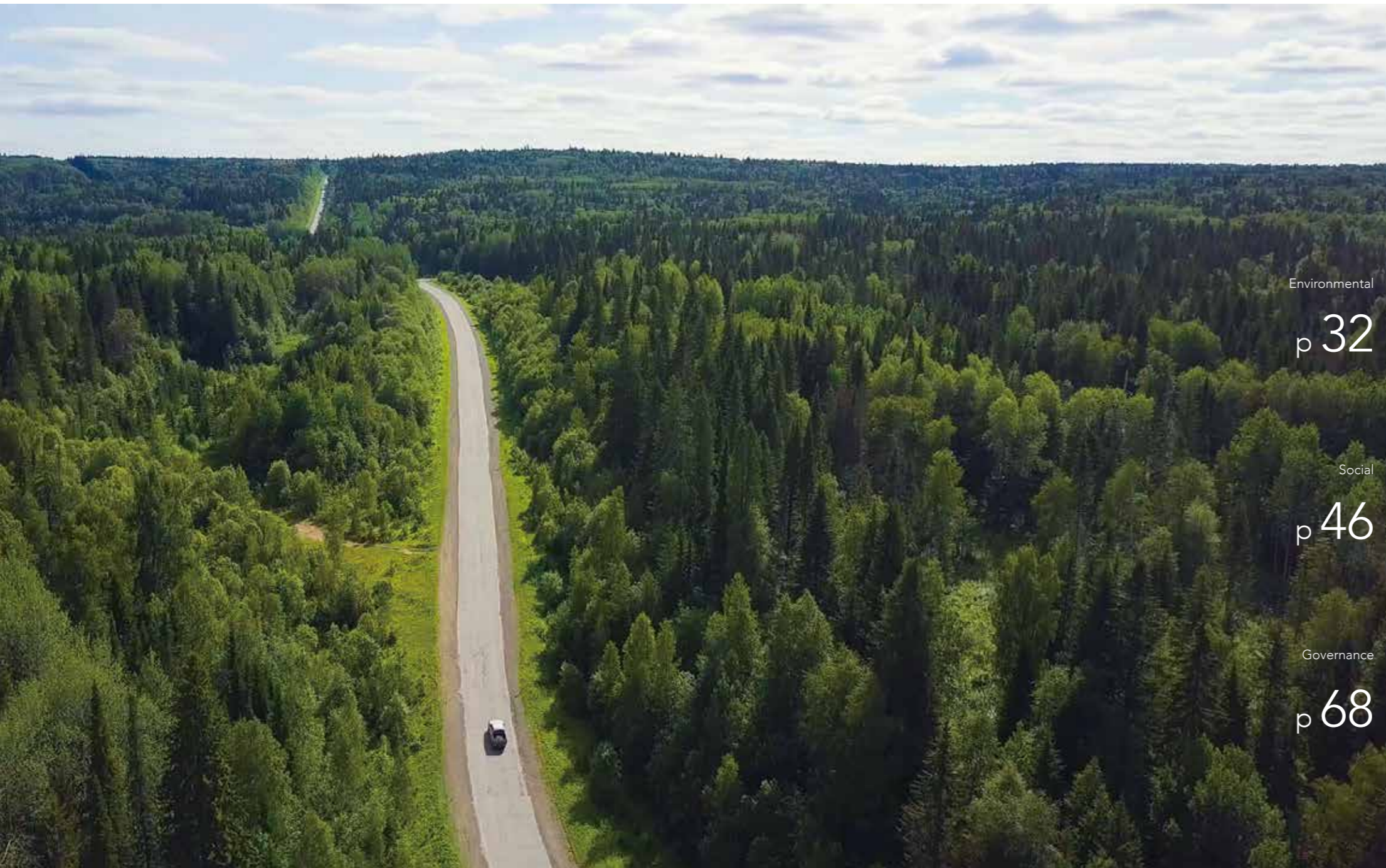


Corporate  
Social  
Responsibility  
Report



# 2019 CSR Report





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# Contents

## Chapter 1

Our Earth deserves our serious attention. We are committed to protecting our planet; this is TTY's corporate mission as a citizen of the Earth.

## Chapter 2

Everything we do focuses on people. We care deeply for everyone involved in the manufacturing of our products to ensure peoples' dignity and show respect.

## Chapter 3

To exercise corporate governance, we have adopted the high standards of The OECD Principles of Corporate Governance.

## Appendix

Other Information Disclosure

GRI Standard Index

# Letter from the Chairman



The year 2019 was not uneventful. Disasters and chaos, one after the other. Wildfires in Australia that lasted for four months destroyed more than five hundred million animals; COVID-19 at the end of the year gripped the globe with a high infection rate and severe economic impact, even more so than SARS. It has now become the immediate and primary challenge for corporations to act on sustainability issues surrounding climate change and disease prevention.

TTY works to connect the national economy, people's psychological wellbeing, and environmental sustainability. Based on ethical operations and CSR facilitation, in October 2019, TTY founded a Sustainable Development Committee (SDC), aiming at a more specific, more planned actualization of social responsibility and sustainability goals. The same year, TTY received a silver prize at the 12th TCSA award, recognizing our effort and determination to continue doing the right thing.

For corporate governance in 2019, TTY has applied stricter business governance, proper communication with shareholders, which has resulted in a solid performance. For the fourth consecutive years since 2017, TTY is rated in the top 5% performance of TPEX-listed in the Corporate Governance Assessment.

On society, we spoke about people-oriented wellness. Employees were encouraged to create a charity club "Boshiyuan"; a mid-autumn festival event with Yu-Cheng SWF (Social Welfare Foundation) to share the festive with MCC (Mentally Challenged Children), and a Second-hand Charity Sale. These activities are the realization of our colleagues' care and love for these less-privileged groups. TTY also arranged actual visits and thorough phone calls to connect with the local communities. For more than a decade, the placement of educational sessions around the neighborhoods of the TTY manufacturing area in Lioudu, Chungli, even further to the rural areas of Kinmen, Matsu, Penghu, Hualien, Taitung and Ludao, and keeps forging a solid bond with the regional communities. Moreover, Summer Internships for the Medical and Pharmacy Department students are provided to prepare our young biotechnology professionals for the future of Taiwan's upgraded biotechnology industry.

On the environmental front, TTY started by lowering the pollution and energy consumption during the manufacturing process. The goal is to minimize water utilization and wastewater strength. Knowing the impact and damage of climate change made to the entire world, TTY pushes forward our steps of control and management over climate impact. Each year we decrease the pollution and energy wastage by 1%, and the results can be seen through the management over wastage, air pollution, and wastewater treatment. The standard management procedure will continue to be observed. TTY expects our suppliers to walk side by side with us on the CSR and heading towards operational sustainability.

TTY realizes the importance of environmental friendliness and that it must be agreed on by all colleagues, so that the implementation can last. In 2019, we partnered with eco-groups to conduct lectures over issues including Nature and Ecology, arranged riverside clean-ups and beach clean-ups. Such activities that involved natural experiences and seeing the beauty of Taiwan are the best examples in paying our respect to Mother Earth, by both individuals and corporations, to co-live with the globe and the variety of creatures around us.

Nature's reaction to human beings and the COVID-19's impact on the entire world are reminders for all corporates to activate necessary, positive changes over Corporate Governance, allowing developmental sustainability and emergency backup system to be built within the operation.

The shifting year of 2019 is a wake-up call for us all that only by sustainable operations and Earth-friendly actions can the existence of corporates be a welfare to the people and the community. Overlooking the year of 2020, on the path of CSR, TTY shares stricter and higher demands to comply with full disclosure of regulation follow-ups; on the operational performance and Corporate Governance, TTY keeps looking for potential sustainable products, strengthens the operation of the board of directors, and ensures the entity is a legal taxpayer. On the shareholders' concerns, TTY promises the realization of CSR policy through constant, tight communication and positive responses. TTY shall further carry out the words on sustainable development, honor every duty as a corporate citizen, and stand as a positive strength in and for the community.

Lin Chuan  
TTY Biopharm Chairman



# About TTY CSR Report

In response to the trend of corporate social responsibility in recent years, TTY Biopharm Co., Ltd. (TTY) has issued a corporate social responsibility report for four consecutive years. Through this report, we demonstrate, under the goal of sustainable management, the performance data and related management methods implemented for corporate governance, maintenance of patients' health and safety, responsible products and manufacturing, environmental protection, supply chain management, employee care and social welfare. We also propose future improvement goals to implement corporate citizenship through concrete actions.

If you have any questions or recommendations regarding the content of this report, feel free to contact us.

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## Reporting Boundaries and Coverage

This report discloses data with the period from January 1st, 2019 to December 31st, 2019. The scope of this report includes the Company's Nangang Headquarter, Chungli Factory, Lioudu Factory, Neihu Factory, Pharmaceutical Development Center and Translational Research Center, excluding information on the Company's representative office in Vietnam and subsidiaries (refer to page 16 for TTY subsidiary information) except for financial performance. Any changes in information across multiple years or within the scope of disclosure will be explained separately in this report. Environmental and social data are collected and compiled by various responsible departments, and are presented the calculation method used for internationally adopted indicators.

## Compilation Guidelines

This report is prepared and compiled according to the GRI Sustainability Reporting Standards (GRI Standards). At the same time, this report follows the core option of GRI Standards, and contains the GRI Content Index.

## AA1000 Assurance Standard

We have sought external assurance to enhance the credibility of this report, and have appointed the British Standards Institution (BSI) to perform external assurance for the information disclosed in this report. BSI cites Type 1 - Moderate Level of Assurance in the AA1000 Assurance Standard 2008 formulated by global non-profit organization Accountability as the assurance standard.

The financial data disclosed by TTY Biopharm are taken from the consolidated financial statements audited and attested by KPMG Taiwan according to the International Financial Reporting Standards (IFRSs), and are denominated in New Taiwan dollar.

## Issuance Frequency

The Company promises to continuously issue a corporate social responsibility report every year, and expects to issue the report once a year in the future. The last report was published in July 2019. This report is published on the CSR section on the Company's website for stakeholders to download and review. This report is published in July 2020. It is estimated that the next report will be published in July 2021.

## Stakeholder Engagement



### Identification of Stakeholders

TTY references the five principles of Stakeholder Engagement Standard, AA1000 SES 2011 to identify the key stakeholders. The five principles are as follows: (1) Dependency, (2) Responsibility, (3) Tension, (4) Influence, and (5) Diverse Perspectives. The stakeholders identified this year include the government, shareholders/investors, customers (including hospitals and medical institutions, patients, and manufacturers), neighborhood community and suppliers.

### Guidelines on the Communications with Stakeholders

Each TTY department communicates with stakeholders through normal business dealings, routine investigations, interview analysis and other methods. The topics of concern to different stakeholders differ according to the nature of business. Therefore, we truly understand the needs and expectations of stakeholders through a diverse range of communication channels, and take into consideration of their perspectives to adjust our operations management. Moreover, we also provide appropriate responses to stakeholders' key concerns.

## Key Topics and Concerns

The following table shows the 2019 achievement with stakeholders, which is presented on March 16, 2020, by CSR Promotion Center to Sustainable Development Committee (SDC).

