the Bureau, which is the orientation or on-the-job training for the employees in the form of lectures, symposiums, observations, quizzes and so on. The main purpose is to introduce the anti-corruption policies and related laws and regulations of the government and to provide consulting channels concerning anti-corruption affairs to assist new-entry civil servants in establishing correct legal understanding and deepening the awareness of integrity and honesty, enabling them to join in the construction of a clean government and at the same time enhancing the image of the Bureau' s integrity. There were 13 new-entry civil servants in the Bureau in 2021.



■ Briefing Session Related to Environmental Protection

For the park manufacturers to understand the development trend of national environmental protection control direction and environmental regulation management systems, 2 sessions of environmental related seminars, briefings or observation sessions were held based on the characteristics of the park or the needs of the manufacturers. The content of the meeting included filling in the application form for the permit, explanation of environmental laws & regulations and environmental issues, and observation of manufacturers with excellent environmental performance. STSP Bureau hopes to improve the park manufacturers' familiarity of the regulations and grasp the trend of changes in the regulation before enforcement for early response. In addition, after the enforcement of the regulations, the manufacturers can have clear understanding of the content of the regulation for compliance.



Video conference on Sep. 10



Vedio conference on Oct. 8

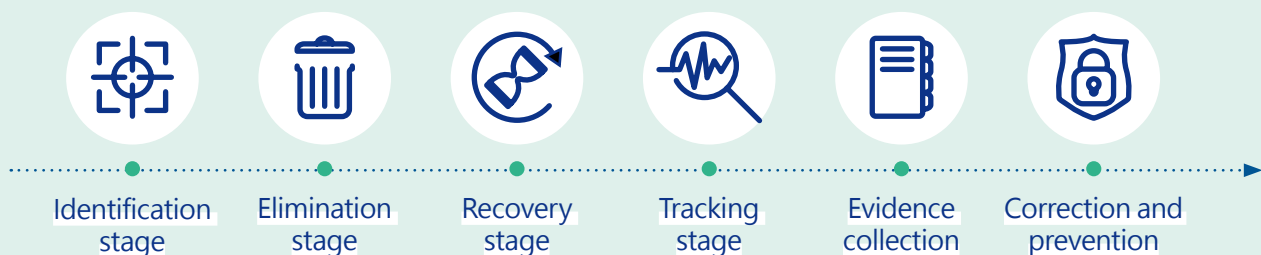
On September 10, 2021, a briefing session on Air Pollution Control Act was held to explain the EPA' s future promotion direction of stationary pollution source control and the operation method of the online system of stationary pollution source. In addition, another briefing session was held on October 8, and the blue-chip manufacturers in the park were invited to share their experience in promoting resource recycling for other manufacturers to refer to. In this session, advocacy for the compliance with environmental regulations was also conducted for the park businesses.

■ Information Security

To ensure the confidentiality, integrity and availability of the information assets of the Bureau 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 Policy	To ensure the confidentiality, integrity and availability of the information assets of the Bureau 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	No occurrence of leakage of confidential information.
	The rental system business will not be impacted due to equipment or system abnormalities.
	The availability of computer room operation reaches 99% and more.
Qualitative Goals	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 (Certificate TW14/10759) 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.



The 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 information security advocacy and education & training provided 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. Furthermore, the Bureau also conducts the following work to avoid potential threats to information security while on the other hand enhances the level of information security protection.



General education and training of information security.



ISO 27001 information security verification

Classification of the information systems and protection standards	Introduction of ISMS and verification	Audit method
Check the appropriateness of the levels of information systems and take corresponding security control measures.	Maintain the validity of ISO 27001 information security verification.	The internal audit of the information security is conducted once a year.
Drill of business continuity operation	Defense in depth	Monitoring and management
Conduct the drill of continuity operation of the core information system once every other year.	1. .Antivirus, firewall, mail filtering protection 2. IDS/IPS, WAF protection.	SOC monitoring and management
Safety testing	Information Security Education and Training	Professional certification
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.	1. The full-time information security personnel have to receive at least 12 hours of professional course training of information security or information security function training annually. 2. Information personnel other than the full-time information security personnel have to receive at least 3 hours of professional education and training of information security every 2 years, and at least 3 hours of general education and training of information security every year. 3. General users and supervisors have to receive at least 3 hours of general education and training of information security.	1. Each of the full-time information security personnel shall hold at least one international information security certificate and maintain its validity. 2. Each of the full-time information security personnel shall hold at least one international professional certificates of information security function training and maintain its validity.
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 (3 guards in Tainan Park and Kaohsiung Park each). We also conduct monthly education and training, providing courses on AED, firefighting, power failure response and so on to ensure that timely response can be made for any emergencies.



