2015 Annual Report

Central Taiwan Science Park

Central Taiwan Science Park Bureau,
Ministry of Science and Technology

With the motto "CTSP, Second to None," Central Taiwan Science Park (CTSP) celebrated its 12th anniversary in 2015. These 12 years have witnessed vicissitudes, and 2015 has been another rich and rewarding year.

Affected by the global economic downturn and China's import substitution policy, CTSP, firmly established as it is, posted steady growth in 2015. Along with the sales revenue, our park's export and employment figures, compared with 2014, continued to rise against headwinds. In particular, the number of our park employees broke the 33,000 mark.

In addition, our park's excellent occupancy rate of land and factories remained above 90% and counting. Our recruitment efforts paid off with fruitful results–18 new businesses were introduced in 2015, including Topkey, Sunspring Metal, Minima Tech, Sunspring Automation, Opnano, Phermpep, CH Biotech and others. Moreover, our excellent performance was reinforced by the facts that our park's total investment in 2015 reached NT$ 6.682 billion (US$ 207 million) and that we have hitherto succeeded in bringing in 180 enterprises.

CTSP, the youngest science park in Taiwan, is gaining a firm foothold despite all the twists and turns. As the Taichung Park Expansion Project passed the Environmental Impact Assessment (EIA) in February 2015, construction of public infrastructure and that of TSMC's cutting-edge fabs and R&D center began in tandem. Thanks to this, the semiconductor industry in Taiwan is expected to reach another peak with remarkable technological advances.

With regard to the EIA lawsuit of Erlin Park, the CTSP Bureau has demonstrated utmost sincerity and achieved consensus with stakeholders by orienting the park towards low water consumption and discharge. A settlement was duly reached in May 2015. Not only does this case

New Frontiers, Crossing Borders

stand as a successful example in the transformation of Taiwan's science parks, but Erlin Park, where agriculture co-exists in harmony, also signifies that high-tech industry and a sustainable environment can jointly prosper.

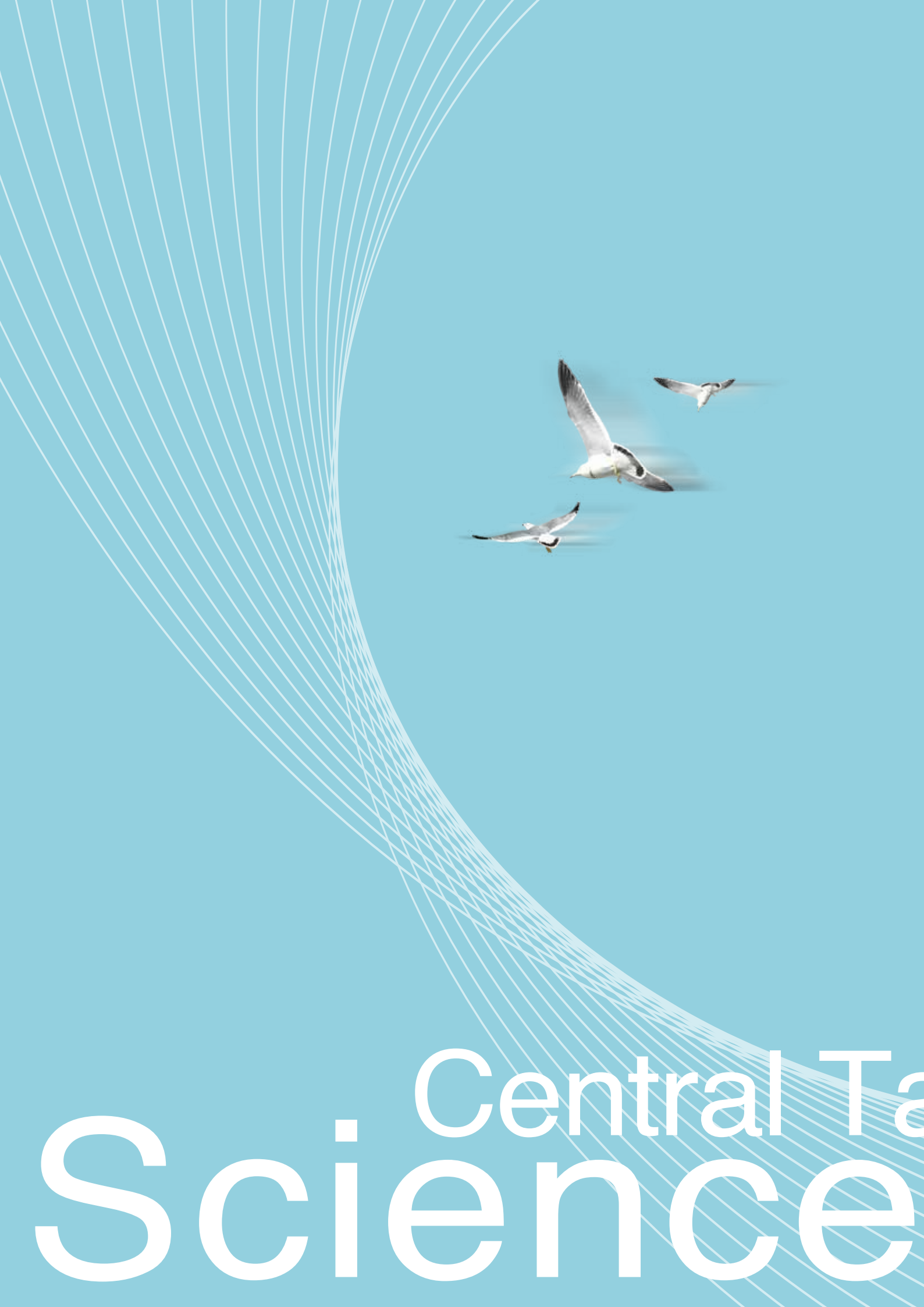
CTSP sets great store by the well-being and education of its employees' children and, as a result, National Experimental High School at CTSP (NEHS@CTSP) broke ground in March 2015 for the construction of its own junior high school building. Construction is expected to be completed by April 2016 so as to meet the recruiting schedule for its first influx of students. Before long, NEHS@CTSP will integrate resources and provide comprehensive junior-senior high school programs, ensuring a coherent learning environment and a high quality of life for our park employees and their families.

In response to the smart living trend motivated by the ever-growing ICT technologies and the urgent transformation of science parks originated from intense industry competition, CTSP continues to strive towards evolving into an innovation park. Aside from supporting our tenant companies for R&D activities, we plan to construct a safe, healthy, energy-efficient and convenient living environment in virtue of ushering in diverse innovative services. By so doing, CTSP will stay ahead of the curve and become one of the most competitive science parks in the world.

We would like to express the sincerest gratitude to all our tenants, park employees and nearby residents for their support as well as to all staff members of the CTSP Bureau for their endeavors. Together we have come this far and together we will be forging ahead towards a brighter future.

Director-General Wayne Wang

March 2016


Central Ta
Science

Contents

New Frontiers, Crossing Borders

aiwan
Park

A Pioneer in Science and Technology

Central Taiwan Science Park

A Return to Our Roots

On October 16th, 2002, in accordance with the Interim Regulations for Central Taiwan Science Park, the CTSP Preparatory Office was established to implement the development plan and enhance the overall effectiveness of administrative services. On January 26th, 2007, a Presidential Decree announced the Act for the Organization of the Central Taiwan Science Park Administration, by virtue of which Investment Division, Environment and Labor Affair Division, Business Division, Construction Management Division, Land Development Division, Secretariat Office, Personnel Office, Accounting and Statistic Office, and Civil Service Ethics Office were established.

Organizational Overview

The Advanced Research Park in Zhongxing New Village was developed, as approved by the Executive Yuan, in line with government policy to maximize organizational effectiveness and streamline human resources management. The Taiwan Provincial Government approved related matters and personnel on January 1st, 2011, to facilitate construction of the Park and the subsequent management of hardware facilities of the Taiwan Provincial Government.

On January 7th, 2014, the Legislative Yuan passed the Act for the Organization of the Ministry of Science and Technology and the three Science Park Bureaus. On January 22nd, the President promulgated the Act and on March 3rd it became effective after approval by the Legislative Yuan. After reorganization, the CTSP Bureau added Planning Division to be in charge of driving strategy, policy, planning and measures for Park development. This brought the number of Divisions within the CTSP Bureau to six, while the number of Offices remained unchanged at four. The reorganization improved the quality of the Bureau services and tenant satisfaction. The reorganization also helped create an environment conducive to further development of Park infrastructure, its talent base and eco-system for joint innovation by industry and academia.

A Top Science Park

Twelve years ago, on July 28th, 2003, ground was broken on the Dadu Mountain Plateau to develop Central Taiwan Science Park as the central link of the Science and Technology Corridor in Western Taiwan that runs from Hsinchu Science Park in the north to Southern Taiwan Science Park in the south. The science parks administered by the CTSP Bureau include 3 fully developed parks, Taichung Park, Huwei Park, and Houli Park, and 2 developing parks, Erlin Park and the Advanced Research Park. Altogether the total area reaches 1,708 hectares.

Houli Park

Huwei Park

Erlin Park

Taichung Park: A New Center Bringing Prosperity to Central Taiwan

Taichung Park covers an area of 466 hectares. Environmental Impact Assessment for an expansion of 53 hectares was approved in 2015, and thus constructions for public infrastructure and factory buildings of its first major tenant (TSMC) have since proceeded in tandem. TSMC will locate its 10 nm node fabrication processes here, which will safeguard Taiwan's leading position in the semiconductor industry. Giant Manufacturing Co., Ltd (Giant bicycles) will also locate its global headquarters here.

Huwei Park: the Star of Emerging Technologies

Huwei Park spans 97 hectares. The Taiwan High Speed Rail station on the eastern side of the Park started to be operational on December 1st, 2015, and this will help develop Huwei Park into a green park with a healthy and convenient living environment. The prospects for this Park are most promising.

Houli Park: Home to Tomorrow's Technology

Houli Park covers an area of 256 hectares. Houli and Chising are its two primary sites. They target manufacturers in the opto-electronics, semi-conductor and precision machinery industries, integrate local industrial resources in the Houli District, and create economic prosperity.

Erlin Park: Hub of the Precision Machinery Industry

Erlin Park covers 631 hectares. In consideration of the park's need to reduce its water consumption and hence the required features of industry within the park, the tenant company recruitment plan of Erlin Park concentrates on the precision machinery industry, which consumes less water and emits less carbon dioxides. The Environmental Impact Assessment of Phase II of the park proposed on March 27th, 2015 to the Environmental Protection Administration a set of indicators circumscribing the scope of the park, which were adopted in their final form at the third Scope Setting Meeting convened on July 24th, 2015.