Stakeholders	Material topics of concern	Communication channels between two parties	Communication Frequency	Results
Government agencies	<ul style="list-style-type: none"> <li>Corporate Governance</li> <li>Ethics and Integrity</li> <li>Sustainability Development Strategy</li> <li>Regulatory Compliance</li> </ul>	Visit; Phone; Official correspondence letters; E-mail; Dissemination; Policy and regulation training; GIA (Government, Industry, Academy) seminar; Regulatory audit	Irregular intervals	<ul style="list-style-type: none"> <li>3-time participation in TPEX disseminations</li> <li>10-time participation in GIA seminars</li> <li>398 official correspondence letters</li> <li>Occupational safety audit</li> <li>Toxic substance drill</li> </ul>
Employees	<ul style="list-style-type: none"> <li>Labor/management relations, Human Rights</li> <li>Workplace Environmental Health and Safety</li> <li>Recruitment and Turnover rate</li> <li>Remuneration</li> <li>Training and Development</li> </ul>	Annual performance interview and evaluation  Labor and employer meeting  Personnel announcement; Internal employee website; Sexual harassment complaint channel; Infringement report; Stakeholder complaint box; Orientation plan and satisfaction survey; Worker welfare committee; Internal training and e-learning; External training fund	Twice annually  Quarterly  Irregular intervals	<ul style="list-style-type: none"> <li>Initial setting, mid-term adjustment and final assessment. 94% of employees underwent regular performance checks in 2019.</li> <li>4 labor and employer meetings on 3/29, 6/27, 9/11 and 12/17.</li> <li>1 employee complaint case in 2019. [Case received on 1/11, reviewed on 4/26 after investigation.]</li> <li>Orientation plan (satisfaction survey included) started in July 2018; satisfaction rate in 2019 scored 91.07 out of 100.</li> <li>New hire turnover rate 4.1% (calculation based on the new hire stay for more than 6 months.)</li> <li>Worker welfare committee created according to Employee Benefit Regulations and in charge of the welfare of the workers.</li> <li>Annual budget and welfare for marriage, bereavement, illness and childbirth; birthday cash, festival cash and travel subsidy.                             <ol style="list-style-type: none"> <li>2019/2/27 Announcement for the commencement &amp; subsidy amount for employee travel</li> <li>2019/3/4 Announcement for the educational subsidy (2018 first semester scholarship/study aid)</li> <li>2019/7/30 Announcement for 2019 employee health examination</li> <li>2019/8/29 Announcement for the educational subsidy (2018 2nd semester scholarship/study aid)</li> <li>2019/8/31 Family Day – Leofoo Village</li> <li>2020/01/17 Year-end Party at Hilton Taipei Sinban</li> </ol> </li> <li>37 professional courses in 2019. Internal course satisfaction rate 4.61/5. 12 training hours/person/year.</li> <li>191 received subsidies for external learning courses. Total 2,222 training hours and 997,691 TWD reimbursed. The learning results are presented by written reports and presentations.</li> </ul>
Customers	<ul style="list-style-type: none"> <li>Responsible products and manufacturing</li> <li>Customer Health and Safety</li> <li>Marketing and Labeling</li> </ul>	Exhibition; Academic event; Educational seminar; Academic platform; Clinical trial; Factory visit and inspection; Visit; Phone; E-mail; Written letter	Irregular intervals	To produce and provide quality products and market-oriented services for domestic and international customers, the following actions and activities are organized (including but not limited to): <ul style="list-style-type: none"> <li>37 domestic/international medical seminars and exhibitions</li> <li>149 educational/academic seminars/activities</li> <li>Academic platform: maintain the Taiwan Hematology Academy</li> <li>Clinical research: 9 cases of Oncology and severe illness</li> <li>16 factory visits by 246 participants</li> </ul>

Stakeholders	Material topics of concern	Communication channels between two parties	Communication Frequency	Results
Investors	<ul style="list-style-type: none"> <li>Operational Performance</li> <li>Corporate Governance</li> <li>Shareholder Participation</li> </ul>	Annual shareholder meeting; Annual report  Quarterly financial report  Operational announcement  Investor conference  Material information announcement; Press release; Corporate website; Phone; E-mail; Investor relation mailbox; Share affairs and investor contact; Reporter Q&A; Domestic and international analysts visit	Annual  Quarterly  Monthly  Quarterly or more frequently  Irregular intervals	<ul style="list-style-type: none"> <li>36 material information announcements in Mandarin/English</li> <li>80 e-mail replies</li> <li>4 investor conferences (3 in Taiwan, 1 overseas)</li> <li>10 conference calls</li> <li>14 foreign analysts' visits</li> <li>60 local analysts' visits</li> <li>30 replies to shareholders' calls</li> </ul>
Suppliers	<ul style="list-style-type: none"> <li>Sustainability Development Strategy</li> <li>Corporate Image</li> <li>Supplier Management</li> </ul>	Supplier survey  Supplier audit  E-mail; Phone; Visit	Bi-annual  Annual  Irregular intervals	<ul style="list-style-type: none"> <li>Email or phone call contact with suppliers on supply conditions and operational status checks every 2 months at the least.</li> <li>Visit to suppliers and manufacturers to ensure production equipment renewal, regulatory compliance of document and quality. Visit to 10 raw material suppliers in Korea, Czech Republic, Italy, and China.</li> </ul>
Neighborhood	<ul style="list-style-type: none"> <li>Workplace Environmental Health and Safety</li> <li>Regulatory Compliance</li> <li>Industrial Interactions</li> </ul>	E-mail; Visit; Phone; Meeting; Education	Annual or Irregular intervals	<ul style="list-style-type: none"> <li>Notification of industrial policies and orders</li> <li>Chungli Industrial Labor Safety and Health Promotion Association and Industrial Zone Regional Joint Defense Organization Assembly to provide communication channels, training and education of member companies at the service center.</li> <li>Keelung Industrial Association Labor Training Course</li> <li>Community fire brigade annual drill at TTY</li> </ul>

## Materiality Analysis on Issues

After communicating with stakeholders, each department compiles a list of topics of concern to stakeholders by including major events in the industry for the year, and set the internal and external boundaries covered according to the scope of impact arising from these topics. Comparing to the previous achievements, economic performance is added as Company Material Topic and Topic Boundary, as it is a key indicator as to whether a corporation is capable of sustainable operation.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Topic	Customer health and safety	Marketing and labeling	Responsible products and manufacturing	Economic performance	Corporate governance	Intellectual property rights protection	Emissions	Exhaust gas, effluents and waste, Toxic Chemical Substances	Ethics and integrity	Employment	Training and education	Labor Relations	Energy	Indirect economic impact
Category of GRI Standards	Social	Social	Social	Economic	General	Economic	Environmental	Environmental	General	Social	Social	Social	Environmental	Economic
GRI indicators	416-1	417-1~3	Customized material topic	201-1	102-18	102-15 / 416-1	305-2	306-1~3	102-16	401-1~2	404-1 / 404-3	402-1	302-1	203-1
The Purpose of Establishing Management Approach	Ensure the accessibility to quality drugs for regaining health.	Product name, packaging, package inserts, label and marketing advertisement to be in compliance with regulations.	To ensure the public's health, TTY continues to improve the process of target products' dosage form and quality optimization.	Ensure stable operation to achieve sustainable operation.	Enhance Corporate governance to achieve sustainable operation.	Improve Intellectual property and confidentiality management mechanism, minimize product launching risk; increase investment over manufacturing to ensure new products.	Eco-friendly based efficient production.	In compliance with local regulations on disposal of waste.	Honest operation, assume stakeholder liability.	Continue elevation of TTY manpower to ensure continue growth of employees and the company.	Personnel training to equip practical capacity for dedicated fields and self-positioning.	Employees to adapt and develop their talents, growth and move towards sustainability.	Ongoing energy improvement to minimize energy cost, GHG emission and related environmental impact.	Evaluation of community impact brought by revenue growth, profit-gaining activities and factory construction and operation.
Management Method	For products made by other countries, ensure the process and quality complies with laws and regulations of country of origins and of Taiwan; For TTY manufactured products, the process and quality must comply with laws and regulations of Taiwan and that of the importing country.	Package inserts attached as required by regulations; links to package inserts on TTY website for inquiry; marketing advertisement submitted to authorities for review and approval No. before publication.	Create international Pharmaceutical Development Center and manufacture sites, with product development, production, QC test and analysis, storage and distribution complied with GMP and GDP regulations.	Regular financial performance review by BoD and Certification of Finance by authorized accountants.	SDC to facilitate sustainable operation and implement CSR.	Introduce and apply TIPS as IP management regulation for TTY; regular audit and constant improvement over management system; evaluation of Risk of Patent Infringement before launching new products.	Disclosure of GHG emission, Unit product energy consumption cut-down.	Dedicated waste disposal personnel, waste cleaning program.	Established EMPC to build a corporate culture of honest operation and holistic development plan.	Promotion system, salary package for employees with leadership quality and excellent performance; recruitment program for external manpower.	TTY short/mid/ long term training program of specific domains for employees of TTY University.	Effective communication mechanism, multiple development opportunities and training courses.	Consolidation and carbon footprint cut-down, low energy consumption equipment to minimize overall usage.	Eco-actions, safety and security, public welfare events to add trust and connection with local communities.
Impact on the inside and outside of the organization	internal	■	■	■	■	■	●	■	■	■	●	■	●	●
	external	▲	▲	▲	▲	▲		▲	▲	●	●	●		●
Legend	Direct Impact	■												
	Contributing Impact	●												
	Business Impact	▲												
	Stakeholder													

## About TTY Biopharm

TTY Biopharm Co., Ltd. (hereinafter referred to as TTY Biopharm, TTY, the Company, us) was founded on July 22, 1960. It is currently headquartered at 3F, No. 3-1, Park Street, Nangang District, Taipei City, and has a total of 554 employees.

TTY Biopharm is a pharmaceutical company that specializes in the development of Specialty dosage formulations and new drugs. We are one of the few companies in Taiwan that possess the technology to provide one-stop pharmaceutical services from research, development, manufacturing to sales. Major business activities include manufacturing, processing and trading of various medical supplies and chemicals. TTY's main products include oncology (cancer) drugs, anti-infective drugs, and medications for chronic diseases. The Company was listed on Taipei Exchange in September 2001 with a share capital of NT\$2.486 billion.

The Company's competitive niche lies in liposome and microsphere technology platforms. In addition to our Taiwan-leading R&D capabilities, the capacity to deliver good value and stability in the products we make provides the basis for the Company's revenue growth.

TTY Biopharm provides services mainly in Taiwan, while Europe constitutes 9.29% of our overall export sales. Other export destinations include Thailand, Philippines, Vietnam, and Malaysia. In terms of distribution, products are mostly sold directly to medical centers and regional hospitals, and through distributors to local hospitals, clinics and pharmacies. People who benefit from the Company's products are mostly cancer/tumor patients, hospitalized patients with infection, and patients with conditions such as gastroesophageal reflux, osteoporosis, high uric acid, and bacterial infection.

TTY Biopharm has a total of six operating sites, including (1) headquarter, (2) Chungli Factory, (3) Lioudu Factory, (4) Translational Research Center, (5) Pharmaceutical Development Center, and (6) Neihu Factory.