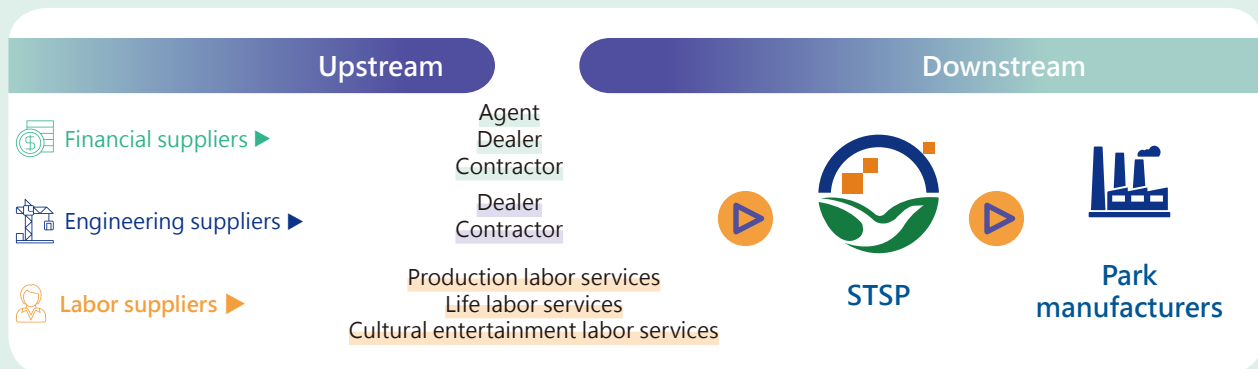
▲ Professional education and training for security personnel

5.5 Procurement and Supply Management

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 31 engineering procurement projects, 94 labor procurement projects and 22 financial procurement projects in 2021, and 100% of the bid winners are all local manufacturers in Taiwan. The amount of local procurement was approximately NTD 3,116,776,884.

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.



■ 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 energy labels, water efficiency labels, energy star labels and other environmental protection labels. As of 2021, the total amount of green product procurement amounted to NTD 12,002,777 and among them, 49 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.

Green Procurement	2019	2020	2021
Procurement projects having designated products procured with environmental protection or energy labels	48	52	49

■ 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 is 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 2021, there were a total of 23 construction sites of public works in the Tainan Science Park and the construction projects of the park manufacturers. A total of 170 inspections were conducted. In addition, 12 constructions sites were for the public works and park manufacturers' construction projects of Kaohsiung Science Park, with a total of 97 inspections.

Item	Tainan Science Park		Kaohsiung Science Park	
	Public works	Construction projects of manufacturers	Public works	Construction projects of manufacturers
Number of manufacturers inspected	8	15	1	11
Total number of inspections	65	105	15	82
Pass rate (not reaching serious deficiencies)	100%		100%	



FUTURE OUTLOOKS

To accelerate the growth of high-tech industries and balance regional development, STSP Bureau connects with the industry through concrete actions such as local deep cultivation, international expansion, and integration of resources and energy in various industries, accumulate talent capital in scientific research, create scientific research value, create regional industrial and innovative clusters, and co-create a society with prosperity, moving toward the visions of Innovation, Inclusion, and Sustainability. We also cooperate with the investment and construction of Shalun Smart Green Energy Science City and introduce the R&D teams to form a smart and green industrial cluster. In the future, STSP and Shalun Smart Green Energy Science City will work together as the dual engines and lead the development of emerging technology industries while combining the high value of the existing advantageous industries to step toward a highly competitive base of production and economy.