The Advanced Research Park: Taiwan's R&D Engine

The Advanced Research Park is located in Zhongxing New Village, and covers an area of 259 hectares, of which 234 ha is cultural scenery (90% of the Park area). The Park will focus on R&D and low quantity production (cultural and creative industries excepted), and preserve its distinct historical and cultural atmosphere. Construction of public works is in progress and entities, such as the Institute for the Information Industry, the Industrial Technology Research Institute, and high-tech R&D-based companies are establishing operations in the park.

Leading Industry into the International Arena

Central Taiwan Science Park

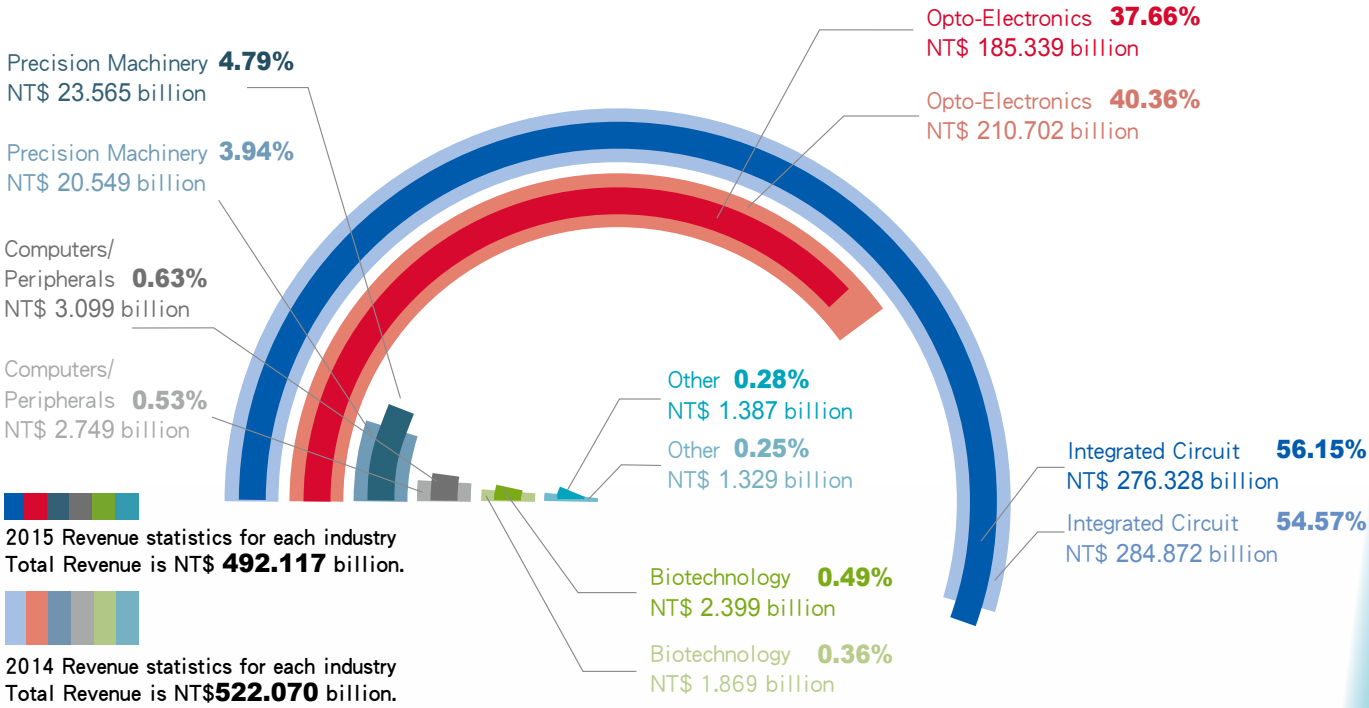
Market Expansion for Continued Success

In 2015, the Park welcomed 18 new tenants with plans to invest a total of NT$ 6.682 billion. Five current tenants have announced increases to their combined investment by a total of NT$ 3.255 billion. At the end of 2015, the Park's 180 tenants employed 33,018 persons and generated combined revenue of NT$ 2,487.8 billion.

In 2015, the combined revenue generated by all tenant companies arrived at NT$ 492.1 billion, a decrease of 5.74% year on year. The weak recovery of the global economy and slowing demand from emerging markets affected the growth of retail demand for consumer electronics and depressed revenue of Park tenants.

2015 revenue data shows that the IC industry generated the largest revenue share at NT$ 276.328 billion (56.15%), followed by opto-electronics with NT$ 185.339 billion (37.66%), precision machinery with NT$ 23.565 billion (4.79%) and other industries with NT$ 6.885 billion (1.4%).

2015 Revenue statistics for each industry



Import and Export Statistics

Import and export trade volume in 2015 was NT$ 311.255 billion, an increase of 2.30% over 2014. Exports totaled NT$ 226.871 billion, an increase of 6.06% over 2014. Imports were pegged at NT$ 84.384 billion, a decrease of 6.62% year on year, due to machinery of most tenant companies becoming mature. Exports exceeded imports by NT$ 142.487 billion.

Opto-electronics companies in the Park produced the best export figures, with combined export sales reaching NT$ 155.739 billion. Integrated circuits were in second place with NT$ 54.696 billion, followed by precision machinery with NT$ 13.231 billion. In terms of imports, opto-electronics were top with a volume of NT$ 50.622 billion, followed by IC manufacturers with imports totaling NT$ 28.815 billion.

Exports from CTSP-based companies rose by 6.06% in 2015, mainly due to the robust recovery of the US economy. Demand for electronic products from Taiwan continued to grow in Japan and Southeast Asia. On the back of increasing ICT orders, related OEMs and suppliers also saw brisk business. Foundries, DRAM and other electronic component manufacturers in the supply chain also benefited and boosted export momentum.

Imports by CTSP-based companies declined by 6.62% in 2015, mainly because most tenant companies had finished building projects and began operations with a subsequent reduction in demand for new machinery. However, import demand is expected to pick up again in 2016, led by foundries and DRAM makers who will increase imports of precision instrument and other equipment to expand production capacity.

Central Taiwan Science Park has been very successful in attracting domestic and foreign high-tech enterprises to the Park. By the end of 2015, 180 tenant companies had been approved, including 40 companies in the opto-electronics industry, 67 in precision machinery, 37 in biotechnology, 7 in integrated circuits, 14 in computers and peripherals, 2 in communications and digital content, and 13 in other industries. Diversified industry clusters have taken shape. In addition, 14 research institutes and incubation centers bring strong R&D capacity to the Park. This tenant category includes the Emerging Smart Technologies Research Center, the Institute for Information Industry, Central Taiwan Industrial Innovation R&D Campus, ITRI, Allion Labs, Inc., Taiwan Mother Cosmo, Gain Science Technology, etc. In 2015, 18 new companies joined the Park, led by 9 precision machinery, 5 biotechnology, 2 opto-electronics and 2 park tenant service companies. The total investment value was NT$ 6.682 billion.

In addition, five tenant companies raised their combined investment by NT$ 3.255 billion. New tenants in 2015 included Sunspring Metal Corporation, Topkey Corporation, Minma Technology and Grenergy Enterprise among others. In addition, two startup companies, Phermprep and Innotex Composites, were founded in the Park. New foreign companies included KCMG from Ireland, CH Biotech, and Opnano. The presence of Opnano, a leader in agricultural biotechnology, and all these

Import and Export Statistics of the Six Major Industries at CTSP in 2015

Unit: NT$ 100 million

	Export Value		Import Value		Trade Volume	
Company	2015	Growth(%)	2015	Growth(%)	2015	Growth(%)
Integrated Circuits	546.96	49.25	288.15	-35.99	835.11	2.26
Opto-Electronics	1,557.39	-5.16	506.22	25.97	2,063.61	0.96
Precision Machinery	132.31	24.28	30.94	2.50	163.25	19.47
Computers/ Peripherals	20.86	16.14	4.70	18.97	25.56	16.65
Biotechnology	11.19	129.19	0.94	29.29	12.13	116.24
Others	0	-100.00	12.89	-23.13	12.89	-27.85
Total	**2,268.71**	**6.06**	**843.84**	**-6.62**	**3,112.55**	**2.30**

new tenants bear testimony to the level of excellence the Park has reached in a mere decade, and they will add further momentum to economic development and job growth in central Taiwan.

By the end of 2015, the Park had 40 opto-electronics enterprises with a combined planned investment value of NT$ 919.6 billion, including such benchmark enterprises as AUO, Corning Display Technologies Taiwan CO., LTD, Taiwan Nitto Optical CO.,LTD., JSR Micro Taiwan CO.,LTD, Huga Optotech Inc, Genius Electronic Optical Co., Ltd, H.P.B Opto-electronics Co., Ltd, Taiwan Ohara Optical Material, and Glorytek Science. With these heavyweight domestic and international opto-electronics manufacturers and upstream materials suppliers establishing a presence at CTSP, a complete upstream, midstream and downstream opto-electronics industry supply chain has steadily taken shape.

Precision machinery has always been a key industry at CTSP. With 67 precision machinery manufacturers and an expected investment value of NT$ 55.8 billion, it is also the largest industry represented in the Park. Present manufacturers are heavyweights in the production of opto-electronics and IC machinery and equipment, parts and machine tools. They improve the precision of product processing and raise the added value of final products. The advantageous location of the Park allows convenient supply of production equipment to opto-electronics and IC industries, which greatly reduces production costs, significantly increases competitive advantages and contributes to the formation of a world-leading precision machinery cluster.

Current IC industry tenants include TSMC, Winbond Electronics Corp., Micron Memory Taiwan Co., Ltd., Siliconware Precision Industries CO.,LTD. and Applied Materials Taiwan, accounting for as much as NT$ 1490.2 billion in planned investments. Among these manufacturers, a total of eight 12-inch fabs belonging to TSMC, Winbond Electronics Corp. and Micron Memory Taiwan Co., Ltd. have already started mass production. TSMC will continue to expand the advanced wafer production services offered by its 12-inch and 10 nm node fabs in 2015. CTSP is well positioned to become the world's leading IC hub.

There are now 37 biotech companies in the Park, including Orient Europharma, the Adimmune Corporation, Yushen Biotechnology & Medical, GeneReach, Singen Biotechnology Corporation, Animal Health Industry, Microware Precision, Chenghan Biotech and Chain Year Biomedical Technology. Together these companies will invest up to NT$ 9.4 billion in the production of vaccines, pharmaceuticals, medical devices and diagnostics reagents. This will consolidate biotech manufacturing in central Taiwan and drive the formation of a biotech industrial cluster.