**“ To Enhance R&D Technology  
To Improve the Quality of Human Life ”**

## TTY Financial Operation Overview TTY 2015-2019 Financial Figures ( TWD )

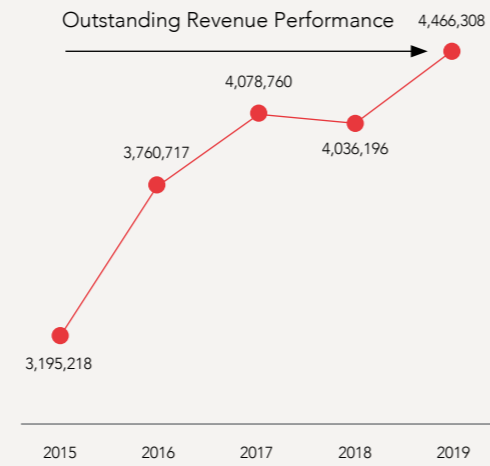
Item	Unit	2015	2016	2017	2018	2019
Paid-in Capital	Thousand	2,486,500	2,486,500	2,486,500	2,486,500	2,486,500
Operating Revenue	Thousand	3,195,218	3,760,717	4,078,760	4,036,196	4,466,308
Gross Profit	Thousand	2,188,349	2,556,944	2,671,059	2,663,879	2,907,241
Operating Income (Loss)	Thousand	789,787	1,179,687	1,256,990	1,059,677	1,228,609
Income Tax	Thousand	279,003	257,335	226,753	205,769	294,949
Net Income	Thousand	1,246,592	1,254,724	1,368,314	1,462,299	907,705
Net Income attributed majority	Thousand	1,211,018	1,193,324	1,344,731	1,461,381	900,081
EPS	TWD	4.87	4.80	5.41	5.88	3.62
R&D Expense	Thousand	340,289	341,685	295,675	361,063	298,552
Labor Salary and Benefit Cost	Thousand	764,352	862,873	881,703	938,506	1,000,476
Cash Dividend	TWD/ share	3.5	3.8	4.5	4.5	4.0



## TTY Subsidiaries

Company Name	Subsidiary
TTY	Xudong Haipu Pharmaceutical Industry Limited Company (Cayman)
	Worldco Int. Co. Ltd. (HK) (Worldco Int.)
	American Taiwan Biopharma Philippines
	TSH Biopharm Co., Ltd. (TSH)
	EnhanX Biopharm Inc. (EnhanX)
Worldco Int.	Chuang Yi Biotech (CYB) Co., Ltd.
	Worldco International Co., Ltd (Beijing) (Worldco Beijing)
	Worldco International Co., Ltd (Chengdu) (Worldco Chengdu)
Xudong Haipu	EnhanX Biopharm Inc. (EnhanX)
	TTY Biopharm Korea Co., Ltd.
Worldco Int.	TTY Biopharm Mexico S.A. de C.V.
	TTY Biopharm Mexico S.A. de C.V.
EnhanX Biopharm Inc.	EnhanX Biopharm B.V.
TSH Biopharm	Chuang Yi Biotech (CYB) Co., Ltd.
CY Biotech	Immortal Fame Global Ltd.
	Chuang Yi (HK) Biotech Co., Ltd.
Immortal Fame Global	Chuang Yi (Shanghai) Trading Co. Ltd.

## Consolidated Income (Thousand TWD)



## Gross Profit (Thousand TWD)



## Advanced R&D Technology



### Liposome

Possessing unique techniques, TTY inserts the API requested by doctors or pharmaceutical companies into a tiny ball that is only 1/500 times the diameter of the hair. The life cycle and efficiency are enhanced year by year, and yield rate, price and cycle-time are getting better and faster along with the delivery dates request by foreign pharmaceutical customers. The evidence proves that TTY has become the leader of Liposome commercial mass production in Asia.



### Conventional Dosage Form Products

TTY has years of experience on conventional dosage form development, especially in oral (immediate and slow release), injection, ointment and gel administration forms; TTY obtains extensive product combinations and has our own market share worldwide.

TTY has three mass production sites as follows:

- (1) Chungli Factory: multiple cancer drug production lines, such as oral tablet, oral capsule, liquid solution and liposome.
- (2) Lioudu Factory: non-cancer drugs in oral tablet, oral granule, oral capsule, liquid solution, liposome, slow release microspheres for injection and lyophilized form of products.
- (3) Neihu Factory: Clinical trial products including sterile injection form and excipient production lines.



### Pharmaceutical Development Technology

More than 20 years of partnership with international pharmaceutical companies, TTY has accumulated solid, professional R&D and production capacity. TTY even provides holistic pharmaceutical R&D technology and procedure, including formulation development, analytical method development, process development, animal studies, functional excipient synthesis, GMP production, and provision of documentation for Chemistry, Manufacturing and Controls (CMC).



### CRO Translational Research Center

TTY focuses on drug innovation to meet urgent medical needs. We provide research service on the basis of new drug development and concept validation experiences; assist drug development for pre-clinical candidates and clinical specimen through a number of analytical and test methods.



# TTY Development Strategies

## Short-term Development Plans

- Continue search and introduce suitable drugs to meet the unsatisfied medical and clinical needs; to be the best clinical therapy partner with enhanced solution for the clinical doctors.
- Enhance the integration of commercial products and value chain, be the best CRO/ CMO/ CDMO partner of global Specialty drug companies.

- Ensure key products launching dates as scheduled to seek short term profit. Increase production capacity with stable manufacturing of long life products.
- Continue subsequent item development over high-barrier technology platform for Specialty product combination, and enhance commercialized economic scale.
- Carefully choose development target of innovative drugs and partner with international marketing companies; release marketing authorization when appropriate while retaining market right in certain target countries to increase the number of direct sale drugs of long product life cycle, seek R&D expense balance, earn royalty and revenue share.

- Training courses to follow pharmaceutical regulation updates; international and domestic inspection to sustain production factory stability and superior quality.
- Properly plan the production line, production and sale coordination in production management process to ensure the balance of production capacity and marketing.
- Independent manufacturing and management of raw materials, functional excipient and special packaging. Supplier quality regulations to implement cost control and stable supply sources.

- Local and overseas market income to support product development and new factory expansion.
- Income from OEM and co-development of international Specialty to cover factory operation expense.
- Development results introduced to global market with overseas authorization; combine product and R&D income to support new products and new business, and create a positive business cycle.
- Focus on global biotech investment target; monitor target countries' medical care changes; create group ultimate profit, seize mid-to-long term development opportunity.
- Quick recruitment and cultivation of local manpower with startup ability; enhance colleagues' product development capacity to meet scientific, regulation and enterprise operation requirements; enhance department internationalization for future growth potential.

## Mid-term Development Plans

### Marketing Strategy

- Ongoing optimization of business activities and business life cycle management according to each target market.
- TTY international business development to be expanded through Company owned and co-developed competitive Specialty Drugs, and sustainable CDMO business pattern.
- Speed up the expansion of sales and distribution overseas; strengthen existing sale agents' target management; enhance Company mid-to-long term revenue and international development.

### R&D Strategy

- Drug manufacture sites that follow, renew along and comply with international drug regulations.
- Through critical strategic actions, including M&A, strategic alliances and joint venture to maximize manufacture energy and supply chain management; consolidation of value chain from R&D to manufacture.

### Production Strategy

- Seek for the evaluation and investment balance of target drug development for initial, middle, final phases; optimize product combination and the competence of target disease treatment domain (Specialty Drug, Biological Drug, new drug). Sustain company short-term and long-term growth.
- International partnership and accelerated development to meet the unsatisfied medical needs, high-barrier drugs and the needs of brand-name drugs and new drugs of Specialty dosage form of profitable value.

### Operation Strategy

- Keen to have New drugs, drugs of Specialty dosage forms, Biological drugs and medical treatment technology development, to push closer to the more prepared product combination.
- Continue to strengthen and develop high-barrier dosage drug platform to extend its application benefit.
- Continue on the expansion of development and manufacture territory of drugs for cancer, drugs for intensive care, anti-infective drugs, and drugs of Specialty dosage forms; continue on the advancement of international market share.
- Become one of the world's most innovative biotech pharmaceutical companies, and the best partner to work with other international biotech companies.

# TTY Manufacture Quality Assurance



## Responsible Storage and Cool Chain Logistics

TTY Biopharm is the leading manufacturer in the commercial mass production of liposomes in Asia. The Cool Chain Logistics is one of the key cGMP elements, TTY decided to focus on the material topic of "Responsible Storage and Cool Chain Logistics" after internal discussion. The operation implements the stability of drug quality and safety assurance through the Cool Chain Management Process, this allows TTY to fully implement SDG Goal 12 on "Ensuring Sustainable Consumption and Production".

### 1. API Management

- 1.1. Liposome is a product under the Cool Chain management. Since the arrival at factory, the API and excipient of Liposome would be stored in temp-controlled warehouse and refrigeration equipment until used by Manufacture Department.
- 1.2. API storage and management falls under GDP\* of PIC/S GMP. Despite that Taiwan's API management is not yet under GDP, our Chungli Factory has followed international management system and is ready to follow future possible regulations in Taiwan.

### 2. Product Storage

- 2.1. 2°C ~8°C Temperature Control: Upon the completion of the product packaging, it would be immediately stored in a warehouse of 2°C ~8°C. To ensure 24-hour Temp-control, all refrigeration warehouses are equipped with 2 air conditioners and fans. In other words, either one would cover the faulted air-con.
- 2.2. Backup Power Generator: All equipment of refrigeration warehouses are linked to backup power to prevent equipment malfunction or power disruption, ensure all Liposome is stored properly at most suitable environment.
- 2.3. Temperature Mapping Qualification: Temperature Mapping Qualification (TMQ) is conducted every refrigeration warehouse at the coldest and hottest season of a year to ensure the temperature at every corner meets the requirement of storage.
- 2.4. General Refrigeration Warehouse Operation Maintenance: In addition to two round inspections every day, inside manufacture warehouse the nonstop data logger and alarms are in place. The alarm setup controls high/low temp spots based on the result of TMQ, so that the alarm system works properly. When the temperature exceeds a certain range, flashing and sound alarm will go off. If warehouse personnel fail to arrive in the first place, security will notify authority upon receiving the alarm.
- 2.5. Access Control: Every refrigeration warehouse in Chungli Factory is access controlled, and only authorized warehouse personnel may enter the factory for operation. This is to assure products and minimize the change of temperature by unnecessary entry and exit.

\* Good Distribution Practice (GDP).

### 3. Cool Chain Product Transportation

- 3.1. 2°C ~8°C end-to-end temperature control of the transportation and delivery of Liposome to hospitals and clients.
- 3.2. To find a GDP qualified logistic company, our warehouse and QC departments have made a number of visits and audit to ensure the storage, delivery and temperature control of LN2, gel pack and dry ice. TTY then signs agreement with the company, and the company becomes TTY qualified Cool Chain logistic suppliers.
- 3.3. Refrigerated Delivery Box, Ice, TTY Logo Void Tape
  - 3.3.1. Refrigerated Delivery Box: TTY Liposome is packed in most suitable Refrigerated Delivery Box made with qualified material in scientific method, delivered from Chungli Factory refrigerated warehouse.
  - 3.3.2. Ice: the temperature in the Cool Chain process is affected by the ice in the Box. Therefore a maximum number of usage, effective period and other standard procedure are specified as well.
  - 3.3.3. TTY Logo Void Tape
- 3.4. 3M Monitor Mark: Each Box is attached with 3M Monitor Mark. Every year TTY invests nearly a million TWD and purchases WHO qualified 3M Monitor Mark. Upon receiving the Cool Chain products, if a hospital recipient finds the Monitor Mark shows abnormal color, the goods can be returned to TTY.
- 3.5. Regular Validation Until none Temperature Abnormal Case
  - 3.5.1. Transportation Time Test: A Cool Chain delivery should not exceed 24 hours from pickup to proof of delivery, and should be delivered, by ground or by air, to Taiwan mainland, Kinmen and Penghu. 3 times of statistic tests and route dynamic tests each should be performed to different box sizes, and the shortest delivery time should be selected and recorded as a standard for general transportation management.
  - 3.5.2. Transportation Route Validation: Validation should be run once every summer and winter; to eliminate various factors affecting temperature changes during transportation, the test routes should include ground and air delivery.

### 4. Ongoing Improvement

In 2018, TTY renewed and updated our Refrigerated Delivery Box Validation to version 3, and completed SOP amendment and stipulation and manufacture personnel training. Current operation is stable and meets clients' requirement as well. Chungli Factory has implemented responsible storage and Cool Chain logistics, and will continue to act in compliance with updated PIC/S GDP, enhance and improve QC process, manufacturing safety and people's drug safety.



# Taiwan's Unique Automated Liposome Mass Production Factory



## Chungli Factory

Established in 1968, Chungli Factory is the first pharmaceutical factory in Taiwan to have the capacity to independently mass-produce anti-cancer injections. The factory mainly produces cytotoxic injections, liposome injections, and oral capsules for cancer.