Generating the kinetic energy in the park, expanding the industrial cluster

To cooperate with the Executive Yuan in the promotion of industrial innovation development and to grasp the world trend of digital intelligence, as well as to work in line with the MOST's vision of "Smart Taiwan 2030: Innovation, Inclusion, Sustainability" to support industrial innovation with science and technology, strengthen the R&D of key industrial technologies to further drive the transformation and upgrade of the industry. Furthermore, to make up the gaps in the supply chain of semiconductor, medical materials, aerospace, and other industries, we will set the target for investment and continue to strengthen the competitiveness of the industrial clusters in the science park.

Lean and high-quality services to ensure sustainable operation

To expand or construct new science park to ensure sufficient supply of industrial land. In addition, the source of tap water is also simultaneously expanded and the use of claimed water is guided and to gradually complete the long-term and short-term power supply strategy to ensure abundant supply of water and power to attract high-tech industries to enter the science park and create economic output value and employment opportunities to the public, reaching the vision of sustainable operation of the science park.

Creating a friendly environment and attaching importance to the value of Production, Living, Ecology, and Life

Continue to promote environmental policies of water conservation, electricity conservation, green electricity, and tree transplanting to reduce the impact of production on the ecological environment. Public art is also moving toward the direction of deepening local culture and promoting public education to shorten the distance between the science park and the local people, enriching the element of humanities in the environment and constructing a high-quality industrial environment.

Appendix I : Editing Guidelines

This Report is the tenth Sustainability Report published by STSP Bureau. Since its development in early stages, the 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 2020 Sustainability Report of Southern Taiwan Science Park Bureau, National Science and Technology Council shares the achievements the Bureau has accomplished in terms of communication and governance, fostering innovation and start-ups, serving the 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 STSP Bureau and the land under its jurisdiction (Tainan Science Park and Kaohsiung Science Park). The reporting period was between Jan. 1st and Dec. 31st, 2021. 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 an impartial third 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. Compared with the 2019 Sustainability Report, the re-editing of some data will be noted in the text of this 2020 Report.

● Reporting Principles and Guidelines

The content framework of this Report was complied with the core option criteria for the GRI (Global Reporting Initiative) Standards and the AA1000 AccountAbility 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 to.

▶ GRI Standards (GRI Sustainability Reporting Standards)	■	■	■	■	■
▶ AA1000 AccountAbility Principles	■	■	■	■	■
▶ Sustainable Development Goals (SDGs)	■	■	■	■	■
▶ ISO 26000 Guidance on Social Responsibility	■	■	■	■	■
▶ The United Nations Global Compact	■	■	■	■	■
▶ Taiwan' s Sustainable Development Goals	■	■	■	■	■

● Verification of the Report

To increase the impartiality of this Report, we have entrusted British Standards Institution (BSI) to conduct the verification of this Report based on GRI Standards and AA1000 Assurance Standard (AA1000AS v3) Type 1 Moderate Level Assurance. It is verified that this Report complied with the framework and standard assurance level mentioned above, which improves the transparency and reliability of the organizational report.

● 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.

- ▶ Current edition: Issued in July, 2022.
- ▶ Previous edition: Issued in August, 2021.

● Deep Cultivation of Environmental Education

It is hoped that the endeavor and achievement of STSP Bureau in the promotion of the park development 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 Report.

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STSP's CSR
Website

Appendix II : Independent Assurance Opinion Statement



INDEPENDENT ASSURANCE OPINION STATEMENT

2021 Southern Taiwan Science Park Bureau, Ministry of Science and Technology Sustainability Report

The British Standards Institution is independent to Southern Taiwan Science Park Bureau, Ministry of Science and Technology (hereafter referred to as STSPB in this statement) and has no financial interest in the operation of STSPB other than for the assessment and verification of the sustainability statements contained in this report.

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

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

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

Scope

The scope of engagement agreed upon with STSPB includes the followings:

1. The assurance scope is consistent with the description of 2021 Southern Taiwan Science Park Bureau, Ministry of Science and Technology Sustainability Report.
2. The evaluation of the nature and extent of the STSPB's adherence to AA1000 AccountAbility Principles (2018) in this report as conducted in accordance with type 1 of AA1000AS v3 sustainability assurance engagement and therefore, the information/data disclosed in the report is not verified through the verification process.