In addition, there are currently 14 utilities companies, including Road Ahead Technologies Consultant and Air Liquide based at CTSP and offering substantial support to the operation, management and technological requirements of scientific industries. Four gas suppliers are on-site; Air Liquide Far Eastern Ltd., United Industrial Gases Co., Ltd, Air Products San Fu Co., Ltd. and Lien Hwa Commonwealth Corp. Warehousing and logistics services are provided by Central Taiwan Science Park Logistics Co Ltd., Canon Semiconductor Equipment operates a service center in CTSP to provide IC and flat panel display manufacturers with maintenance services for their manufacturing equipment. Nam Kwong Company and Sungen Power Corp. also have a presence in CTSP and engage in solar power generation.

Green power industry in the Park includes solar, wind, high-performance batteries and LED. By the end of December 2015, the Park was host to 22 renewable energy related companies, with a total investment of about NT$ 67 billion and total installed capacity of 23.5MW.

In terms of the computers and peripherals industry, there are currently 14 manufacturers in the Park, including Fomex Technology CO., LTD, Fulltech Fiber Glass Corp., Bolymin, Inc., WFE Technology Corp., Orange Electronic Co., Ltd. and Bigbest Solutions, Inc. Other tenants include INPAQ Technology and Info-Link Services from the communications and digital content industry.

Trip to Europe in July for Business Recruitment

Trip to the U.S. in September to attend AURP International Conference

An Era of Universal Standards

To further internationalize and enhance global influence, the CTSP Bureau offers matchmaking services between domestic and foreign manufacturers, arranges visits and exchanges, recruits international tenant companies and participates in events of global science park associations, with the goal of building a platform for international collaboration and accelerating industrial development in CTSP.

By the end of December 2015, memoranda of understanding had been signed with a total of 12 science parks from the United Kingdom, Spain, Russia, Japan, South Korea, Vietnam and China and the Asian Science Park Association (ASPA). The CTSP Bureau engages in continuous exchanges with science parks abroad to identify opportunities for collaboration. Between June and July in 2015, a CTSP delegation visited several Economic and Technological Development Zones in Jiangsu, China. This helped develop a new relationship and created cross-strait industrial cooperation opportunities. Between August and September, a CTSP delegation attended the third Cross-Strait Science and Technology Forum in Xi'an to share experiences in park-led science, technology and industrial innovation. Promising areas for cross-strait industrial cooperation were analyzed and new directions for collaboration between industry clusters were proposed. Between October and November, a CTSP delegation visited the Kitakyushu Science and Research Park in Japan, Kansai Science City, and Kyoto Research Park, to find a platform for future Taiwan-Japan cooperation and exchange, and also to attract Japanese investment in Taiwan. Between November and December, a CTSP delegation visited Shanghai Hi-Tech Zones to see new developments and to stimulate innovative entrepreneurship and industry-university cooperation. Also in 2015, many foreign delegations were received, including several US Congress aides, a delegation from Osaka Seikei University and one from the University of Nuremberg, Germany. These international exchanges help broaden international perspectives and inject new thinking into science park management.

The CTSP Bureau also attended conferences held by global science park associations to promote industry upgrade and establish closer ties with science parks in other countries. In May 2015, a CTSP delegation visited Daegu, South Korea, to attend the 10th Leaders Meeting of the Asian Science Park Association (ASPA). Discussions were held with representatives from science parks from all around Asia regarding the integration of trans-national resources to enhance regional cooperation. In September, we visited Beijing to attend the 32nd Annual Conference of the International Association of Science Parks (IASP), which explored directions for the sustainable development of science parks and the urgent need to transform them into open innovation eco-systems. Between September and October, a CTSP delegation visited the U.S. to attend the 2015 International Conference of the Association of University Research Parks (AURP) in Buffalo, New York. The delegation exchanged ideas and experiences in science park development, in addition to visiting the Buffalo Niagara Medical Campus and several manufacturers. In November a delegation attended the 19th ASPA Annual Conference, held in Kanagawa, Japan, where a CTSP tenant, Taiwan Color Optics, received Grand Prize of the annual ASPA Award. The CTSP Bureau continues to strengthen exchanges with science parks around the world, to explore the latest industry trends and development strategies, and remain committed to boosting the international visibility and influence of Central Taiwan Science Park.

CTSP Celebrated Its 12th Anniversary

Maker Faire

New Frontiers, New Achievements

The CTSP Bureau is committed to the recruitment of domestic and foreign investors and actively invites high-tech manufacturers to join us by giving a comprehensive introduction on the investment environment at CTSP. To recruit more high-tech manufacturers, we visited Japan in March and November, the United States in April and September, and Europe in July 2015. The Bureau also paid close attention to potential investors in other countries.

The Bureau held 2 tenant recruitment seminars in 2015. The Central Taiwan Science Park Investment Seminar held on June 26th in the Advanced Research Park in Nantou County saw 130 guests in attendance. Many of those present expressed an interest in moving into the Park and one, Minima Technology, has already done so, with positive results. On December 11th, the Central Taiwan Science Park Japanese Manufacturer Investment Seminar was held specifically to attract Japanese companies to invest and become tenants of CTSP.

To publicize the long-term achievements of CTSP and boost its profile, a number of press conferences were held in 2015. Visits were made to adjacent communities to inform them about developments in the Park. This included giving of information for potential investors, results of long-term development and the achievements of tenant companies. Five of the press conferences were part of exchange events organized in adjacent communities and ward chiefs and community leaders were invited to attend presentations on the development and achievements of CTSP.

On July 27th, a celebration was held to mark CTSP's 12th anniversary. Tenants and local residents were invited to the festivities. Innovative Product Awards were made to outstanding high-tech companies that had contributed to the High-Tech Equipment and Advanced Technology Development Plan. High-quality Park incubators were also honored with awards and highlighted as role models that injected innovation momentum into the Park. The event helped residents become familiar with the socio-economic benefits CTSP had generated. To drive the development of the Park, the Bureau also participates in major domestic trade shows, such as Photonics Festival Taiwan, Bio Taiwan, and Touch Taiwan 2015, to publicize CTSP performance and achievements, maintain visibility and strengthen the Park's image to attract more tenants. In addition, CTSP and Providence University jointly organized the 2015 Taichung Mini Maker Faire, a creativity contest and exhibition for students and young people, which connected unique industries of central Taiwan, creativity of local makers and the R&D capabilities of educational institutes. The event stimulated the maker movement in central Taiwan and fostered next-generation talent, to create business development opportunities.

In terms of media materials the 2015 Annual Report of Central Taiwan Science Park has been published in Chinese and English in print format, and online in Chinese, English and Japanese. This publication serves to provide information about development at the Park to high-tech manufacturers all around the world with the intention of attracting potential tenants. Issue No. 135 of the CTSP Newsletter (first issued in Augest 5, 2004) was published in December 2015. Each issue offers complete coverage of the latest developments and is sent to subscribers around the world. The content of the newsletter is also posted on the CTSP website.

Creating Synergy, Gathering Talent

Central Taiwan Science Park

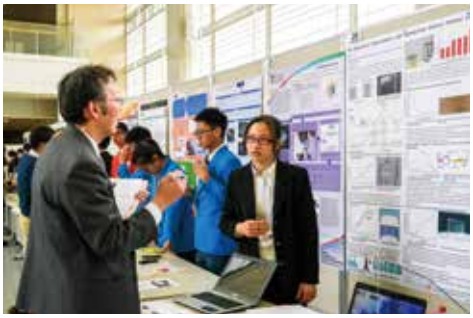
Smart Education for a Strong Talent Base

Towards "Capability, Vitality, Internationalization"

Priority was given to the establishment of the National Experimental High School at CTSP (NEHS@CTSP) both to attract international technology talent and enterprises to CTSP and to address the need for schooling for children of CTSP employees. Guided by a medium to long-term vision, adequately summed up by the slogan "Capability, Vitality, Internationalization", NEHS@CTSP offers children a diversified, lively and international learning environment in step with the K-12 compulsory education system. In 2015, the school held its first independent exam-free recruitment program and enrolled 36 students (30% of the available places). The school guarantees outstanding education for these children, and this helps attract key talent and drives healthy development at CTSP.

The senior high school program has a total of 12 classes and in 2015 they obtained excellent scores in the Taiwan General Scholastic Ability Test (GSAT), with two students scoring the maximum of 75 points. The school's average GSAT score was in the top bracket with 63 points. The experimental mathematics class scored an average of 66 points, well within the top national bracket. 52% of this year's graduating class of 124 students tested in the top bracket and 82% were in the top half of Taiwan. 33% of graduating students were admitted to top universities in Taiwan (National Taiwan University, National Tsing Hua University, National Chiao Tung University, National Chengchi University or Taipei Medical University), on a par with National Taichung Girls' Senior High School.

Groundbreaking Ceremony of Junior High School Building of National Experimental High School at Central Taiwan Science Park



Ms. Xin-Yi Lin Announcing Her Study on Optical Fiber Vesicle Membrane Tension at Tsukuba Science Exhibition

2015 National High School English Debate Tournament

In 2015, the school hosted an English-language debate and critical thinking camp in central Taiwan, and the Third Senior High School English Debate Contest. It also co-hosted the First National Senior High School English Debate Contest in collaboration with the Ministry of Education and the English Department of National Taiwan Normal University. The school also organized the Central Taiwan Senior High Schools' Second Foreign Language Camp (Japanese, German, Italian, French and Spanish) and developed a signature foreign language competence curriculum (second foreign language class). In June 2015, NEHS@CTSP and the Goethe Institut Taipei signed off on the Goethe Classroom project, which offers support to students learning German as well as opportunities for international exchange. In December, the school engaged in exchange activities with Kanagawa Sogo Sangyo High School and Osaka Senri Senior High School to prepare students for international life.

Numerous Successes

In 2015, the NEHS@CTSP staff and students participated in various inter-school competitions with excellent results. Important awards included the Gold Award, Invention Contest (Theme: Titanium, the Alchemy of Laozi) of the Changhua International Youth Invention Exhibition (IYIE) and Poster Contest; the Gold Award for Outstanding High Scope Curriculum for the school's High Scope Teaching Team in the Ministry of Science and Technical Carnival; Outstanding Work in Biology, Chemistry, and Applied Life Sciences, 55th National Primary & School Science Fair; placement in the Second Round (Chemistry, Physics, and Astronomy), Youth Science Talent Training Program; Honorable Mention, The 14th Macronix Science Prize; Masterpiece (Earth Sciences, Biology, Chemistry), Senior High School Mathematics and IT Aptitude Contest; Initial Selection (Chemistry, Physics and Astronomy groups), Taiwan International Science Fair; Semi-Finalist, Taiwan Youth Creative Invention Contest; Honorable Mention, Central Taiwan English Speaking Contest; Outstanding Performance for Indigenous Recitation, Third Place for Chinese Reading, Fourth Place for Chinese Writing, National Language Contest Taichung Edition.