### Features

- The sole liposome manufacturing equipment for automated mass production in Taiwan.
- Oncology facilities and exclusive equipment complied with PIC/S GMP international requirements.
- Successfully passed international pharmaceutical standards and various inspections conducted by countries of USA, Europe, Japan, etc., and exported products globally.
- Best CMO (contract manufacturing organizations) partner for international pharmaceutical manufacturers.

### Production Capacity

- Liposome injection: 600,000 ~ 700,000 vials/year
- Cytotoxicity injection: 2.5 million vials/year
- Oncology oral capsule: 25 million capsules/year

### Certified International Inspection

16 countries, 24 international, and Taiwan GMP Certified inspections

- 2018 Kenya, USA, EU (Belgium), South Korea
- 2017 Belarus, Indonesia
- 2016 USA
- 2015 South Korea, Kazakhstan, EU (Belgium)
- 2014 EU (Belgium), Turkey
- 2013 USA, Japan
- 2012 Japan
- 2011 EU (Germany), Brazil
- 2009 EU (Hungary)
- 2008 EU (Hungary), Saudi Arabia



# PIC/S GMP Certified Analysis Methods and Development Capacity



## Lioudu Factory

Founded in 2011 and formerly owned by Shionogi Taiwan. The factory owns production lines for oral and liquid injection products which have successfully passed PIC/S GMP inspections. The factory mainly produces non-cytotoxic oral tablets and capsules, liquid injections and lyophilized liposomes.

### Features

- Oral and liquid injection manufacturing plants that comply with PIC/S GMP international requirements.
- Italy Automatic Tunnel-Styled Filling Machine (vial washing machine, dehydrogenating tunnel, filling machine, lyophilizer and capping machine) and sterile manufacturing plant and advanced equipment to ensure the safety of manufacturing operators.
- Liposome production center.
- International pharmaceutical standards; inspections by Taiwan TFDA and Japan PMDA. International inspections by USA and Europe to be conducted gradually.
- Best CMO partner for international pharmaceutical manufacturers.
- Capacity to develop new drugs microbiology analysis methods consistent with USP, EP and JP Pharmacopoeia; PIC/S GMP and standards of world advanced countries.

### Certified International Inspection

2 countries, 6 international, and Taiwan GMP Certified inspections

- 2019 Production lines for orally administered and liquid injection products
- 2016 Taiwan Production lines for orally administered and liquid injection products
- Japan Production lines for orally administered products
- 2013 Taiwan Production lines for orally administered products



## Neihu Factory

Over 70% of employees at the Pharmaceutical Development Center (PDC) holding a master's or doctoral degrees. Personnel in different fields have their own professional knowledge and expertise in areas ranging from R&D to GMP compliance, from analytical method development to product manufacturing.

We are able to process diverse projects in a flexible manner, including high technical barrier products such as liposomes, and collaborate with well-known international partners from the Netherlands, Germany, Taiwan, and China. We have extensive production experience in oil-based injections, liposomes, and microspheres, making TTY a prompt, reliable, excellent service provider with top product quality.

Specializes in the manufacture of clinical trial supplies, pilot batches, and submission batch production. The seamless connection from the development of drugs to GMP production, while GMP-compliant and related submission documents are provided with traceability. All storage and transportation processes comply with the Good Distribution Practice (GDP).



## Diversified Projects, Prompt and Reliable Services



### Parenteral Production Line

11 years in compliance with inspection standards since 2007.

- 2018 : TFDA routine inspection
- 2010 : EMA Certified
- 2009 : TFDA Certified
- 2007 : PIC/S GMP Certified

In addition to inspections by official drug administration authorities, we also underwent on-site audit by international partners and QP from Netherlands, Germany, China, and USA.

### GMP Production Capacity of Parenteral Factory

- PIC/S Grades A, B, C, and D clean rooms
- Filling lines (filling size from 2mL to 100mL)
- Lyophilizer (3500 units \* 2mL)
- 24-hour continuous monitoring of particle and pressure difference
- Maximum batch: 50L

### Excipient Production Line

The excipient plant in Neihu Factory was established in 2013, and complies with the Joint IPEC - PQG Good Manufacturing Practice Guide.

### GMP production capacity of Excipient Factory

- PIC/S Grade D clean rooms
- Synthesis and purification of lipid ligands, such as short peptides
- Polymerization system
- Pulverizer
- Production batch: 5 kg

## Safeguard Medicines Starting with Management of Raw Materials and Suppliers

According to the Company's commitment to sustainable development, when purchasing and using raw materials, we strive to minimize consumption in order to avoid damage to the environment. We do our utmost to eliminate environmental risks posed by raw ingredients, which include any actual or potential unacceptable risks arising.

Active pharmaceutical ingredients (API) purchased by the Company have all granted international verification approval. API is a substance extracted from natural plants and synthesized chemically, which is then processed by the Company's high-quality technology and made into a universally approved and certified safe drug that can be used directly by patients.

The API can be a determinant to the effectiveness and safety of drugs. TTY proceeds with every caution to inspect and manage EU and US brand-name drug suppliers. DMF (Drug Master File), cGMP and PIC/S GMP are the principal criteria to select proper suppliers. As a Sustainable Enterprise, TTY encourages all suppliers join to protect and respect our environment.

Within 485 items provided by suppliers, 126 are by raw material and 359 by material suppliers. All suppliers follow and are in compliance with TTY quality requirement as Grade A (Low Risk) Suppliers. There are no new suppliers in 2019 that are Grade B or C.

Within 485 items provided by suppliers, 126 are by raw material and 359 by material suppliers. All suppliers follow and are in compliance with TTY quality requirement as Grade A (Low Risk) Suppliers. There are no new suppliers in 2019 that are Grade B or C.



To implement sustainable development of the environment, an evaluation questionnaire is filled out by TTY new and existing suppliers regarding whether solvent is properly recycled; cleansing procedure and validation for production equipment; pest and rodent control; proper air conditioning and water system to avoid cross contamination, related SOP to minimize environmental impact; evaluation for, compliance with and continue strengthening the control of environmental risks. All fields should be assured by professional consultant. Moreover, TTY conducts audit to all suppliers with a non-fixed timetable to ensure stable quality. The inspection is made either by questionnaire survey or field trip.



## The "Supplier Sustainability Management Assessment" Policy

Stipulated on the basis of "Quality Assurance", "Stable Production Capacity", "Cycle Time Reduction", and "Sustainability", the "Supplier Sustainability Management Assessment" serves as a standard to select and assess new suppliers, re-evaluate and renew contract for existing ones, conduct risk assessment and management, and assist with improvement. The guideline is to properly choose and manage suppliers with sustainability and transparency.

### Quality Assurance

Assess and onsite due diligence to ensure quality system and quality supply.

### Stable Quantity

Multiple suppliers to keep flexible and stabilized supply source and quantity.

### Cycle Time Reduction

Credible suppliers with qualified delivery capability to keep cycle time reduction effective.

### Sustainability

Long-term partnership to build stable development and sustainable supply chain. TTY demands suppliers to observe eco-friendly actions, constant safety and security, human rights, and CSR, as well as a risk management and sustainable operation plan.

# “Supplier Sustainability Management Assessment” Process

## Step 1

### Choose New Suppliers

- Financial Status
- Control and Management over Quality System
- Organization and Management
- Capability to Execute Orders
- CSR Implementation Capability

## Step 2

### The Eligibility of New Suppliers

- The completion and stability of quality system
- GMP compliance
- Knowing the manufacture condition of raw materials and product risks.

4 + 2 + 29 = 35  
 API      EXCIPIENT      PACKAGING      Total

New suppliers providing 35 new items in 2019, of which 6 raw materials and 29 materials.

## Step 3

### Evaluation and Risk Assessment for Existing Suppliers

- General Evaluation : Scores will be deducted for any abnormality on material delivered by suppliers and will be referred to for annual evaluation.
- Suppliers assessment mechanism scores once a year, and the assessment items include the following:
  - a. Cycle Time- on time, credibility
  - b. Quality- stable supply quality
  - c. Customer Complaint-timely improvement over customer quality complaint
  - d. Supportive- speedy and immediate return and exchange of goods
  - e. Sustainability- Environmental protection and human rights assessment
- TTY conducts risk evaluation based on above two items and holds as a reference for risk management.
- Suppliers with scores lower than TTY requirement will be suspend from purchase contract and will be removed from supplier list.

## Step 4

### Existing Supplier Classification Management

- Assist suppliers with improvement on the basis of grading results.
- Classification according to supplier risk evaluation

Grade	Risk	Scores	Measures
A	Low	90~100	1. Suppliers to be considered when new items are required to be purchased. 2. Paper review* based inspection.
B	Medium	70~89	1. Normal purchase contract. 2. Paper review based inspection. Suppliers should provide action plan according to the inspection results. When the improvement fails to meet TTY requirement, on-site inspection** will be conducted.
C	High	≤ 69	1. Cease the purchase of items from the suppliers. 2. Marked as disqualified suppliers and the contract is terminated.

\*paper review is conducted through the document provided by suppliers and the "Sustainable Supplier Evaluation Questionnaire". The questionnaire consists of following content:

Economy	Environment	Human Rights
1. Operation Overview 2. Client Management 3. Raw Material Management • Safety Stock, Cycle Time • Original Supplier Management	1. GHG Emission 2. Water Management 3. Energy Management 4. Waste Management 5. Environment Overall Evaluation 6. Compliance With Laws and Regulations	1. Occupational Safety and Health 2. Worker Hygiene Improvement 3. Welfare Policy 4. Feedback Channel 5. All Forms of Discrimination 6. Compliance With Laws and Regulations

\*\*suppliers to provide following information as the reference standard for onsite audit :

- Company Introduction, product supply, capacity, process description, facility and equipment introduction.
- Environment Safety, and Hygiene Management: Information regarding environment overall safety, hygiene control and management, waste control, cross-contamination prevention.
- Certificates and Licenses: Acquired government or global certified QC documents (PIC/S GMP or ISO 9001) and certification of environment management system (ISO 14001).
- Quality System Management: Procedure document regarding the handling of CC (Customer Complaint), defects, abnormality management, change management, and corrective and preventive action.
- Raw Material Information: SDS and COA, production procedure.



# 1

# Environmental



To facilitate the sustainable development of eco-environment, TTY proposes 17 SGDs, and the actions include the upgrade of infrastructure, effective energy consumption, overall process improvement, unit water consumptive intensity and sewage discharge minimization, all consistent with SDG9 "Industrial Innovation And Infrastructure"; monitor climate changes' impact on operation activities, policy and

strategy to cut down carbon foot print and GHG emission, both consistent with SDG 13 "Climate Action"; TTY employees attending river cleaning, beach cleaning to keep marine ecology, and consistent with SDG 14 "Life Below Water".

## Key Performance

After years of hard work, we have presented the exciting results below. For a detailed disclosure of environmental information, please refer to the following sections.

- 2015 ● As the base year, greenhouse gas emissions intensity decreased by **16.70%**.
- 2019 ● The intensity of water intake decreased by **7.25%** (tons/Revenue: thousand TWD) compared to the previous year
- 2019 ● The intensity of wastewater discharged in 2019 decreased by **7.27%** (tons/Revenue: thousand TWD) compared to the previous year
- 2019 ● The actual chemical oxygen demand (COD) emissions in the water quality of Liodu Factory was **8** times lower than the sewer connection standards
- 2019 ● The actual quantity of suspended solids (SS) discharged in the water quality of Liodu Factory was **35** times lower than the sewer connection standards
- 2019 ● The actual chemical oxygen demand (COD) emissions in the water quality of Chungli Factory was **6** times below the sewer connection standards
- 2019 ● The actual quantity of SS discharged in the water quality of Chungli Factory was **90** times lower than the sewer connection standards.