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

Opinion Statement

We conclude that the 2021 Southern Taiwan Science Park Bureau, Ministry of Science and Technology Sustainability Report provides a fair view of the STSPB sustainability programmes and performances during 2021. The sustainability report subject to assurance is free from material misstatement based upon testing within the limitations of the scope of the assurance, the information and data provided by the STSPB and the sample taken. We believe that the performance information of Environment, Social and Governance (ESG) are fairly represented. The sustainability performance information disclosed in the report demonstrate STSPB's efforts recognized by its stakeholders.

Our work was carried out by a team of sustainability report assurors in accordance with the AA1000AS v3. We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that STSPB's description of their approach to AA1000AS v3 and their self-declaration in accordance with GRI Standards: Core option were fairly stated.

Methodology

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

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

Conclusions

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

Inclusivity

This report has reflected a fact that STSPB has continually sought the engagement of its stakeholders and established material sustainability topics, as the participation of stakeholders has been conducted in developing and achieving an accountable and strategic response to sustainability. There are fair reporting and disclosures for the information of Environment, Social and Governance (ESG) in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the STSPB's inclusivity issues.

Materiality

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

Responsiveness

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

Impact

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

GRI Sustainability Reporting Standards (GRI Standards)

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

Assurance level

The moderate level assurance provided is in accordance with AA1000AS v3 in our review, as defined by the scope and methodology described in this statement.

Responsibility

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

Competency and Independence

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

For and on behalf of BSI:



Peter Pu, Managing Director BSI Taiwan



...making excellence a habit.™

Statement No: SRA-TW-2021054
2022-05-25

Taiwan Headquarters: 2nd Floor, No. 37, Ji-Hu Rd., Nei-Hu Dist., Taipei 114, Taiwan, R.O.C.

BSI Taiwan is a subsidiary of British Standards Institution.

Appendix III : Global Reporting Initiative (GRI) Index

「*」 indicates major aspects.

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page	Omit/ remark
Organizational Profile					
GRI 102 General disclosure 2016	102-1	Name of the organization	Abstract	2	
	102-2	Activities, brands, products, and services	About STSP	8	
	102-3	Location of headquarters	About STSP	8	
	102-4	Location of operations	About STSP	8	
	102-5	Ownership and legal form	About STSP	8	
	102-6	Markets served	About STSP	8	
	102-7	Scale of the organization	About STSP 3.1 Overview of Development 5.2 Staffing	8 66 106	
	102-8	Information on employees and other workers	5.2 Staffing	106	
	102-9	Supply chain	5.5 Procurement and Supply Management	116	
	102-10	Significant changes to the organization and its supply chain	Appendix I : Editing Guidelines	120	
	102-11	Precautionary Principle or approach	2.5 Rain and Me: Guided tour to the central control room of the Flood Con- trol Center 5.4 Compliance and Internal Control	59 112	
	102-12	External initiatives	5.4 Compliance and Internal Control	112	
Strategy					
GRI 102 General disclosure 2016	102-14	Statement from senior decision-maker	Message from the Director-General	4	
	102-15	Key impacts, risks, and opportunities	2.5 Rain and Me: Guided tour to the central control room of the Flood Con- trol Center 5.4 Compliance and Internal Control	59 112	
Ethics and Integrity					
GRI 102 General disclosure 2016	102-16	Values, principles, standards, and norms of behavior	5.4 Compliance and Internal Control	112	
	102-17	Mechanisms for advice and concerns about ethics	5.4 Compliance and Internal Control	112	
Governance					
GRI 102 General disclosure 2016	102-18	Governance structure	About STSP 5.1 Organizational Structure 5.2 Staffing	8 104 106	
Stakeholder engagement					
GRI 102 General disclosure 2016	102-40	List of stakeholder groups	1.1 Communication with Stakeholders	24	
	102-41	Collective bargaining agreements	No labor union has been established at STSP.		
	102-42	Identifying and selecting stakeholders	Implementation of Sustainable Management	22	
	102-43	Approach to stakeholder engagement	1.1 Communication with Stakeholders 1.2 Identification and Objectives of Materials Topics	24 29	
	102-44	Key topics and concerns raised	1.1 Communication with Stakeholders	24	