At the end of March 2015, a ground breaking ceremony was held for construction of its junior high school building, which is slated for completion by late April, 2016. The junior high school will recruit its first flux of students in 2016 for the school year that starts in August. The school will provide a diverse and flexible curriculum that balances a spirit of scientific enquiry with humanitarian concern, to ensure holistic development of each student's potential. The school also seeks to instill care and concern for the planet, develop a global mind in students and equip students with skills, such as communications, resilience, professionalism and practical abilities.

Transformation of Erlin Park-Strengthening of Local Educational Resources

The Executive Yuan approved Erlin Park Preparatory Plan in November 2008, with the Park originally envisioned as a hub for further development of the opto-electronics industry. However, in response to the external environment and industrial development, Erlin Park adjusted its recruitment to enterprises with low water consumption and low emissions rates, designating precision machinery as the leading industry in Erlin Park; the Executive Yuan approved this principle in July 2012.

In addition to the strengthening of infrastructure and managing its landscape, the CTSP Bureau attaches great importance to education of the children of Park employees. Strengthening local educational resources is a key element of the investment policy. In consideration of the fact that educational resources around Erlin Park are inadequate, while the performance of NEHS students is excellent and it has become an important factor that tenant companies can offer future employees. Therefore, NEHS and CTSP have entered into a strategic alliance and a high school will be developed in tandem with the Park.

Scope and manner of the strategic alliance:

1. Support program: The CTSP Bureau supports the Changhua County Government in the upgrade and expansion of hardware and software facilities at Wan Shing Junior High School, to facilitate exchanges related to the alliance between Wan Shing and NEHS. This arrangement will allow them to cooperate closely in every respect for the mutual benefit of each school's needs.
2. Interaction: The strategic alliance involves four parties that share, exchange resources and facilities to improve practical communication and also enhance administrative efficiency.
3. School district guarantee: the Changhua County Government will amend its regulations regarding school district delineation to safeguard the rights and interests of the children of Erlin Park's employees with respect to attendance at Wan Shing.
4. Strategic alliance agreement: Changhua County Government, National Experimental High School at CTSP, Wan Shing Junior High School and the Central Taiwan Science Park Bureau sign a quad-bilateral strategic alliance agreement.

A ceremony was held on June 25th, 2015, at the Central Taiwan Science Park Bureau, where the National Experimental High School at CTSP, Changhua County Government, and Wan Shing Junior High School signed a strategic alliance agreement to improve the educational environment in Erlin Park. The Agreement facilitates exchange and support between the four parties for the improvement of the educational and investment environment in CTSP.

CTSP Bureau, National Experimental High School at CTSP, Changhua County Government, and Changhua Wan Shing Junior High School Signed the Education Environment Improvement Strategic Alliance Agreement for Transformation and Development Needs of Erlin Park on June 25th.

Academia-Industry Working Together

CTSP Academia-Industry Consortium

CTSP Academia-Industry Consortium is an important platform for promotion of collaboration and training between industries and research institutes. Since its inception in September 2008, the Association has organized forums, lectures and large-scale academia-industry job fairs to connect the teaching, training and research capabilities of industry, academia and government in connection with CTSP. Topics tackled include Innovation and Entrepreneurship, Productivity 4.0, Green Energy and Environmental Protection. The Association has also continued to promote industrial development in CTSP and participated in innovation activities. It also indirectly promotes academia-industry collaboration and helps integrate resources to strengthen competitiveness of high-tech industries in CTSP.

In addition to convening its 4th Annual Executive Board Meeting, Supervisory Committee Meeting and General Assembly of Members in 2015, the Association also organized the following events: the Precision Machine Tools and Automation Technologies Contest on September 18th, in collaboration with Goodway; 2015 Taiwan Photonics Valley International Forum on September 22nd, in collaboration with the Taichung City Government and the Ministry of Economic Affairs; 2015 CTSP Academia-Industry Consortium Innovation & Entrepreneurship Forum on October 22nd, and the CTSP Innovation and Technology Forum on 28th October, both in collaboration with Chao Yang University of Technology; and the Green Energy and Environmental Protection Entrepreneurship and Investment Forum on December 20th, in collaboration with the Taichung City Economic Development Bureau, as an on-going series of training and research initiatives at CTSP.

Innovation and Entrepreneurship Forum

Members Meeting of CTSP Academia-Industry Consortium

The Allied Association for Science Park Industries Hosted a Gathering of CTSP's Top Executives

Central Taiwan Science Park and Advanced Research Park Professional and Technical Personnel Training Program

To enhance the expertise and skills of personnel working at CTSP, the Bureau organizes annual talent training and applied management courses (opto-electronics and solar energy, semiconductor, precision machinery, science and technology management and biomedical industry). This offers staff of our tenant companies extra channels for education. It also helps tenant companies upgrade their talent pools and cultivate outstanding professional and technical staff, to build core competencies within the Park.

In 2015, the CTSP Bureau implemented "Training Program for Professionals and Technicians at CTSP and Advanced Research Park". There were 18 training courses in five categories. The courses were very well received and the 631 participants were mainly park employees and professionals from central Taiwan.

Alchemy Received Outstanding Entrepreneurship Awards and a Fund of NT$ 2 million from Innovation and Startups Project

Science Park Talent Cultivation Plan

This plan encourages individual colleges and universities near the Park and industry in Taiwan to jointly hold academia-industry modular courses and business internship programs. The aim is to keep track of the demand for technical talent in high-tech industries through collaboration and training courses organized by enterprises. At the same time participants can accumulate practical experience by taking advantage of the training programs offered by business owners. Graduates will be equipped with professional skills while the time needed for training new hires will also be shortened. It also effectively counteracts Taiwan's brain drain and consolidates high quality talent. A total of 12 modular courses were approved and subsidized for nine schools in 2015 attracting 1,369 participants.

High-Tech Equipment and Advanced Technology Development Project

Eight projects were approved for phase II of the 2015 High-Tech Equipment and Advanced Technology Development Project. A total of eight manufacturers and nine academic institutions participated, receiving subsidies of NT$ 69 million, which was topped up by NT$ 135 million from enterprises. This is a clear indication of the effectiveness of the program and stimulated enterprises to invest more in R&D. It is expected that this will give rise to a production value of NT$ 2.402 billion. There were 26 domestic and 24 overseas patent applications, 26 papers published domestically and internationally, and 64 domestic and overseas research reports. The program will contribute to consolidating a solid local talent base, nurturing 630 R&D professionals, 172 doctorates and masters, and four interns, while also creating 168 direct job opportunities.

R&D Advancement Program and Innovation Awards

The CTSP Bureau approved subsidies for eight R&D projects in 2015 worth NT$ 22.86 million to assist manufacturers with technology innovation. The manufacturers themselves invested another NT$ 62.14 million in research and development. This program is expected to help integrate the resources needed for academia-industry collaboration and create a win-win situation in terms of both employment and industry clusters. Manufacturers are also encouraged to devote themselves to innovation, research, and the development of new products, and to this end the Bureau established the Innovative Product Awards. This year, the recipients were AU Optronics for their 65-inch ALCD LCD TV Display Panel and Raystar Optronics for a flexible OLED Panel.

Innovation and Startups Project

In 2013, the Ministry of Science and Technology established the Innovation and Startups Project to bridge the gap between innovation and entrepreneurship. The plan was championed by the National Applied Research Laboratories. Individual administrations collaborate in providing internal and external resources, entrepreneurship venues, and other services that include mentoring, assistance and training, start-up offices, dormitories, coaching by CTSP entrepreneurs, testing and certification services and instruments and equipment from academic and research institutes, etc.

The project includes an annual two-tier competition. For each tier 40 teams are selected to spend time at one of the three science parks. After a three-stage screening process, 4 to 6 of the 40 teams are chosen to receive Outstanding Entrepreneurship Awards along with NT$2 million in start-up funding. In 2015, 13 teams in the first tier were selected to join CTSP team. A Yunlin University of Science and Technology team established the Green Channel Tech, the Alchemy team founded Decin Co., Ltd while the INK STUDIO team set up an INK studio. The Caro-pharming Pharmaceutical Technology, Smart Calibration, and Alchemy teams received Awards for Excellence and the biggest start-up funding. In the second tier, 12 teams were admitted to CTSP team. Of these, the NEOMO team established Youyi International Co., Ltd.

Encourage(New) Incubation Centers at CTSP to Cultivate High-Quality Enterprises. Recognizing Outstanding Companies from the CTSP Entrepreneurial Incubator

The CTSP Bureau runs an annual competition to encourage park incubators supporting startups, with the goals of encouraging incubation centers and research institutions to serve as incubation service providers. In this way outstanding technology can be cultivated within tenant companies to build a strong, science-based CTSP. In 2015 Chaoyang University of Technology, National Chung Hsing University, and National Chi Nan University were awarded the top prizes.