As a leading company in the pharmaceutical industry, we believe that all activities should be based on environmental sustainability. Good health relies heavily on a healthy environment, including clean air and water as well as proper waste disposal. This way, the impact of climate change on human health is bound to gradually decline.

According to BoE's "Energy Conservation Goals and Implementation Plans for Energy Users", 2 TTY major manufacture factories carbon reduction measure and achievement during report period are as follows.

### Lioudu Factory



### Chungli Factory



#### Measure to energy saving

14 "300W" high pressure sodium lamps to be replaced by 14 "80W LED" lamps.

Consolidation of chiller units of 120RT in Fac. C1 and 60RT in Warehouse C2. Use 120RT unit for primary use, and 60RT as secondary unit. The secondary unit will be in use as required during summer season.

#### Energy Conserved

kWh	6,557.33	88,242.00
GW	23,606.40	317,671.20
Carbon emission (CO2e/kWh)	3,495.06	47,032.99

Two 24-hour hot water pumps of 4F, Building B, to change pressure output and decrease motor operation frequency. Adjust the machine to 12-hour operation daily (08:00~20:00), and shut down when off-duty.

50RT chiller unit in Building B to be shut down and the operation to be replaced by 150RT and 120RT. Chilled-water pump/cooling-water pump/cooling fan halted. 1 month recognized this year.

#### Energy Conserved

kWh	33,838.50	8,700.33
GW	121,818.60	31,321.20
Carbon emission (CO2e/kWh)	18,035.92	4,367.28

## Enhanced Carbon Footprint Reduction

As the most professional pharmaceutical company in Taiwan, TTY is fully aware that climate change may lead to an increase in public health risks such as people becoming a hotbed for diseases from unclean air and water. In addition, we have also allocated more support data showing that certain disease patterns are related to changes in climate conditions.

Colin Carlson, Georgetown University researcher, discovered that dengue fever is moving and expanding to places of high altitude, instead of in tropical areas. During July and October of 2019, the outbreak of dengue fever in Kathmandu (Nepal's capital) a city of 1400 m altitude; experienced a global warming phenomena which has led to shorter winters and longer, hotter summers whereby pests are used to low temperatures in high altitude areas.

Reduction of energy consumption has always been one of TTY Biopharm's major topics. As part of our commitment to sustainable development and responsible use of resources, we continuously searching to increase the proportion of green energy in the future. This year we keep our strategy first to reduce the use of resources, and then search for methods to replace fossil fuels. The actions proved TTY's initiatives and effort for SDGs.

At the same time, we also comply with the Bureau of Energy's "Energy Conservation Goals and Implementation Plans for Energy Users": Beginning May 2015, industrial power heavy users with a contracted capacity of more than 800 kW must achieve an average energy conservation rate of 1% within five years. TTY continues our commitment to improving energy efficiency at all operating sites, whereas specific measures are taken in accordance with international environmental standards, including ISO 14001, ISO 50001, and ISO 14064-1 as our management approach and compliance specifications for various energy conservation and carbon reduction measures.

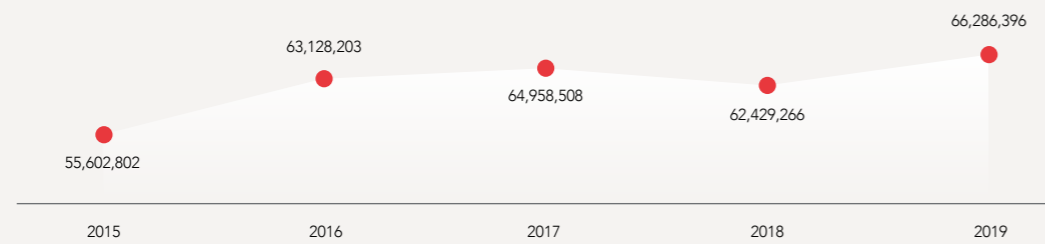
For example, the 14 "300W" street lamps in Lioudu Factory are replaced with low-pollution, long life 80W LED lamps; Two 24-hour hot water pumps have modified pressure outputs and a decrease in motor operation frequency. The pumps were adjusted to 12-hour operation daily (08:00~20:00), and shut down when off-duty.

For Chungli Factory, new natural gas boilers; consolidation of chiller units of 60RT in Warehouse C2 and that of 120RT in cancer tablet dosage factory to use 120RT unit for primary use, 60RT as secondary unit. The secondary unit will be in use when required during summer season.

For carbon reduction in the office area, we do our best to purchase green products, choose LED lights, set air-conditioners to 25°C, improve working patterns such as remote video meetings instead of business travel. The purpose is to minimize carbon footprints born from business trips.

Overall, the four measures in both Lioudu and Chungli Factories has conserved electricity of 137,338.16 kWh, down by 0.80% compared to this year's 17,341,462.78 kWh. CO2 emissions volume has decreased by 7319.69 (kgCO2e).

### Total Energy Consumption in Recent 5 Years (Unit: MJ)



### Lioudu Factory and Chungli Factory Energy Consumption in Recent 5 Years (Unit: MJ)

Factory	Energy Type	2015	2016	2017	2018	2019
Lioudu Factory	Category I	8,438,976	8,438,976	10,197,096	9,587,246	10,323,547
	Category II	24,773,422	27,914,400	28,809,360	28,142,064	28,156,536
Chungli Factory	Category I	6,505,044	8,017,027	7,208,292	5,611,316	7,094,433
	Category II	15,885,360	18,757,800	18,743,760	19,088,640	20,711,880
Total		55,602,802	63,128,203	64,958,508	62,429,266	66,286,396

- Note
- In January 2018, natural gas boilers have swapped the consumption of low sulfur fuel oil (LSFO) and reduce CO2 emission.
  - Category I is the emission of CO2 and natural gas from the combustion of heavy, low sulfur crude using boilers. Calculation: 1L heavy, low sulfur crude = 8400 kcal = 35,162,400 Joule. Calculation: Natural gas 1 m<sup>3</sup> = 8000 kcal = 33,488,000 Joule
  - Category II is mainly on the emissions from purchased electricity, Calculation: purchased electricity 1 kWh = 3,600,000 Joule
  - The conversion coefficient for above 2 and 3 Calculation is based on GHG emissions coefficient management Ver. 6.0.4 declared on June 27, 2019.

WMO (World Meteorological Organization)'s Greenhouse Gas Bulletin indicates that, despite the Paris Agreement, GHG has increased by more than the average number of the past 10 years; as in 2019 the CO<sub>2</sub>, Methane and N<sub>2</sub>O continued to rise. This shows the increased severity of water shortage, sea level rise, marine and earth ecology's off-balance. Herein TTY measured carbon volume on the basis of CO<sub>2</sub> emissions, and other GHGs were not included.

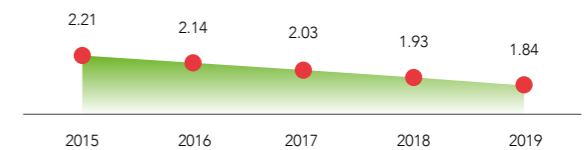
intensity which were 1.84 (kgCO<sub>2</sub>e/Thousand TWD), the intensity dropped by 16.70%. The overall energy consumption per unit product has decreased.

In the future years TTY shall continue to work on the reduction of GHG emissions, devoted to a greener and healthier Earth.

This year TTY joined as a global citizen to disclose GHG emissions data. Counting 2015 as the Base Year, we measured and calculated GHG emissions intensity. Total GHG emissions includes Category I & II, Category III excluded, and Lioudu and Chungli Factories emission volume as the fraction; for denominator the revenue is applied as the standard for the intensity ratio. In 2019, TTY total energy consumption increased due to more orders. Nonetheless, the overall production efficiency rose as well. The GHG emissions in 2019 were 1.84 (kgCO<sub>2</sub>e/Thousand TWD), a decrease compared to the 1.93 (kgCO<sub>2</sub>e/Thousand TWD) for last year; using 2015 as the Base Year where the GHG emissions intensity were 2.21 (kgCO<sub>2</sub>e/Thousand TWD). Compared with 2019's GHG emissions

### Total GHG emission Chart

(Unit: ton CO<sub>2</sub>e /revenue-Thousand TWD)



The 2019 GHG emission dropped by 16.70% to 1.84, compared to 2015, the base year, where GHG emission intensity was 2.21.

### GHG emission Volume

(Unit: ton CO<sub>2</sub>e)

Factory	Energy Type	2015	2016	2017	2018	2019
Lioudu Factory	Category I	625	625	756	538	579
	Category II	3,633	4,094	4,225	4,128	4,169
Chungli Factory	Category I	482	594	534	315	398
	Category II	2,330	2,751	2,749	2,800	3,067
Total		7,071	8,065	8,264	7,780	8,213

- Note
- The global warming potential (GWP) of CO<sub>2</sub> is 1.
  - The emission source of Category I is the CO<sub>2</sub> and natural gas generated by the burning of LSFO for boilers.
  - The emission of Category II is mainly generated by the purchased electricity and is calculated with the Equivalent Factor in the "National Electricity CO<sub>2</sub> Emission" announced by BoE.
  - The 2015 CO<sub>2</sub> Equivalent Factor (EF) declared by BoE was 0.525 kgCO<sub>2</sub>e; 0.530 kgCO<sub>2</sub>e in 2016; 0.554 kgCO<sub>2</sub>e in 2017; 0.533 kgCO<sub>2</sub>e in 2018. The one in 2019 was not yet declared during report compilation and was therefore calculated with 2018's EF.
  - Emission factor was derived from the Greenhouse Gas Emission Factor Management version 6.0.4 announced by the Environmental Protection Administration on June 27, 2019.
  - The source of global warming potential ratio: IPCC Fifth Assessment Report, 2014 values <https://reurl.cc/GVYD43>

# As a Global Citizen, TTY Treats Wastewater Seriously

The US foundation "World Resources Institute" indicated in its latest report this August that, a quarter of the global population living in seventeen countries are facing the difficulty of zero water resources. TTY knows the preciousness of water, and requires clean water in drug manufacturing.

Therefore, TTY continues the monitor of water consumption in critical manufacture sites and has accumulated usage data over the years. Company water conservation can be put into practice with implementation of water management plan. Actions include circulation system to recycle and reuse water collected from chilling tower, improve chilling procedure and increase heat recovery rate to minimize the need for chilled water. Proper recycle and reuse of cleansing water.

The water used by Lioudu, Chungli and Neihu (Neihu Factory + Pharmaceutical Development Department) Factories came from Water Plant. No underground water was used. TTY Biopharm does not discharge water containing a high concentration of chemical substances. Low-concentration wastewater first goes through primary treatment in the factory before being channeled to the sewage treatment plant in the industrial park for final treatment. After meeting the national effluent standards, the treated wastewater is discharged into receiving waters, thereby reducing environmental degradation.

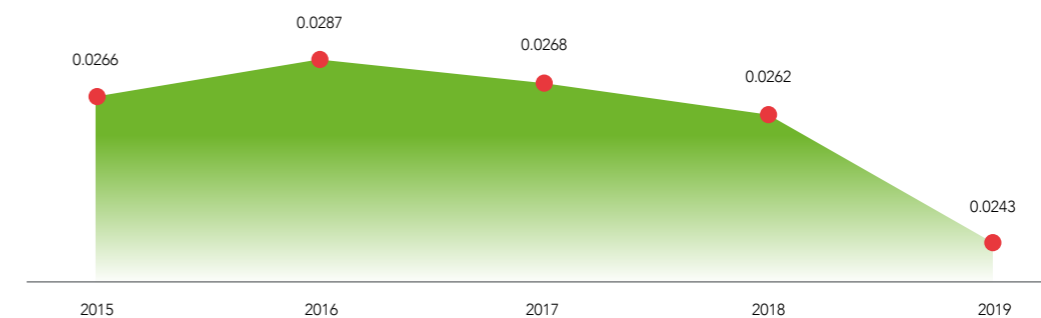
With clients' trust and long-term partnership, TTY has increased business revenue by 10.66% this year. A year-long effort in process improvement and sewage discharge treatment resulted in 7.25% and 7.27% respective reduction in water usage intensity and wastewater discharge intensity (unit: ton / revenue-Thousand TWD). In addition to enhanced eco-steps, TTY strengthens water conservation concept among our colleagues and management team as well. From water management system improvement to plant wastewater recovery, system water loss minimization, rain water and chilling tower discharged water recovery, and toilet water, a general and comprehensive water conservation movement is in place so as to assume our obligation and responsibility as a corporate citizen.