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page	Omit/ remark
Report Profile					
GRI 102 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	1.2 Identification and Objectives of Materials Topics Appendix I : Editing Guidelines	29 120	
	102-47	List of material topics	1.2 Identification and Objectives of Materials Topics	29	
	102-48	Restatements of information	1.2 Identification and Objectives of Materials Topics Appendix I : Editing Guidelines	29 120	
	102-49	Changes in reporting	No change		
	102-50	Reporting period	Appendix I : Editing Guidelines	120	
	102-51	Date of most recent report	Appendix I : Editing Guidelines	120	
	102-52	Reporting cycle	Appendix I : Editing Guidelines	120	
	102-53	Contact point for questions regarding the report	Appendix I : Editing Guidelines	120	
	102-54	Claims of reporting in accordance with the GRI Standards	Appendix I : Editing Guidelines	120	
	102-55	GRI content index	Appendix III : Global Reporting Initiative (GRI) Index	124	
	102-56	External assurance	Appendix I : Editing Guidelines	120	
Topic-specific disclosure: 200 series (Economic topics)					
Economic performance					
GRI 201 Economic Per- formance 2016	201-1	Direct economic value generated and distributed	About STSP 5.2 Staffing	8 106	
	201-3	Defined benefit plan obligations and other retirement plans	5.2 Staffing	106	
*Indirect Economic Impacts					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Social Excellent Science Park	64	
	103-3	Evaluation of the management approach	Social Excellent Science Park	64	
GRI 203 Indirect Eco- nomic Impacts 2016	203-1	Infrastructure investments and services supported	Special Column- Expansion of the Park Area 4.5 LOHAS at STSP 4.6 Good-Neighborliness	14 95 100	
Procurement Practices					
GRI 204 Procurement Practices 2016	204-1	Proportion of spending on local suppliers	5.5 Procurement and Supply Management	116	
Anti-corruption					
GRI 205 Anti-corruption 2016	205-1	Operations assessed for risks related to corruption	5.4 Compliance and Internal Control	112	
	205-2	Communication and training about anticorruption policies and procedures	5.4 Compliance and Internal Control	112	
	205-3	Confirmed incidents of corruption and actions taken	5.4 Compliance and Internal Control	112	
Anti-competitive Behavior					
GRI 206 Anti-compet- itive Behavior 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	5.4 Compliance and Internal Control	112	



GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page	Omit/ remark
*Investment Promotion					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Social Excellent Science Park	64	
	103-3	Evaluation of the management approach	Social Excellent Science Park	64	
*AI for Industries					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Social Excellent Science Park	64	
	103-3	Evaluation of the management approach	Social Excellent Science Park	64	
Topic-specific disclosure: 300 series (Environmental topics)					
*Energy					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Environmental Environmental Friendliness	38	
	103-3	Evaluation of the management approach	Environmental Environmental Friendliness	38	
GRI 103 Energy 2016	302-1	Energy consumption within the organization	2.1 Energy Resources Management	40	
	302-3	Energy intensity	2.1 Energy Resources Management	40	
	302-4	Reduction of energy consumption	2.1 Energy Resources Management 2.3 Renewable Green Energy	40 52	
*Water and Effluents					
GRI 103 Management approach 2018	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Environmental Environmental Friendliness	38	
	103-3	Evaluation of the management approach	Environmental Environmental Friendliness	38	
	303-1	Interactions with water as a shared resource	2.1 Energy Resources Management 2.2 Pollution Prevention and Control	40 47	
	303-2	Management of water discharge-related impacts	2.2 Pollution Prevention and Control	47	
GRI 303 Water and Effluents 2018	303-3	Water withdrawal	2.1 Energy Resources Management 2.2 Pollution Prevention and Control	40 47	
	303-4	Water discharge	2.1 Energy Resources Management 2.2 Pollution Prevention and Control	40 47	
	303-5	Water consumption	2.1 Energy Resources Management	40	
*Biodiversity					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Environmental Environmental Friendliness	38	
	103-3	Evaluation of the management approach	Environmental Environmental Friendliness	38	