Innovation Workshop

NCHU R&D Center and Business Incubator

Innovation Incubation Center, Chaoyang University of Technology

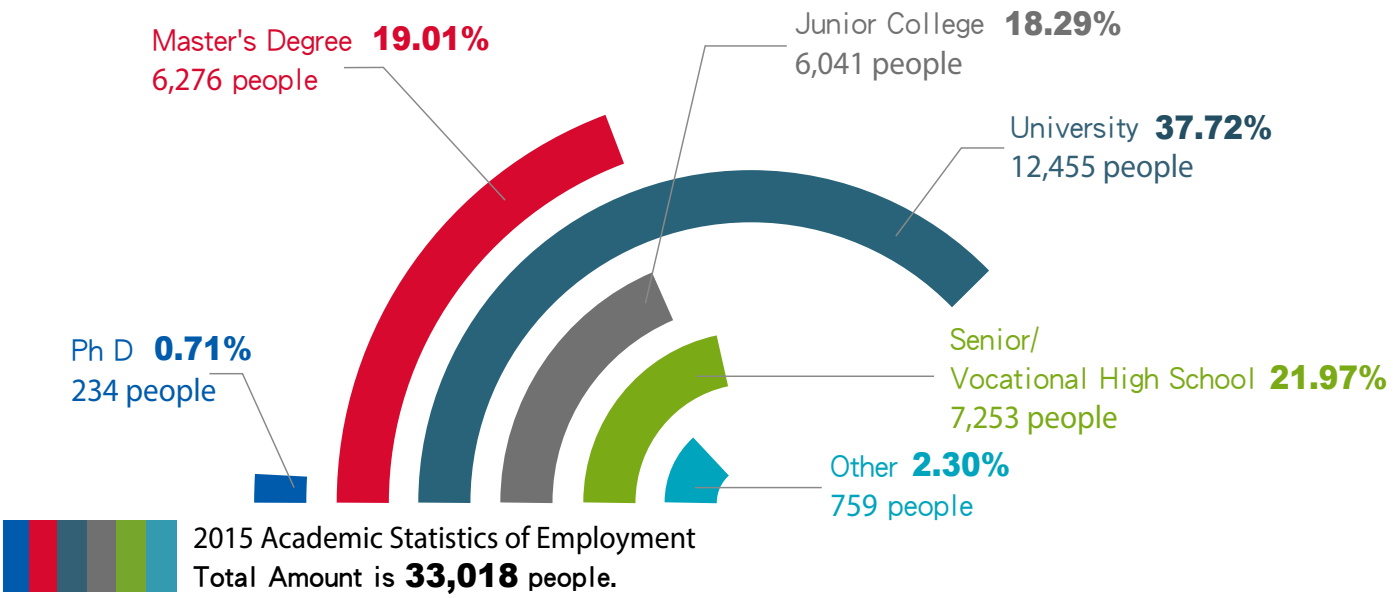
CTSP Director-General Wayne Wang (3rd from right) and Deputy Director Shu-Yuan Lin of Taichung-Changhua-Nantou Regional Branch of Workforce Development Agency of Ministry of Labor (3rd from left) attended CTSP Job Fair to cheer for attendants.

CTSP Job Fair

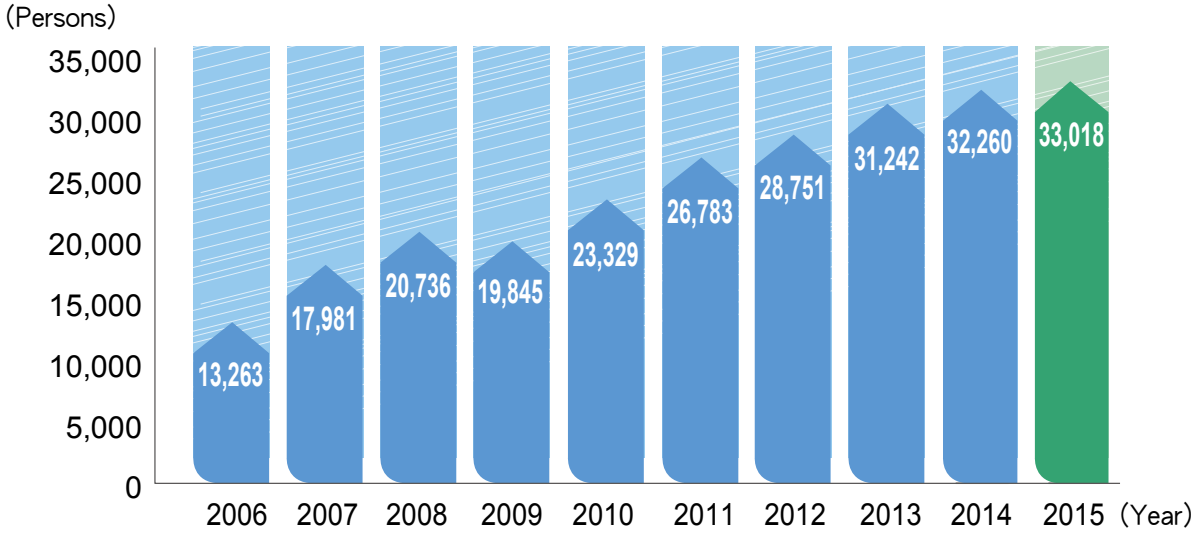
Matching Talent with Opportunity

The number of employees working at CTSP is constantly growing and reached 33,018 in December 2015, an increase of 758 persons (2.35%) over 2014. The opto-electronics industry has the greatest share 54.33%, followed by the semiconductor industry (24.46%). 75.73% of Park employees have a college degree or higher. The male-female gender ratio is 64.92% to 35.08%.

To assist CTSP tenants in recruiting outstanding talent and to help local residents find employment, the CTSP Bureau joined with central and local governments in the provision of a complete and tailored employment matchmaking service. CTSP Job Fairs were held on March 28th and August 29th, 2015, in the lobby of the CTSP Bureau building in collaboration with the Taichung-Changhua-Nantou Regional Branch of the Workforce Development Agency, Ministry of Labor. 53 tenant companies and 3,500 job seekers attended with 4,161 job openings on offer. We



2006 to 2015 Employment Statistics



also collaborated with the governments of Taichung City, Nantou County, Yunlin County, Changhua County, the Taichung Branch of the Export Processing Zone Administration, and the Ministry of Economic Affairs, in organizing five other job fairs to fill vacancies at CTSP tenant companies with residents of surrounding counties. In addition, we worked with the Taichung-Changhua Nantou Regional Branch of the Workforce Development Agency, to assist 76 tenant companies with individual recruiting events.

Another task for the CTSP Bureau is job search support for people of specific age groups. The Bureau organized a Forum and Networking Event for middle-aged and senior workers and women returning to the workforce on August 27th, 2015, in collaboration with the Taichung-Changhua-Nantou Regional Branch of the Workforce Development Agency. The goal was to encourage middle-aged and senior workers to stay in the labor market and to increase opportunities for women returning to work. The Forum was attended by 240 representatives from companies, human resources specialists, industry associations, experts and academics, and job search agencies from the greater Taichung region.

A Science Park with a Soul

Central Taiwan Science Park

Compact, Convenient, Comfortable

To serve manufacturers and employees at CTSP, the Bureau has introduced some related business services:

1. Industrial and Commercial Services Building: By the end of December 2015, a total of 30 businesses has set up their offices in the Industrial and Commercial Services Building, with occupancy exceeding 90%. In addition to financial services, healthcare, employment, a post office, transportation, shopping, food and beverage services, the Allied Association for Science Park Industries, Industrial Technology Research Institute Commercialization and Industry Service Center for Central Taiwan, the Taiwan Laser Application Development Association, and the Taiwan Optics/ Optronics Manufacturers' Association offer services to manufacturers via a presence at CTSP. It is worth mentioning that the limited-service post office (a branch of the Daya Post Office) has been upgraded and is now CTSP Post Office. It also offers banking and insurance services. In November the CTSP Bureau delegation pay a fact-finding visit to the Kaohsiung Software Park to exchange knowledge and experiences between both organizations. Same year in July, Yame Coffee & Kitchen opened in Room 102 and offers occupants and visitors excellent food and beverage services.
2. Standard Factories: Catering and financial services are provided.
3. Logistics Center: Warehousing, import and export warehousing, customs clearance and handling, transport services and integrated logistics planning are provided. The onsite customs clearance is a great improvement and reduces time spent between the airport and the warehouse.

The Police Services Building started operations on January 18th, 2013. In addition to the existing security unit, the 3rd Brigade of Second Special Police Corp was set up to reinforce supervision and support security administration at CTSP. Surveillance cameras and license plate identification systems at Taichung Park, Huwei Park, and Houli Park were set up this year to improve overall security. We continue to support tenant companies in the establishment of defense teams and to take part in the joint security network at CTSP. By doing this, we intend to consolidate the existing security patrol network available for individual companies within CTSP, develop a comprehensive security network, create a complete reporting mechanism and improve overall efficacy of the Park's security operations.

One-Stop Rapid Business Registration and Simplified Administrative Procedures

To consolidate our one-stop over-the-counter service and enhance administrative efficiency for applications submitted by manufacturers, the CTSP Bureau was authorization for the handling of administrative matters that help expedite business registration. These services include company and manufacturing facility registration, tax deduction, personal property endorsement and employment permits for foreign professionals, online completion and submission of annual statements and legal advice. Company registration at CTSP is a convenient one-stop process which a tenant company can access online. It is in strict conformity with the 2015 Ministry of Economic Affairs (MOEA) regulations, from the submission of forms and the uploading of documents to the payment of fees. In addition, the one-stop online window offers real-time tracking of the progress and results of the application process.

In line with the 2015 Taiwan WB Business Environment Reform Program, the National Development Council provides a secure transaction system to facilitate the acquisition of financing by new entrepreneurs and enterprises. The Bureau has been included in the MEOA's Secured Transactions Online Registration Site for the convenience of tenants. It is now possible to apply for mortgages without sending in paper documents, which directly reduces carbon emissions.

Quality Services to Enhance Foreign Trade Competitiveness

The customs clearance system has extra functions which were added this year. It provides complete import and export declaration, processes export and import permits for strategic high-tech goods as well as for normal shipments. This high quality service is a single application that provides fast and convenient customs clearance and sign off and saves CTSP tenants both time and money.

The system also facilitates bonded warehousing which reduces the financial burden of import duties. It also offers electronic handling of commission processing within the Bonded Zone, the issuance of Zone exit certificates, scrapping certificates, etc., to enhance administrative efficiency. Quarterly briefings inform tenant companies about laws and regulations related to foreign trade and bonded business, and information sessions introduce the onsite customs clearance system. The CTSP customs clearance, bonded zone, and service fee payment systems all offer simple and convenient processes which improve overall efficiency and competitiveness of tenants.

CTSP Employment Service Office

CTSP Post Office

CTSP Joint Services Center

Focus on Service Quality and Enhanced Satisfaction

Manufacturer feedback has always been a key issue and the CTSP Bureau tracks suggestions made in surveys and feedback from manufacturers and follows them up to ensure that improvements are made promptly by responsible units. In addition, a "manufacturer care" team is assembled every year to organize visits to manufacturers and engage them in face-to-face discussions either onsite or in forums. The objective being to understand issues faced by manufacturers and their needs so that solutions may be offered that will improve both service quality and manufacturer satisfaction.

In 2015, the overall satisfaction score was 83.79 points, the highest in the history of CTSP. Among the six aspects measured,"loyalty and trust" garnered the highest score, followed by "complaint handling", which showed significant improvement. Bureau service quality also received praise from tenant companies. In 2015 a satisfaction survey was carried out among communities near the Park. Residents gave the Park the highest marks for enhancement of the security of their living environment including satisfaction with public facilities, public safety, fire safety, etc.