Water Consumption in Recent 5 Years

List	Unit	2015	2016	2017	2018	2019
Lioudu Factory (Source: Tap water)	Ton	67,290 117.64/Batch	69,693 153.51/Batch	82,056 149.74/Batch	79,518 137.81/Batch	68,292 88.92/Batch
Chungli Factory (Source: Tap water)	Ton	15,997 33.19/Batch	35,522 58.62/Batch	25,151 51.02/Batch	24,165 46.74/Batch	37,739 62.79/Batch
Neihu PDC (Source: Tap water)	Ton	1,628	2,718	1,964	2,120	2,382
Total (Source: Tap water)	Ton	84,91	107,933	109,171	105,803	108,413
Revenue	Thousand TWD	3,195,218	3,760,717	4,078,760	4,036,196	4,466,308
Water Consumption Intensity	Ton/revenue- Thousand TWD	0.0266	0.0287	0.0268	0.0262	0.0243

Lioudu and Chungli Factories' Water Consumption Intensity

( Unit: ton /revenue-Thousand TWD )



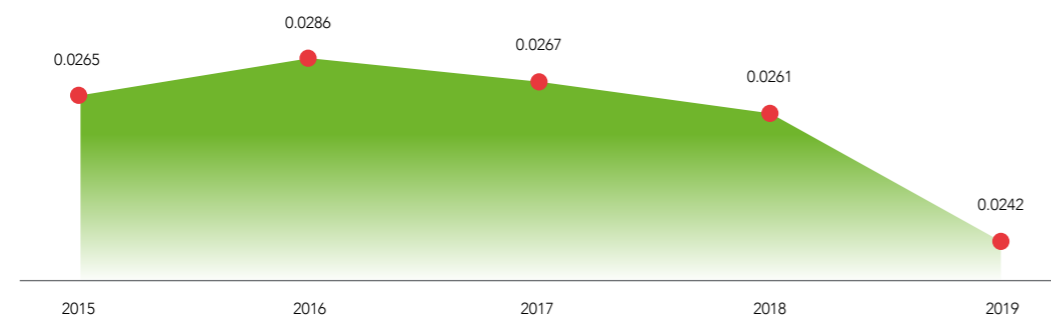
Consumption intensity (0.0243) in 2019 decreased by 7.25% compared to the previous year (0.0262)  
 [ Calculation : (0.0262-0.0243) / 0.0262=0.0725 ]

### Regional industry area management center wastewater treatment plant regulatory standard and TTY factory test results

List	Unit	Regulatory standard	2015	2016	2017	2018	2019	
Lioudu Factory	Discharge Volume	ton	n/a	67,290	69,693	82,056	79,518	68,292
	COD	mg/L	600	49.10	46.12	59.8	68.3	73.4
	SS	mg/L	600	13.10	13.1	10.2	12.7	16.8
Chungli Factory	Discharge Volume	ton	n/a	15,997	35,522	25,151	24,165	37,739
	COD	mg/L	480	150.91	113.96	91.75	87.94	77.36
	SS	mg/L	320	16.68	8.54	12.21	5.65	3.53
Neihu Factory	Discharge Volume	ton	n/a	1,302	2,174.40	1,571.20	1,696	1,905.28
Total volume of wastewater discharge	ton	n/a	84,589	107,389.4	108,778.2	105,379	107,936.25	
Revenue	Thousand TWD		3,195,218	3,760,717	4,078,760	4,036,196	4,466,308	
Wastewater discharge intensity	ton/revenue-thousand TWD		0.0265	0.0286	0.0267	0.0261	0.0242	

Note  
 1. Chemical Oxygen Demand, COD  
 2. Suspended solids, SS

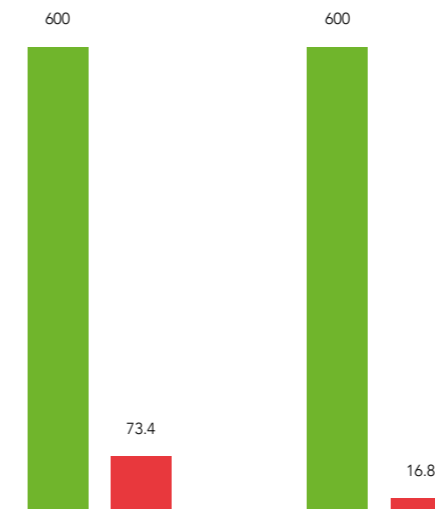
### Lioudu, Chungli and Neihu Factories' Wastewater Discharge Intensity (Unit: ton /revenue-Thousand TWD)



The 2018 wastewater discharge intensity was 0.0261, and 0.0242 in 2019, showing a decline of 7.27%.  
 [ Calculation : ( 0.0261-0.0242 ) / 0.0261=0.0727 ]

### Comparison between the volume of wastewater discharged at Lioudu Factory and the local regulatory standards

(Unit: metric ton)

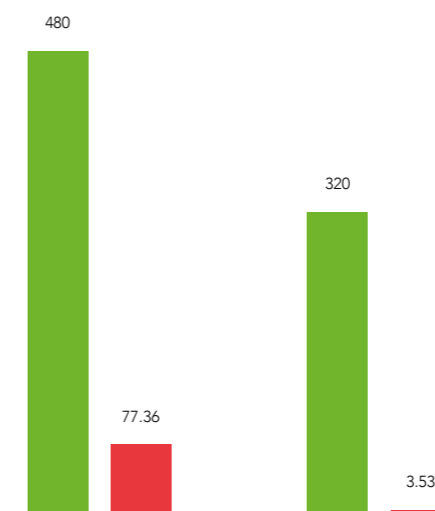


The actual COD (73.4 mg/L) in wastewater discharged in 2019 was 8 times below the local regulatory standard (600 mg/L). (Calculation: 600/73.4=8.174)

The actual SS content (16.8mg/L) in wastewater discharged in 2019 was 35 times below the local regulatory standard (600 mg/L). (Calculation: 600/16.8=35.714)

### Comparison between the volume of wastewater discharged at Chungli Factory and the local regulatory standards

(Unit: metric ton)



The actual COD (77.36 mg/L) in wastewater discharged in 2019 was 6 times below the local regulatory standard (480 mg/L). (Calculation: 480/77.36=6.205)

The actual SS content (3.53 mg/L) in wastewater discharged in 2019 was 90 times below the local regulatory standard (320 mg/L). (Calculation: 320/3.53=90.652)

## Waste Control for a Long Live Earth

This May, a joint-research by Tearfund, WasteAid and FFI declared that every year there are four hundred thousand to one million people who die because of improper waste management, from floods caused by plastic waste blocking drainages; which further leads to disease, or severe air pollution caused by combustion.

In order to achieve environmental and ecological sustainability, based on Article 28.2 of Waste Disposal Act, total three dedicated waste disposal personnel, one in each factory of Neihu, Lioudu and Chungli, are in place to conduct related business; according to Article 31, TTY has submitted an industrial waste disposal plan to the special municipality, county or city competent authority for review and approval before the operation. Contract with qualified cleaning agent and company is in place to clean and dispose industrial waste and daily rubbish according to related laws and regulation.

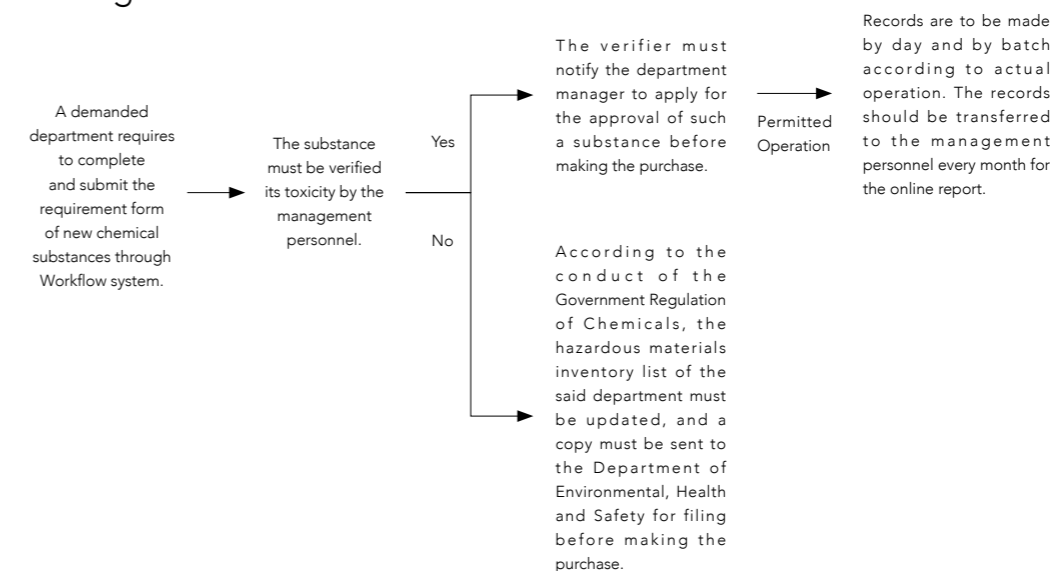
Regarding the direction of cleaning, transportation and follow-up of waste based on the Article 14.2 of Permit Management Regulations for Public or Private Waste Clearance and Disposal Organizations; waste disposal companies should report their transportation vehicles and the vehicles should only be used for waste cleaning and transportation. All vehicles carrying TTY waste must be equipped with a GPS device capable of at least 90% route-track feedback rate (for authority and TTY timely monitor). Five unscheduled follow-up audits took place in 2019, to ensure the company's legal practice of waste cleaning and transportation. No violation or severe leakage and no regional impact caused by factory during audit report period.



## Control Toxic and Chemical Substances Establish a Safe Environment for Using Chemical

According to the "The Employment Management Regulations of Environmental Dedicated Units or Personnel" announced by EPA, TTY doesn't need to take role of the dedicated personnel; however, in order to establish a safe environment for using chemical, TTY has successively trained 8 colleagues (6 in Lioudu Factory and 2 in Chungli Factory) and acquired professional technical management personnel to verify toxic chemicals. Prior to the procurement of new chemical substance, whether certain substances are under authority control. If yes, license(s), registration or approval should be obtained from local EPB before the procurement. After each use of Toxic and Concerned Chemical Substances, TTY must complete usage records of such Toxic and Concerned Chemical Substances, and report the monthly usage by management personnel.

### Toxic and Concerned Chemical Substances Management Procedure



According to Taiwan's regulation, the Toxic and Concerned Chemical Substances are categorized into 4 classes, of which the Class 1 to 3 are the "not prone to decompose", "Chronic Toxicity" and "Acute Toxicity", respectively, and Class 4 have endocrine disruptor properties, environmental pollutants or chemicals which endanger human health. There are currently 340 Toxic and Concerned Chemical Substances under Class 1 to 4. The manufacture, import, export, sale, transport, use or storage of Class 1, 2 or 3 toxic chemical substances shall apply for a permit, registration, or approval documents; the disposal of such substances should report and attach disposal declaration and detail by batch to the special municipality, county or city competent authority for registration, according to "Toxic and Concerned Chemical Substances Management Law", and may only begin handling after doing so. The handling of Class 4 toxic chemical substances shall be performed upon permission of the competent authorities in compliance with authorized items.