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page	Omit/ remark
GRI 304 Biodiversity 2016	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	2.4 Ecology Conservation	53	
	304-2	Significant impacts of activities, products, and services on biodiversity	2.4 Ecology Conservation	53	
	304-3	Habitats protected or restored	2.4 Ecology Conservation	53	
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	2.4 Ecology Conservation	53	
Emissions					
GRI 305 Emissions 2016	305-1	Direct (Scope 1) GHG emissions	2.1 Energy Resources Management	40	
	305-2	Energy indirect (Scope 2) GHG emissions	2.1 Energy Resources Management	40	
	305-4	GHG emissions intensity	2.1 Energy Resources Management	40	
	305-5	Reduction of GHG emissions	2.1 Energy Resources Management 2.3 Renewable Green Energy	40 52	
*Waste					
GRI 103 Management approach 2020	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Environmental Environmental Friendliness	38	
	103-3	Evaluation of the management approach	Environmental Environmental Friendliness	38	
	306-1	Waste generation and significant waste-related impacts	2.2 Pollution Prevention and Control	47	
	306-2	Management of significant waste-related impacts	2.2 Pollution Prevention and Control	47	
GRI 306 Waste 2020	306-3	Waste generated	2.2 Pollution Prevention and Control	47	
	306-4	Waste diverted from disposal	2.2 Pollution Prevention and Control	47	
	306-5	Waste directed to disposal	2.2 Pollution Prevention and Control	47	
*Environmental Compliance					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Governance Integrity Governance	102	
	103-3	Evaluation of the management approach	Governance Integrity Governance	102	
GRI 307 Environmental Compliance 2016	307-1	Non-compliance with environmental laws and regulations	5.4 Compliance and Internal Control	112	
*Climate Chang					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Environmental Environmental Friendliness	38	
	103-3	Evaluation of the management approach	Environmental Environmental Friendliness	38	
Topic-specific disclosure: 400 series (Social topics)					
Employment					
GRI 401 Employment and Labor Relations 2016	401-1	New employee hires and employee turnover	5.2 Staffing	106	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	5.2 Staffing	106	
	401-3	Parental leave	5.2 Staffing	106	



GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page	Omit/ remark
*Labor/Management Relations					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Social Harmonious Community	78	
	103-3	Evaluation of the management approach	Social Harmonious Community	78	
GRI 402 Labor/Management Relations 2016	402-1	Minimum notice periods regarding operational changes	5.2 Staffing	106	
*Occupational Health and Safety					
GRI 103 Management approach 2018	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Social Harmonious Community	78	
	103-3	Evaluation of the management approach	Social Harmonious Community	78	
	403-1	Occupational health and safety management system	4.4 Safety and Protection	88	
	403-2	Hazard identification, risk assessment, and incident investigation	4.4 Safety and Protection	88	
	403-3	Occupational health services	4.4 Safety and Protection 5.2 Staffing	88 106	
	403-4	Worker participation, consultation, and communication on occupational health and safety	4.4 Safety and Protection	88	
	403-5	Worker training on occupational health and safety	4.4 Safety and Protection	88	
	403-6	Promotion of worker health	4.4 Safety and Protection	88	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	4.4 Safety and Protection	88	
GRI 403 Occupational Health and Safety 2018	403-8	Workers covered by an occupational health and safety management system	4.4 Safety and Protection	88	
	403-9	Work-related injuries	4.4 Safety and Protection 5.2 Staffing	88 106	
	403-10	Work-related ill health	4.4 Safety and Protection 5.2 Staffing	88 106	
*Training and Education					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Governance Integrity Governance	102	
	103-3	Evaluation of the management approach	Governance Integrity Governance	102	
GRI 404 Training and Education 2016	404-1	Average hours of training per year per employee	5.3 Education and Training	111	
	404-3	Percentage of employees receiving regular performance and career development reviews	5.2 Staffing	106	
Diversity and Equal Opportunity					
GRI 405 Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	4.3 A Friendly Workplace 5.2 Staffing	83 106	
Non-discrimination					
GRI 406 Non-discrimination 2016	406-1	Incidents of discrimination and corrective actions taken	4.3 A Friendly Workplace 5.2 Staffing	83 106	