Integration with the Global IT Infrastructure

To boost government administrative efficiency and convenient public services and to satisfy innovation requirements of individuals and enterprises, the CTSP Bureau has not only upgraded equipment, such as hardware servers, and enhanced system backup applications, but has also used modern information technology to realize real-time online operations. We actively promote e-administration and real time operations with the ultimate goal of making CTSP a quality hi-tech science park with rapid information flow and sustainable management.

To raise CTSP's profile and provide more convenient services, the CTSP Bureau makes extra efforts in the introduction of public facilities. These include a transportation map on the official CTSP website, an interactive 3D office building guided tour, bike trails, and a free park-wide shuttle bus. Suggestions and other communications from the public are accepted by email and receive prompt response.

To help manufacturers speed up completion of related applications, streamline administrative procedures, and enhance administrative efficiency, Citizen Digital Certificates and Industry and Commerce Certificates have been adopted to further enhance security of the online declaration process. In response to the Ministry of Science and Technology efforts to expedite information access at affiliate agencies, we have planned the integration of information from individual park areas using the online-integrated official document management system, paperless online sign-off operations and a client-end common information system between Ministry of Science and Technology and the three science parks. The shared information resources enhance service quality and contribute to environmental protection.

Substantial changes made by CTSP in recent years include the addition of broadband networks in the Taichung, Huwei and Houli Parks, all jointly configured with telecommunications service providers, and i-Taiwan

for people in public areas. In addition to the original FTTB and dedicated lines for external networks, the Bureau added a national high-speed network line to increase bandwidth of the Bureau's external networks and backup security systems. It has also expanded the WiFi network at CTSP in line with the "Leveraging ICT Technology to Develop Intelligent Parks Project".

Embracing Local History

Preservation of a Historical Site, the Sidadun Kiln

The remains of the Sidadun Kiln are located at the intersection of Jhongke Road and Keya Road in Taichung Park. Discovered during the early development stage of the Park at the end of 2003, they were authenticated by experts as the remains of a pottery kiln used by local Han to produce household utensils during the mid-to-late Qing Dynasty (150 to 200 years ago). This type of pottery kiln is very rare in Taiwan, which makes it particularly precious. The remains are evidence that from about 200 years ago ancestors in this area of Taiwan were self sufficient and no longer dependent on utensils imported from Fujian province. The Sidadun Kiln is very important to the cultural history of Taiwan and is of inestimable value to our cultural history.

Trial Excavation and Assessment of Remains at Erlin Park

Remains of tilt kiln structure were discovered in 2011 when Erlin Park was being developed. The CTSP Bureau authorized Professor De-He Lee of National Cheng Kung University and archaeologist Dr. Ting-Yu Yen to conduct a trial excavation and investigate the site. The results of the research revealed that the remains are of a gray tile kiln from the mid-to-late Qing Dynasty prior to the Japanese colonial era. Because there is almost no information about these ancient kilns research on this site is extremely significant to the history and development of the settlement of central Taiwan. In compliance with the Cultural Heritage Preservation Act, the Bureau suspended construction. After an assessment of the results of the trial excavation had been submitted to the Changhua County Cultural Affairs Bureau, changes to the design of the project were made to include emergency excavation and application was made for approval.

Listen to the Public and Create a Beautiful Home

Xiangsiliao originally formed part of the land to be used for the projected Erlin Park. However, the residents had no desire to relocate, so the Bureau and the Changhua County Government offered their full assistance and the expropriations were rescinded after consultations between the Bureau and various units. Consensus was reached entitled "Lot Sales under Supervision of the Executive Yuan". Detailed plans of a modified Erlin Park Development were approved by the Ministry of the Interior on September 13th, 2011, and on November 10th the MOI approved the rescission of the expropriations for Xiangsiliao. Finally on November 21st, 2012, the Executive Yuan accepted the Changhua Erlin Xiangsiliao and LN.Nongchang Lot Sales Project, submitted by the Ministry of Finance.

Arable land of Xiangsiliao, including settlements on the north side, and reserved arable land within the Park has been sold back to local residents, and surrounding infrastructure has been completed. Of the three sellback cases in LN.Nongchang, only one is still outstanding due to changes to the sale standards. We expect to finalize all sales and handovers by July 2016, so that these residents can finally build their own beautiful homes.

Sidadun Kiln

Xiangsiliao

Being a Good Neighbor

To help local people understand how CTSP recruits tenant companies, the Bureau arranged a visit for residents and borough wardens of communities adjacent to the Park to one of the flagship tenant companies, Giant Manufacturing Co. Ltd (of Giant bicycles) in 2015, where they were received by the CEO, King Liu, in person. Mr. Liu gave the visitors a detailed description of company operations as well as a guided tour around the premises, and conveyed his sincere wishes, and those of the company, to be a good neighbor. In addition to offering employment, Giant hopes to coexist and prosper as part of the community.

To boost harmonious relations between employers and employees and advance friendly exchanges between tenants, service providers and the surrounding community, the CTSP Bureau organized many worker-oriented recreational and welfare events in 2015. These included the CTSP Film Festival, a badminton tournament, and the Giant Cycling Carnival, in collaboration with Giant and the Taichung City Government, among others. These activities were chosen both to entertain and to enhance the physical and mental health of employees. The very popular CTSP Film Festival recently concluded its seventh edition. Sixteen films were screened in 2015 and the Park's 350" mega screen attracted around 2,000 viewers, including from CTSP and nearby residents.

To accomplish the Park's goal of being a friendly neighbor, we organized a "Clean Homeland: A Nationwide Movement" activity in 2015. CTSP tenants, borough wardens and residents were all invited to take part in the event. They led other participants in a cleanup of the streets and beaches, turning words into action. It is hoped that these activities could inspire more people to join the environmental conservation movement to improve the quality of the living environment. To maximize the effect of the friendliness to neighbors campaign, each Clean Homeland undertaking includes related activities such as recycling, creating a green environment, energy saving and carbon reduction, environmental education, and festive activities. This diversification attracted participation from more people to make CTSP a most "friendly neighbor" that works hand in hand with everyone. Seven rounds of activities were organized with a headcount of around 643 participants in 2015.

A Visit to Giant Bicycles with Local Community Leaders

In response to the dengue fever epidemic, the Bureau felt that an ounce of prevention was better than a pound of cure and executed a pro-active policy. We carried out extensive health awareness and education activities, facilitated the removal of stagnant water and took other precautionary measures. Unit heads and representatives took the lead in spreading correct prevention concepts, and mobilized resources from inside and outside the Park to strengthen overall capability to withstand outbreaks.

2015 CTSP Badminton Competition

CTSP Fun Movie Activity

Environmentally-Friendly, People-Friendly

The CTSP Industrial Safety Promotion Association was established with assistance from the Bureau, the Allied Association for Science Park Industries and CTSP tenants. It was divided by industry and park into Semiconductors, opto-electronics Solar Energy, Machinery, Biotechnology, Houli Park, Huwei Park, and Plant Protection, to form seven occupational safety clubs. Large companies lead smaller ones and meetings are held where information regarding laws and regulations related to health and safety are disseminated. Information on fire prevention is shared as well as experiences with respect to health and safety management. Response to emergency situations is discussed with particular attention being paid to mutual support

Signing Cooperation Agreement with Central Weather Bureau

Health Event Series for the Month of Industrial Safety and Environmental Protection–Experience Protective Gear for Working Aloft.

through rescue facilities. These measures effectively enhance health and safety management standards at CTSP, and ensure that emergency response capabilities will be utilized to the full.

The CTSP Bureau has organized an annual activity for the selection and public recognition of any unit, staff member or worker making an outstanding contribution to the promotion of health and safety at CTSP.

Awareness Strengthening Audits

The Bureau organized six information sessions in 2015 to promote knowledge and awareness of labor laws and regulations. This was done by combining different events such as assigning a budget to subsidize employers' childcare measures, by holding meetings on gender equality in employment to collect opinions from members, and by developing gender equality seed teachers. The Bureau also organizes MOL projects and handles complaints filed by employees at CTSP to reinforce checks on working conditions and consolidate and secure the rights of employees. We also pro-actively mediate disputes between employers and employees and provide them with guidance on compliance with regulations to resolve disputes in a reasonable way. This year we have handled five occupational safety and health-related counseling projects, using a case approach and supervision. We also facilitated ten workshops and seminars on occupational health and safety regulations, two screening visits to units with outstanding health and safety practices, and one occupational safety seminar with an exhibition of related equipment.

In 2015, Labor Supervision and Inspection Plan personnel carried out 16 inspections and 685 labor supervisions and inspections, to actively build a working environment that is safe, healthy and humane.

Integrating Safe Environment Resources to Prevent Disaster

To enhance the natural disaster response capacity of CTSP and to safeguard the lives and property of tenant companies, the Bureau has integrated its structures and processes with disaster prevention and rescue resources of surrounding areas. CTSP signed agreements to this effect with the 427th Tactical Fighter Wing of the ROC Air Force and the 36th Chemical Warfare Group of the ROC Army in 2014. In addition to joint response measures with military defense units, CTSP also signed a Memorandum of Understanding with the Central Weather Bureau in 2015. The CTSP Bureau also arranged for the local weather bureau to establish a station on CTSP grounds to provide real-time earthquake warnings. These agreements provide an enhanced weather forecasting and earthquake monitoring capacity for both CTSP and adjacent communities. Optimal weather forecasting and readiness is invaluable in times of natural disaster.

The promotion of occupational safety and health education, guidance, labor inspections and the review of environmental protection permits are all done using a one-stop service based on information technology which includes prior safety assessment and counseling. Self-management of enterprises is also reinforced and park-wide participation is encouraged. Diversified disaster prevention resources are also utilized to enhance overall safety and health standards in the Park and to improve the efficacy of worker health and labor inspections.

A Green and Prosperous Future

Central Taiwan Science Park

Excellent Environmental Evaluation

Effluent quality is a key indicator of the level and efficiency of water treatment provided by environmental protection facilities of any science park. The sewage treatment plant laboratory at Houli Park Wastewater Treatment Plant Laboratory obtained Taiwan Accreditation Foundation (TAF) Certification (No. 2823) on September 29th, 2013, and July 16th, 2014. This reinforces their self-management capability and guarantees proper wastewater treatment and testing of effluent quality to ensure the precision and credibility of testing. The laboratory also applied for a National Institute of Environmental Analysis (NIEA) water quality and quantity certificate. The Houli laboratory was also the first wastewater laboratory to be certified by the Environment Analysis Laboratory of the Environmental Protection Administration, Executive Yuan. This has increased the confidence of the authorities concerning wastewater treatment and water quality of Houli Park Wastewater Treatment Plant Laboratory.