Before the usage of toxic chemical substances, TTY would apply for mentioned documentation and prepare SDS and Basic Disaster Prevention Data Sheet. The containers for such substances are labeled with caution warning signs. In addition, TTY has joined "National Disasters Prevention and Protection Commission", an organization to react on disasters as agreed upon protocols over incidents during the usage or storage of toxic chemical substances. Any incidents should be reported within thirty minutes, and contingency teams must reach the location within 2 hours. Allow members who handle toxic chemical substances in the area (who can) to help one another in minimizing the impact of such incidents. In 2019, a toxic disaster training and drill has been carried out between Lioudu Factory and Keelung EPB that was joined by 17 members. The training included PPE explanation, defining disaster areas and the practice of the exercise.

### Toxic and Concerned Chemical Substances Category

Classification	Class 1 (not prone to decompose)	Class 2 (Chronic Toxicity)	Class 3 (Acute Toxicity)	Class 4
Description	Are not prone to decompose in the environment or pollute the environment or endanger human health due to bioaccumulation, bioconcentration or biotransformation.	Cause tumors, infertility, teratogenesis, genetic mutations or other chronic diseases.	Endanger human health or the lives of biological organisms immediately upon exposure.	Have endocrine disruptor properties, environmental pollutants or chemicals which endanger human health.

### Toxic and Concerned Chemical Substances Currently Used by TTY

	Chungli Factory	Lioudu Factory	Neihu Factory	Translational Research Center
Class 1 to 3	16	19	14	1
Class 4	10	15	21	1

## TTY's Promise to Environmental Sustainability

TTY acts on environmental protection according to environmental law and international guidelines; all activities and business of all TTY departments and sites should be conducted to fulfill sustainable environment goal.

Dedicated EM department or personnel to designate, facilitate and maintain EM system and action plans; regular Environmental Education courses to initiate sustainable consumption among colleagues, including 1) minimizing resources and energy consumption during production; 2) reducing pollution discharge (hazardous) and waste volume; 3) proper disposal of waste; 4) maximizing the recycling and reuse of materials and products; 5) extending product performance and durability.

Proper water usage, recycling, and related measures to enhance water usage efficiency.

Monitor climate changes' impact on operation activities, policies and strategies to cut down on carbon footprints and GHG emissions.

## TTY for Water Resource- Riverside Clean-ups

TTY has been putting effort in water conservation and protection in response to the SDG Goal 14: "Conserve and sustainably use the oceans, seas and marine resources for sustainable development", and especially made action on 14.2 "...sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration, to achieve healthy and productive oceans".

This year, joined by more than a hundred people, the 7 Riverside Clean-ups and Beach Clean-ups successfully removed rubbish and waste of more than 350 kilograms. Under the organization of TTY, Boshiyuan, and TOT Business Unit, the activity expected to return the water resource to a clean and refreshing state, leaving a sustainable eco-environment for the generations to come (refer to page 60, Community Participation and Development—TTY for Water Resources).



# 2 Social



To promote sustainable development, TTY Biopharm actively advocates the 17 sustainable development goals of the United Nations. Among them, TTY actively promotes the happiness of people of all ages, pays attention to the health and well-being of society, and strives to end all kinds of problems caused by gender discrimination,

contrasting religious beliefs, and economic environments. Equal treatment will enable all people to enjoy dignified learning and employment opportunities. TTY endeavors to advance towards a sustainable, inclusive and sustainable economic growth in order to achieve the sustainable development goals — namely SDG 1, 3, 4, 5, 8, 10, 14 and 17.

## Honorable Achievement

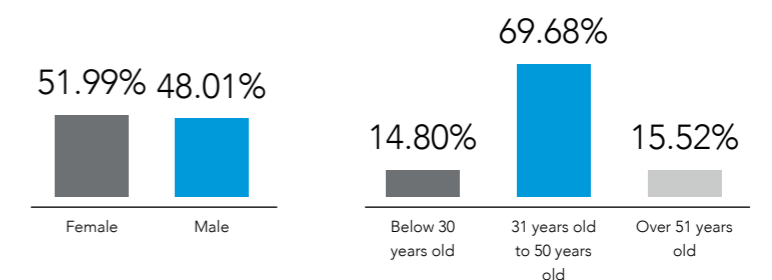
### Community Health Promoter

TTY proactively advocates the international ESG sustainability principle, and has made many efforts in the field of social responsibility. It not only provides 554 job opportunities, but its greatest contribution to society goes beyond by developing and manufacturing high-quality medicines. This initiative also echoes UN SDGs Goal 3 "Ensuring a Healthy Life and Promoting the Well-being of People of All Ages," and its detailed objectives in items 8 and 9: "Provide the basics of safety, effectiveness, quality, and affordable pharmaceuticals and various vaccines", "Increasing funding finance and recruitment, development, training and retention of the health workforce in developing countries".

More sustainable development information disclosure are entailed in the following chapter. After years of dedication, we are thrilled to present you with these achievements.

- Chungli Factory ● Has successfully passed **24** international inspections conducted by **16** countries.
- Liudu Factory ● Has successfully passed **6** international inspections conducted by **2** countries.
- 2019 ● More than **36** pharmaceutical items were listed in the National Health Insurance Pharmaceutical Benefits and Reimbursement Schedule.
- Gender Equality ● **39.06%** of female in the company hold key-leadership positions, which achieves gender equality in the workplace.
- 2019 ● A project for youth public-welfare theme song was launched. The lyric focused was pinpointing to the improvement of health-awareness globally.

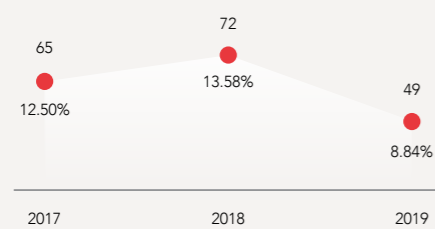
### Employee Gender & Age Distribution



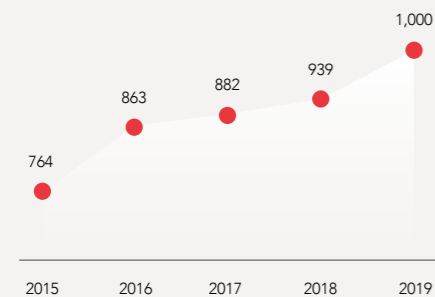


# Create a Happy Workplace

Demission Number and Rate (employees)



Employee compensation and benefits in the recent 5 years (Unit: NT\$ millions)



Note  
The information was sourced from TTY Biopharm's annual report. These expenses are recognized in accordance with International Accounting Standards (IAS) 19 - Employee Benefits

## Create Career Opportunities

TTY is committed to providing a friendly working environment, encouraging its employees to develop their talents, and maintain their enthusiasm for work. We believe that employees are one of our most valuable investments, and the continuous growth of employees is the cornerstone of ensuring the sustainable development of TTY. As of the end of 2019, TTY has a total of 554 formal employees, including 73 new employees, accounting for 13.18% of all employees.

## Workplace Equality

Diverse and inclusive talent recruitment is the engine of TTY's continuous innovation. We deeply understand that there are a multitude of differences between people, whether it be values, beliefs, physical differences, race, age, gender, experiences, thoughts, background, preferences and behaviors; and these diversified differences are represented in TTY's manpower policy.

TTY have created unique career development opportunities for employees, so that everyone can contribute his/her capabilities and enjoy rewards and resources equally. We value our employees and have retained them with reward systems, and this successfully reduced the number of employees who departed in 2019.

## Gender-friendly Workplace

At the end of 2019, the total number of permanent employees was 554 people. By gender, there were 266 males, which accounted for 48.01% of all employees; and 288 females, which constituted 51.99%. By age, 14.80% of all our employees were 30 years old and below, 69.68% were between 31 and 50 years old, and 15.52% were 51 years old and above. The Company is committed to hiring local talents; therefore, 99.82% of our employees are local residents. The Company also has 25 workers hired on regular contracts, as well as 31 temporary workers who are hired in response to production needs. Permanent employees do not include the contract and temporary workers.

We strive to create an inclusive and non-discriminatory workplace that accommodates both male and female employees. Inclusiveness-mindsets incorporated into our Human Resource Department that will enable employees to fully perform their duties, showcase their experiences and perspectives. Due to the requirement for high-tech industry, the pharmaceutical workers rely heavily on expertise and specific knowledge. We hire an equal number of female to male employees, regardless of the time of year. In the recent 4 years, the overall percentage ratio of female employees retained is standing at 50%. Overall, the total number of employees has not changed significantly compared to the previous reporting period.

## Competitive Salary Policy

Employees' contributions are closely related to a company's growth. This is why TTY Biopharm is committed to introducing a competitive compensation policy. Based on basic salary, the ratio of standard salaries for entry level employees of TTY to local minimum salaries are 1.54 times more for females and 1.61 times more for males. This was conducted by considering and analyzing the comprehensive of different backgrounds and experiences of the employees of each entry level position. We emphasize equal pay for equal work, and there is no gender difference in salaries for the same position. In 2019, due to more male employees occupying management positions than female, the female to male salary-ratio stood at 1:1.22

In 2019, the average salary of non-management staff was NT\$1,166,000. This figure is slightly raised compared to the NT\$1,113,000 in 2018. TTY declared that the median salary of non-managing staff was NT\$976,000.

## Well-organized Benefit Package

Apart from Labor Insurance and National Health Insurance coverage, special leave of absence, maternity leave, parental leave are complying with regulations, TTY also provides group accident insurance, travel leave, paid sick leave, year-end bonus, regular health examination, birthday, wedding and maternity cash-gift, festive (Dragon Boat Festival/

Mid-autumn Festival) cash or gift, compassionate pay for hospitalization, funeral cash-gift, disaster relief fund, and subsidies for education (tuition subsidy and scholarship for employees' children), and travel subsidy.

The "Guideline for TTY Biopharm Pension Plan" follows local employment regulations and specifies the retirement criteria and pension formula standards with respect to the calculation of employees' pension. For further details about pension standards, refer to the Annual Report. <https://reurl.cc/62RkQ5>

## Adequate Labor-management Communication

Information about the minimum notice periods regarding operational changes is transparent. TTY is handling this in accordance with Article 16 of the Labor Standards Act, which helps to clearly explain to stakeholders and has a legal and compliant labor-management communication system.

The representatives of the TTY labor meetings are composed of senior executives and colleagues from respective departments. Regular meetings are held every 3 months to discuss issues such as the revision of labor conditions. In this regard, TTY complies with the Taiwan government labor laws and regulations and exercises the shortest notice period for the termination of labor contracts. In recent years, there have been no major operational changes that could have seriously affected the rights of employees, so a large number of labor contract terminations have not been implemented. In addition, since July 2018, TTY has implemented the Newcomer Socialization initiative, which includes a new-employee satisfaction survey. Every new recruit will be sent a notice by the system after 3 months of employment, and all of them need to be completed within 6 months. In 2019 a total of 65 newcomers fulfilled the surveys, and the level of newcomers' satisfaction is 91.23%.

# Comprehensive Education & Training

## 37 Brilliant Courses Available at TTY University

Since 2012, TTY has implemented the TTY University Employee Training Program. Learning courses that cover short, medium and long-term durations are available. The courses have integrated TTY's internal and external resources and have nurtured senior employees as lecturers. This concept should encourage colleagues to share their personal experiences and work expertise, to enable students to learn much quicker through the learning process. This allows the employees to align themselves with their ideal positions and demonstrate their strengths.

In addition to offering freshman training, general education, leadership and management courses, TTY University is also divided into various colleges according to specific sectors, such as Research and Development, manufacturing, marketing, sales, and company culture. We are offering professional and recognized courses related to the respective specializations.