GRI Category/ Material Aspects	No.	GRI Index	Chapter and Section	Page	Omit/ remark
Freedom of Association and Collective Bargaining					
GRI 407 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	5.2 Staffing	106	
Child Labor					
GRI 408 Child Labor 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	5.2 Staffing	106	
Forced or Compulsory Labor					
GRI 409 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 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 Human Rights Assessment 2016	412-2	Employee training on human rights policies or procedures	4.3A Friendly Workplace 5.2Staffing	83 106	
*Local Communities					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Social Excellent Science Park	64	
	103-3	Evaluation of the management approach	Social Excellent Science Park	64	
GRI 413 Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	4.1 Employment of Talent 4.2 Nurturing Key Person 4.5 LOHAS at STSP	80 81 95	
Public Policy					
GRI 415 Public Policy 2016	415-1	Political contributions	STSP was no cases of political contributions.		
Marketing and Labeling					
GRI 417 Marketing and Labeling 2016	417-1	Requirements for product and service information and labeling	STSP is a government agency, and it has no profitmaking products and services.		
Socioeconomic Compliance					
GRI 419 Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	5.4 Compliance and Internal Control	112	
*Safe Working Environment					
GRI 103 Management approach 2016	103-1	Explanation of the material topic and its Boundary	1.2 Identification and Objectives of Materials Topics	29	
	103-2	The management approach and its components	Social Harmonious Community	78	
	103-3	Evaluation of the management approach	Social Harmonious Community	78	

Appendix IV : Sustainable Development Goals (SDGs) Index

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		3.3 Start-up Momentum	73
		5.2 Staffing	106
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	1.3 Sustainable Development Goals	34
		4.6 Good-Neighborliness	100
Goal 3	Ensure healthy lives and promote well-being for all at all ages	1.3 Sustainable Development Goals	34
		2.2 Pollution Prevention and Control	47
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	1.3 Sustainable Development Goals	34
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		4.2 Nurturing Key Person	81
Goal 5	Achieve gender equality and empower all women and girls	1.3 Sustainable Development Goals	34
		5.1 Organizational Structure	104
Goal 6	Ensure availability and sustainable management of water and sanitation for all.	1.3 Sustainable Development Goals	34
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Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all.	1.3 Sustainable Development Goals	34
		2.3 Renewable Green Energy	52
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	1.3 Sustainable Development Goals	34
		4.2 Nurturing Key Person	81
		4.4 Safety and Protection	88
Goal 9	Build resilient infrastructure, promote inclusive and Sustainable industrialization and foster innovation.	1.3 Sustainable Development Goals	34
		2.3 Renewable Green Energy	52
Goal 10	Reduce inequality within and among countries	1.3 Sustainable Development Goals	34
		4.3 A Friendly Workplace	83
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable.	1.3 Sustainable Development Goals	34
		2.4 Ecology Conservation	53
		4.3 A Friendly Workplace	83
Goal 12	Ensure sustainable consumption and production patterns.	1.3 Sustainable Development Goals	34
		2.1 Energy Resources Management	40
		2.2 Pollution Prevention and Control	47
		5.5 Procurement and Supply Management	116
Goal 13	Take urgent action to combat climate change and its impacts.	1.3 Sustainable Development Goals	34
		2.3 Renewable Green Energy	52
		2.5 Rain and Me: Guided tour to the central control room of the Flood Control Center	59
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.	1.3 Sustainable Development Goals	34
		2.4 Ecology Conservation	53
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.	1.3 Sustainable Development Goals	34
		5.4 Compliance and Internal Control	112

Appendix V : 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 A Friendly Workplace	83
2	Make sure that they are not complicit in human rights abuses.	5.2 Staffing	106
2. Labor			
3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	4.3 A Friendly Workplace	83
4	The elimination of all forms of forced and compulsory labor.	4.3 A Friendly Workplace	83
5	The effective abolition of child labor.	4.3 A Friendly Workplace	83
6	The elimination of discrimination in respect of employment and occupation.	4.3 A Friendly Workplace	83
3. Environment			
7	Businesses should support a precautionary approach to environmental challenges.	2.3 Renewable Green Energy	52
		2.5 Rain and Me: Guided tour to the central control room of the Flood Control Center	59
8	Undertake initiatives to promote greater environmental responsibility.	2.1 Energy Resources Management	40
		2.2 Pollution Prevention and Control	47
9	Encourage the development and diffusion of environmentally friendly technologies.	2.3 Renewable Green Energy	52
4. Anti-Corruption			
10	Businesses should work against corruption in all its forms, including extortion and bribery.	5.4 Compliance and Internal Control	112



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