On November 16th, 2015, the laboratory at the Taichung Wastewater Treatment Plant submitted an application to the National Institute of Environmental Analysis, Executive Yuan (NIEA) for designation as an environmental measurement organization laboratory. On January 13th, 2016, NIEA completed its quantitative and qualitative evaluations of tested water from the laboratory and certification is expected by March 2016.

Implementation of Comprehensive Controls and Environmental Permit Review

Central Taiwan Science Park administers Taichung Park, Houli Park, Huwei Park, Erlin Park, and the Advanced Research Park, all of which are within comprehensive pollution control zones that have passed EIA assessment. Before a manufacturer is permitted to establish a presence, an Estimated Global Pollution Volume Form has to be submitted to the CTSP Bureau for review. This will allow the Bureau to keep track of the volumes the manufacturer is likely to generate and also helps with total volume control. When a new business requires air, water, or waste environmental protection permits, or other approval required by law, the applications should be submitted through the Bureau following stipulated procedures. A review for a fixed pollutant permit needs to be done jointly with the local competent authority and such application is also done through the CTSP Bureau which reviews stationary sources of air pollution and handles the process together with the local competent authorities.

Improving Sewage Systems

All parks under the management of CTSP have complete sewage systems in place. All public sewage water and process wastewater is collected at the wastewater treatment plant for treatment in line with national effluent standards, and the even stricter EIA standards, before being released from the Parks. Each Park has a dedicated sewage system to collect rainwater and sewage in several different

Wastewater Treatment Plant in Taichung Park

Air Quality Monitoring Station

ways. The rainwater recovery system collects runoff from the terrain and public areas of the Park. Tenants are also required to implement rainwater collection into their architectural design and set up rainwater discharge that feeds into the Park system. This water is collected in ponds that form part of the landscape. Excess water from the ponds feeds into the parks receiving water. In 2015,Taichung Park had 128 tenant companies, Houli Park 16 tenants, the Chising Park 2 tenants, and Huwei Park 6 tenants.

The sewage treatment plant at Houli Park uses a three-tiered wastewater treatment method. In 2015, effluent water quality met the established criteria and the even stricter EIA commitment criteria. The total amount of pollution is also below the total volume ceiling.

Implementation of Environmental Monitoring

All parks administered by the CTSP Bureau comply with EIA requirements in accordance with the Environmental Impact Assessment Act. To comply with the Law, each park must carry out environmental monitoring based on an Environmental Monitoring Plan as set down in its Environmental Impact Statement. The items to be monitored include air quality, noise and vibration, effluent quality, surface water quality, underground water quality, sedimentation, soil, ecology, traffic volume and cultural assets. To understand the current status of various environmental factors in addition to the EIA Statement, the CTSP Bureau added their own complementary monitoring. To improve data reliability, parallel monitoring and concurrent detection ensure the quality of monitoring data. Environmental monitoring was carried out at 3,266 stations in 2015.

Environmental Protection Monitoring Team Meetings

The CTSP Bureau, in collaboration with the Bureau of Environmental Inspection of the EPA, organized six field inspections for environmental impact assessment and monitoring, at Taichung and Houli Parks, and four meetings of the Monitoring Team Overseeing the Implementation of the Conclusions of the Environmental Impact Assessment of CTSP Stage III at the Houli Farm.

Every quarter, the Science Parks EIA Tracking Task Force of the Ministry of Science and Technology holds a meeting to review development at parks under its purview. The Bureau attended one such tracking meeting in 2015.

The EIA Tracking Task Force conducted meetings with Environmental Protection Monitoring Teams of Taichung Park (4 meetings), Houli Park (4), and Erlin Park (2). The agendas were based on the content of the Environmental Impact Statements of tenants and the requirements of the competent authority in charge of environmental protection.

Disclosure of Environmental Monitoring Information

In 2015, the CTSP Bureau published real-time results on their website which included: air quality at monitoring stations, results from the environmental monitoring plan, minutes of the Environmental Protection Monitoring Team meetings at Houli Park, and data from occupational safety and health management information system at Parks. Data and results are freely available to the public and demonstrate the environmentally-friendly efforts and results attained by CTSP.

Environmental Education and Training

The CTSP Bureau held four environmental education courses in 2015. In addition, the Sewage Treatment Plant in Huwei Park has been certified as a qualified environmental education facility that provides specially designed courses to offer information regarding the rainwater collection and wastewater sewage systems in our parks as well as the roles and functions of the wastewater treatment plants. The courses give participants an insight into the methods and processes of wastewater treatment and, as a result, the importance of water resources and the awareness of water conservation are reinforced. By so doing, we urge that everyone take their own steps towards water conservation in everyday lives. To achieve this goal, the CTSP Bureau held ten environmental education workshops in local elementary schools and communities around our parks in 2015 and served 267 participants.

Guided Tours for the General Public

The Houli Park Wastewater Treatment Plant welcomes visits by appointment. Over the years, the plant has received groups of visitors from government agencies, environmental groups, universities and other institutions. Between 2012 and 2015, 20 groups with a total of 1,130 people visited. After accumulating sufficient experience, the plant submitted an application on July 9th 2015 in hopes of having its environmental education facilities certified by the end of 2016., In the meantime, the Taichung Park Waste Water Treatment Plant in 2015 received 13 groups with a total of 485 visitors, ranging from scholars, experts, local borough wardens, college teachers and students from environmental engineering departments. In addition to helping four employees become certified environmental educators in 2015, the Taichung plant plans to apply for certification as an environmental education facility in 2016.

A High-Value Park

The design of Taichung Park features low-key architecture and a lush greenbelt, together lending the park a beautiful appearance. The wide green zones serve as water retention areas, foster diversified natural habitats and offer a wide range of sporting and cultural facilities for local communities. The Park is the new and sustainable look of Dadu Mountain, and stands out as a successful example of landscape crafting for the "10-year tree planting" plan in the Taichung Park Expansion Site (formerly the Dadu Mountain Ammunition Depot).

In July 2015, Taichung Park inaugurated "The Window of Life," a series of public artworks designed by a well-known Israeli artist, David Gerstein. Gerstein created 3 large pieces of outdoor artworks, whose theme focuses on Taichung Park's industrial development, its veritable reservoir of culture and talent, and the ecological environment. It is hoped that the commissioning of these public artworks will strengthen links between discovery, production, living, ecology and quality of life, such that science, technology, culture and the arts could all advance together.

Houli Park also features a water retention ecological park. It integrates a new greenbelt with the existing forest planted by the Taiwan Sugar Corporation (Taisugar). The Taisugar parcel of land features a large pond (that has a buffering function) surrounded by winding stretches of walking trails and cycle paths that offer access to views over this beautiful piece of nature nestled amongst industry. This harmonious interface between nature and manufacturing is connected to the Houfeng Biking Trail and has become a local tourism spot.

Huwei Park has a water retention pond, which takes advantage of a high groundwater table to support a steady

Environmental Education Courses Provided by Wastewater Treatment Plant in Huwei Park

Public Art – Speed Racing

A Historical Building in the Advanced Research Park-Zhongxing Assembly Hall

flow of water all year round. This pond is one of the most famous scenic spots in CTSP and is popular among the park employees and local residents in search of a quiet place to unwind.

After its transformation into the Advanced Research Park, the Zhongxing New Village Park has been conservative in its style and scale of construction and is in full compliance with the Cultural Heritage Preservation Act. The improved public infrastructure along Guangming Road and the partially completed development in the southern core section of the park have improved the amenities of Nanneilu and created a better R&D environment for tenant companies.

Project currently under construction are Erlin Park, the Advanced Research Park, Taichung Park Expansion Site, and the NEHS Junior High School building. Erlin Park has been transformed into a low-water-consumption, low-emissions science park. The water retention pond and infrastructure including bordering drainage and roads, and pipeline work has been contracted out before the second round of Environmental Impact Assessment. The 60 meters of main road in the eastern section was opened to traffic in February 2015, and is very convenient for employees and the tenant company visitors.

Advanced Research Park-Preservation of Heritage and Revitalization of Old Buildings

The Nantou County Government has designated the Zhongxing New Village Advanced Research Park region (except the south core area) as a cultural landscape. The area includes one monument, the Taiwan Provincial Government building and 11 historic buildings: the former Department of Personnel Administration, Directorate-General of Personnel Administration (DGPA); Ministry of Economic Affairs offices; Ministry of Transport and Communications Affairs Management Group; Taiwan Provincial Archives; Soil Conservation Bureau, Council of Agriculture; Agriculture and Food Agency, Council of Agriculture; Chunghwa Telecom Zhongxing Service Center; Bank of Taiwan Zhongxing New Village branch; the former TSSD News Zhongxing Office; Zhongxing Assembly Hall and the Chiang Kai-shek Hall of the National Academy of the Civil Service, Central Taiwan Training Center. These buildings all enjoy appropriate protection. However, in line with governmental reorganization, the CTSP Bureau will plan the future use of the former Department of Personnel Administration, DGPA. The building will be renovated in 2016 to create a business complex for young entrepreneurs and business service providers, designed in such a way that the building will be preserved.

Green Building Awards for the Park

Ever since its establishment, CTSP has endeavored to create a sustainable environment so that its buildings and activities will co-exist in harmony with the natural environment of the parks. Many good results have been achieved in this regard. Seven buildings have obtained the EEWH Diamond Label, the highest mark in Taiwan green building certification: construction of the National Experimental High School (NEHS); the eastern office wing of the AUO Chising factory Phase I; the eastern part of the AUO Chising factory Phase I; the eastern part of the TSMC factory Phases I, II, III, IV; the eastern construction of the Phase I offices; and the Central Taiwan Innovation Park building. Three buildings obtained EEWH Bronze Level labeling: Houli Park Waste Water Treatment Plant control center; the civil engineering design/construction turnkey project of CTSP E/S; and construction at Feng Chia University, CTSP R&D Building. The eastern part of the AUO Chising factory Phase I was awarded the MOEA Green Factory Building label. In total 11 buildings have been awarded a green building label. The construction of the NEHS building emphasizes the use of existing environmental resources and creates an eco-system, making it the first senior high school in Central Taiwan to obtain the EEWH Diamond Level label.

Central Taiwan Innovation Campus

The Central Taiwan Innovation Campus building, located in Zhongxing New Village, was also awarded an EEWH Diamond Level Smart Building certificate, making it a benchmark structure, having received both a MOEA Green Building label and EEWH Diamond Level Smart Building certification. Each year CTSP organizes MOEA Green Building Label seminars and tours to learn from green benchmark buildings in the park and to encourage owners and users of other buildings to follow suit.

A Shining Path to Sustainable Development

Central Taiwan Science Park

Key Strategies and Plans

CTSP is the youngest science park in Taiwan and is committed to being the most sustainable and the most innovative. To this end, the Park has prioritized the leverage of the historical features and resources of the Advanced Research Park to revitalize Zhongxing New Village. However, the Bureau still has the following important tasks to undertake before the project is complete.

Development of Smart Services

To keep up with trends in the smart era, the Bureau continues to devote resources to support tenant companies in the development of intelligent products. As this concept combines a range of ICT technologies, an intelligent basic environment must first be built to serve as a framework. An innovative service system suitable for an intelligent park must also be created to build a secure, healthy, energy saving and convenient living environment to strengthen competitiveness and attract the right kind of tenant companies.

Injecting Vitality, Transforming Innovation

Intensifying industrial competitiveness, the loosening of constraints on the movement of people and financial assets, and the rise of emerging economies, such as China, Russia and East Asian countries, all present severe challenges to the continued growth of any mature economy. To deal with this, the CTSP Bureau will continue to support programs and initiatives in compliance with MOST to drive innovative entrepreneurship, academia-industry collaboration, and human resource development, to grow a base of innovative enterprises, energize CTSP, develop blue oceans, support tenant companies to boost their R&D capabilities, and strengthen collaboration between industry and academia.

Taichung Park Expansion Project

Construction of South Core Parkway Ring in Zhongxing New Village Was Completed

Erlin and Chising Parks Undergo a Second EIA

As industry pioneers, science parks play a vanguard role. Yet, as the global environment deteriorates and concern for ecological environments rises, economic and environmental development have become two sides of the same coin, one cannot progress without the other. Erlin and Chising Parks, both under development, face uncertainty and the concern that economic progress brings environmental pollution and ecological damage. However, everyone at the CTSP Bureau makes continuous efforts to actively communicate with stakeholders to achieve understanding and consensus. As a result, a pending environmental litigation case was reconciled, and the Erlin and Chising projects are now entering a second stage of EIA. CTSP expects this EIA to be finalized soon and it will strictly follow all related norms. Sustainable development conditions are key to attracting outstanding enterprises to the Park and also to driving the local prosperity to which all aspire.

Taichung Park Expansion on Track

Keeping the Taiwan semiconductor industry ahead of global competition is a race against time. The Bureau is making every effort to fulfill this mission by completing Taichung Park Expansion Project on schedule and to specifications, so that tenant companies can move into what will be the world's leading wafer fabrication technology center.

Revitalizing Zhongxing New Village to Open Up a New Era of Prosperity

The unique garden landscape and historical atmosphere of Zhongxing New Village is filled with a strong cultural atmosphere. If properly managed the Village will open a new era of brightness and energy. Currently, the Bureau is collaborating with several Ministries and organizations to drive the Construction Plan for a High-Quality Future Living Lab. This plan will transform Zhongxing New Village into an experimental zone where culture, science and technology can come together. It covers all daily necessities, entertainment, medical services, healthcare, and art. The Village will attract R&D-focused enterprises, as well as young entrepreneurs, to the Park. Used correctly, and with sensitivity, the local cultural landscape will create synergies to spur on innovation. In addition, as our population ages, the promotion of long-distance intelligent health care may help raise awareness that an aging society is already upon us.

In Taiwan, land use is already saturated and greenfield development next to impossible. This makes Zhongxing New Village a wonderful place for experimentation with new lifestyles. As the Village takes shape, it will help usher in a new era of prosperity. This is the vision that the CTSP Bureau endeavors to achieve.

2015 Milestones

1/6, 1/7, 1/9	CTSP Director-General Wayne Wang led a delegation of senior executives to visit Yunlin County Magistrate Chin-Yung Li, Changhua County Magistrate Ming-Ku Wei, Nantou County Magistrate Ming-Chen Lin, and Nantou City Mayor Huai-Lin Sung, who are all administrators of cities and counties in which CTSP Parks are located.
2/6	Taichung Science Park Expansion Plan was approved and passed by the 280th session of the Environmental Protection Administration's Environmental Impact Assessment (EIA) general assembly. On March 3rd, 2015, the EPA announced the conclusions of the EIA.
2/25	During the 2014 academic year, Taiwan's General Scholastic Ability Test (GSAT) scores were announced. 124 students of the National Experimental High School at CTSP sat the test, 52% of those tested were in the top bracket and 82% in the country's top half. Nine students reached the 70 score band and two students attained a perfect score.
3/5	Minister of Science and Technology (MOST) Jyuo-Min Shyu inspected the progress of development at the Park. He was received by CTSP Bureau Deputy Director-General Ming-Huang Chen and division and department heads. He also visited Allion Labs, Inc. and Taiwan Mother Cosmo Co., Ltd, two tenant companies at the Advanced Research Park.
3/28	The CTSP Bureau organized the 2015 CTSP Joint Job Fair themed "Better Employability, Higher Salary, More Satisfaction". More than 3,000 professionals visited the fair, which offered 2,854 vacancies. Preliminary estimates suggest a matchmaking rate of 40%.
3/31	CTSP Director-General Wayne Wang presided over the groundbreaking ceremony for the construction of the NEHS junior high school building, which was attended by Legislative Yuan members Chiung-Ying Yang and Chi-Chang Tsai and ASIP Chairman Kuo-Jung Shen, among other VIP guests, attended.
5/22	The CTSP Bureau convened the MOST & Allied Association for Science Park Industries Symposium, chaired by MOST Vice Minister Ter-Shing Chen. ASIP Chairman Kuo-Jung Shen, park directors, the Ministry of Labor, the Ministry of Economic Affairs, the Ministry of Education and many CTSP tenant companies attended.
5/26	MOST held an open hearing about policy and EIA at the Erlin Township Library, chaired by MOST Director-General Chiu-Hui Chiu, and attended by CTSP Bureau Deputy Director-General Wen-Fang Shih and other CTSP Bureau representatives.
6/2	The CTSP Bureau hosted the CTSP Bureau and MOTC Weather Bureau Collaboration Agreement Signing Ceremony, where. CTSP Director-General Wayne Wang and MOTC Weather Bureau Director-General Tzay-Chyn Shin signed the Agreement.
6/25	The CTSP Bureau hosted a strategic alliance for the improvement of the educational environment of Erlin Park. The quad-bilateral agreement was signed by CTSP Director-General Wayne Wang, Changhua County Magistrate Ming-Ku Wei, National Experimental High School at CTSP Principal Kuo-Hsiang Chen, and Changhua County Public Wan Shing Junior High School Principal Shih-Ying Chao.
6/26	The CTSP Bureau held the 2015 CTSP Investment Seminar, chaired by CTSP Director-General Wayne Wang.
7/5	At the 2015 First Tier Award Ceremony of the Innovation and Entrepreneurship Incentive Program, teams of CTSP tenant companies Caro-pharming, Smart Calibration, and Alchemy won the Outstanding Entrepreneurship Award, which was presented by Minister of Science and Technology Jyuo-Min Shyu of MOST.

7/27	The CTSP Bureau hosted the 12th CTSP anniversary celebration themed "CTSP, Second to None", which was attended by Minister without Portfolio Chia-Chi Hsiao and ASIP Chairman Kuo-Jung Shen, among 300 VIP guests who joined in the festivities.
8/29-9/2	Minister of Science and Technology (MOST) Jyuo-Min Shyu led CTSP Director-General Wayne Wang and representatives from Hsinchu and Southern Taiwan Science Parks to visit China and attend the 3rd Cross-Strait Forum on Science and Technology, held in Xi' an.
11/11	The Occupational Safety and Health Administration, Ministry of Labor, honored the CTSP Bureau for outstanding performance in 2014.
11/14	The winners of the second tier of the Innovation and Entrepreneurship Incentive Program were announced. CTSP teams were coached to fruitful results, and "Morcellbag", "Neurospeed" and "MangaChat" finished in the top ten and were awarded High Potential Prizes for medical biotechnology, innovative technology and cloud applications.
12/3	The CTSP Bureau and ASIP jointly held a gathering for senior executives, at which Taichung Mayor Chia-Lung Lin presented a grand vision for Taiwan. Attendees included former National Science Council member Chien-Jen Chen and CTSP Director-General Wayne Wang. CTSP tenant companies exchanged opinions on energy, taxation, industrial development, talent retention and Park facilities.
12/8	The CTSP Bureau participated in the 2014 Government Internal Control Evaluation and was given an Award of Excellence for Internal Control. Taichung Park Environmental Difference Report was reviewed and approved at the 292nd session of the EPA's Environmental Impact Assessment (EIA) general assembly.
12/11	The Board of Science and Technology (BOST), Executive Yuan, reviewed and approved the Future High-Quality Lifestyle Experimental Zone Design and Construction Plan of the Advanced Research Park.

Central Taiwan Science Park Bureau, Ministry of Science and Technology

Publisher and Chief Editor: Wayne Wang

Executive Deputy Editor: Ming-Huang Chen

Editing Consultants: Wen-Fang Shih, Mei-Hsiu Lin, Ming-Chih Lai, I-Mei Huang, Jen-Chun Chu, Yao-Tang Hong, Tung-Chin Hsieh, An-Yu Li, Shih-Ying Liu, Hao-Cheng Chien, Yi-Chen Chiu, Hui-Hsuan Chang,

Editorial Members: Shun-Ting Yang, Mei-Chu Chiu, Rong-Feng Tsai, Ching-Liu Hu, Po-Liang Tsai, Ching-Liu Hu, Po-Liang Tsai, Li-Mei Dai, Yan-Chun Chen, Su-Chuan Lin, Chi-Chun Wang, Wan-Yu Wu, Ling-Hui Hung

Executive Editor and Proofreader: Su-Chin Yang

Design and printing: INNO Design Co.Ltd.

Publisher: Central Taiwan Science Park Bureau, Ministry of Science and Technology

Address: No.2, Zhongke Rd, Xitun Dist, Taichung City

Phone: +886-4-25658588

Fax: +886-4-25658800

URL: http://www.ctsp.gov.tw

Publication Date: May 2016

Price: NT$ 200

GPN: 2009402238

ISSN: 2073-6622

科技部中部科學工業園區管理局
Central Taiwan Science Park Bureau, Ministry of Science and Technology
Address：No.2, Jhongke Rd., Situn District, Taichung City 40763, Taiwan R.O.C.
Tel：(04)2565-8588．Fax：(04)2565-8800．Website：http://www.ctsp.gov.tw

Central Taiwan Science Park

ISSN 2073662-2
9 772073 662003
GPN：2009402238
Price：NT$200