Other than recruiting lecturers from external R&D and other academic institutions, our employees from various departments can also be recommended for those positions. After proceeding with the lecturer qualifications process and passing the review panel by the Human Resource Department to become a lecturer candidate, they will also participate in the lecturer training process. After rigorous testing for learning effectiveness, they become eligible to serve as internal lecturers.

Since 2016, some of the professional courses that TTY offer have been made available to the public free of charge. Industry professionals and students are invited to learn and communicate with each other to enhance the professional standards of the pharmaceutical industry. In 2017, TTY extended the curriculum to campuses and held various campus learning camps. These camps included courses such as industrial value chain, new product evaluation and clinical trials. The purpose was to enable students to have a professional knowledge-base for the pharmaceutical industry and attract desirable talents to join the TTY family.

## 2019 Employee Training Program Results



# Career Development

## Become a TTY Successor

We hope that every employee at TTY Biopharm can demonstrate their abilities to further develop their potential and deliver excellent performance results. In 2019, 94.40% of all employees took regular performance evaluations, which included 249 male (47.61%) and 274 female (52.39%), and the remaining 6% employees were in their probation period. After the probation time agreed between TTY and employees, "New Employee Probation Performance" will be filled out by HR management upon the completion of probation.

TTY Biopharm is committed to shaping a workplace which promotes continuous learning and stimulates its employees' passion for their careers. We also provide everyone with career development opportunities through management courses, inter-departmental transfers and transfers within the affiliates of the Group. Moreover, the TTY Education and Training Management Guideline specifies for annual training funds to be used according to the respective job levels, expertise, departmental and personal needs. For dismissed employees (with severance pay), HR follows local laws and regulations to report to the authority, and confirm their willingness for career guidance and job trainings. The dismissal and the severance pay are conducted according to Article 11 of the Labor Act. The amount of the severance pay is calculated based on the chosen pension system (new or old). There are currently no plans for employees who are about to retire.

Employees are one of TTY's largest investment. Which is why we actively ensure the sustainable growth of all our colleagues and constantly create peaks for the company's success. TTY held 3 management courses in 2019, each with approximately 24 participants, and an average after-class satisfaction of 4.53 points (out of 5 points). Another group comprising of 24 colleagues performed internal job changes, and 7 colleagues were transferred to related companies.

TTY enhances its workers' capacities and development possibilities with diversity of learning activities. This is made possible by offering access to software and hardware trainings, learning programs and career development plans for employees of different ranks or positions. The TTY Successor Plan launched in 2019 demonstrated such actions by offering plentiful resources to accommodate our employees.

In addition, TTY encourages employees to recommend in-service colleagues that demonstrate leadership qualities and excellent performance with internal rotation opportunities. We have also established external talent channels to continuously expand our talent pool. For example, regular summer internships are held to attract high-quality external candidates such as students, so that they can prioritize TTY as their ideal employer.

# Occupational Safety & Health

4

Number of work injuries outside the factory (minor traffic accidents)

0

Number of work-related injuries inside the factory

## TTY's Care and Responsibility

TTY has formed the Occupational Safety and Health Management Committee in accordance with local laws and regulations, reviewing relevant occupational health safety issues, and is mainly responsible for monitoring and recommending occupational health and safety related plans. The number of labor representatives accounts for more than one-third of the total number of members.

In order to ensure that the safety of employees is considered, besides labor and health insurances for all colleagues, TTY also provides insurance, such as group insurance, accident insurance, occupational disaster insurance, cancer insurance, and travel insurance for business trips. It also conducts employee health examinations every year to ensure employees are healthy.

TTY's workplaces and factories are covered by public accident liability insurance. Fire protection management personnel who have obtained qualified certificates are stationed in each factory, and a fire protection plan is formulated according to the local laws and regulations. Public safety equipment inspections of buildings and fire protection facilities is regularly reported to the competent authority. All these checks are to ensure the safety of all employees.

In order to prevent occupational disasters and ensure the safety and health of employees, TTY has formulated the "Occupational Safety and Health Work Code" and "Occupational Safety and Health Management Plan" in accordance with the Occupational Safety and Health Act and relevant laws. Each factory shall establish occupational safety and health units, and manage staff and first-aid personnel. As a standard, education and training of occupational safety and health is conducted every year.

## 2019 Overview of the composition of the Occupational Safety and Health Committee

Committee Member	Number of constituent	Department / Title
Employer	5	Operations Office / Director
		Production Department / Senior Manager
		Factory Affairs Department / Manager
		Quality Control Department / Manager
		Validation Department / Associate Manager
Employee	5	Production Department / Senior Supervisor
		Quality Assurance Department / Senior Specialist
		Warehouse Management Department / Senior Clerk
		Production Department / Technician
		Quality Assurance Department / Specialist
Occupational Safety & Health Management personnel	2	Environmental Safety and Health Section / Senior Supervisor Environmental Safety and Health Section / Senior Specialist

In addition to paying attention to product safety and protection, personal protective equipment (PPE) used by on-site operators is also one of the key items of TTY's occupational safety hazard control. For example, the factory's production area is equipped with glove box protective equipment (glove box), which allows on-site operators to work in a sealed and isolated environment during the manufacturing process. This will effectively avoid the possibility of chemical toxicity hazards to the operators in the manufacturing process. When a chemical leakage or accidental spillage occurs, a chemical leakage treatment vehicle is dispatched to the factory, allowing employees to respond urgently and minimize the incident. In 2019, TTY also conducted 5 training sessions for personal protective equipment, with a total of 65 participants attending.

TTY conducts regular employee health examinations every year, including general health examination and special health examination. The results of these medical examinations are discussed by health care workers and follow-up examinations are performed by the OHN (Occupational Health Nurse) and occupational health physician. If necessary, on-site assessments for suspected occupational-diseases may be performed. As of the end of 2019, TTY employees had no abnormal records of physical checkups due to special operations.

As a major pharmaceutical company, TTY has actively promoted the concept of hand-washing for quite a long time, and have installed alcohol sterilizers in multiple areas of the offices, and employees received masks for free. The COVID-19 outbreak was promptly observed and an emergency response team was established to restrain visitor control in confined spaces that are prone to cross-infection, such as elevators and office spaces. Face-to-face meetings were replaced with video and online meetings, and all business trips were immediately suspended. In addition to these measures, we also require affiliate companies to implement independent health monitoring, advise our colleagues to maintain a safe social distance, and thoroughly develop good public health habits. TTY cooperates with government policies to provide colleagues with "anti-epidemic care leave."

The health and safety of our employees is of the utmost importance. TTY is the first in the biotechnology industry to arrange a dedicated shuttle bus for employees to utilize for their commute to work and returning back home safely. A company-funded carpool system has been implemented to cover the parking fees derived from the ride-sharing system. This should encourage our employees to opt for ride-sharing instead of the mass transit, bus, and other public transportation that colleagues usually rely on. TTY has also initiated a flexible commuting mechanism alongside its flexible working hours, to allow workers a timely departure for catching the shuttle bus.

The company also regularly reviews the WFH (work from home) system. As the epidemic gradually dissipates, it will be implemented at the off-site office plan. The normal working mode was restored on June 15th, 2020 when the COVID-19 was completely stabilized.

## Contractor Management

In order to ensure the safety and health of employees and contractors, TTY, in accordance with the Occupational Safety and Health Act, when all or part of its business is delivered to the contractor, shall inform the contractor in advance about the working environment and all known hazardous factors. The safety and health regulations of its business measures are to be adhered to as per TTY's formulated "Contractor Safety, Health and Environmental Management Standards". Before the outsourcing of various work, the two parties must jointly sign a contract. During the contract period, in addition to observing the provisions of the engineering contract, both parties should also abide by relevant laws and regulations such as the government's occupational safety and health, environmental protection and fire protection regulations.

For major engineering contract or construction work, TTY also requires the contractor to designate the person in charge of the contracted project as the commander, supervisor and coordinator of the large-scale construction, during design stages and prior to the start of each project phase. Reports covering hazard identification, risk assessment and measures to control such elements according to the assessment results should be presented based on the design, construction methods and execution patterns. The contractor should receive confirmation and approval from TTY before any formal construction could begin. As at the end of 2019, TTY has not recorded any occupational disaster occurring with contractors during the construction work inside its factories.



## Labor Rights Advocate

TTY cares about the prevalence of human rights and ensures a fair and safe workplace that minimizes potential risks and impact. In compliance with the international recognized human rights standards, which are ILO Declaration of Fundamental Principles and Rights at Work, Universal Declaration of Human Rights, UNGC 10 Principles, and UN Guiding Principles on Business and Human Rights, we also stipulated TTY human rights policy to follow local labor regulations to treat and respect every stakeholder equally.

- Comply with international human rights standards and local laws and regulations, and strive to protect the basic human rights of employees, recognize and comply with international human rights conventions, ensure that the company does not violate human rights, and comply with relevant local labor laws and regulations to protect the legitimate rights and interests of employees.
- Ensure equal job opportunities to eliminate discrimination, implement workplace diversity, and ensure that employees are not subject to any discrimination or unfair treatment because of gender, race, age, marriage, religion, political position, etc.
- Build a safe and healthy working environment, follow relevant laws and regulations, strive to promote occupational safety and health education and training, ensure the implementation of the work-environment and personal safety protection. Establish an "occupational safety and health team", labor meetings and complaint handling channels to continue improving the safety and health conditions of the working environment, reducing the risks of occupational disasters, and ensuring the physical and mental health of employees and the observation of mutual rights.
- Forced labor and child labor that do not meet the minimum legal age are prohibited, and employees are not forced to perform labor services.
- Assist colleagues to maintain their physical and mental health and a work-life balance. Follow relevant regulations, conduct employee health examination to prevent potential health risks and provide employee diversification activities. Expand interactive communication between employees through club participation, and establish a child care service within the company through an external organization, to assist parent-employees with childcare.
- The privacy of our employees and stakeholders is very important. To implement personal data protection, we have established a complete information security management mechanism, strengthened security awareness, and are following strict management, control and protective standards.



# Community Participation and Development

## Student Internship Project

For 11 consecutive years since 2008, TTY has continued to hold the Summer Internship Program (SIP), and held multiple briefing sessions, group interviews, and curriculum content planning for students from universities or research institutes ranging from pharmacy to bioscience-related departments. From the perspective of a professional and forward-looking international pharmaceutical company, TTY offers industry experience that students cannot learn in the classroom. The cumulative number of beneficiaries over the past 11 years has reached 314 students.

In 2019, a total of 27 students came from local and overseas universities, including China Medical University, National Cheng Kung University, Queen Mary University of London (Malta), National Taiwan Ocean University, Kao Hsiung Medical University, National Defense Medical Center, National Tsing Hua University, National Yang-Ming University, Chia Nan University of Pharmacy and Science, Taipei Medical University and National Taiwan University. We also hope to have more local and overseas students participating in TTY Biopharm's Summer Internship Program (SIP).

TTY began its own learning camp in 2017. Two years later, they hosted a camp that included two activities covering industrial value chain, and new product assessment/clinical trials. The two events lasted 2-3 days each and was attended by 60 students from the Student Association of College of Life Science, NTU, and TMU Dreamers Club.

Moreover, TTY's open courses "resume and job interview skills", "translational medical knowledge and new drug development", and "drug development and intellectual property protection" provided students with biotechnology expertise and valuable information. These courses recorded 48 students who participated in 2019.



TTY Biopharm organized Summer Internship Programs for 11 consecutive years.



Applicants were interviewed in the form of a group discussion. Multiple observers graded their performance to choose the best candidate.



Total of 314 students participated and benefited over the past 11 years.

## Drug Safety Control

### Assess the efficacy of safety and establish an immediate notification mechanism

All TTY's drugs not only focus on the efficacy, but also focus on the health and safety of users. The products are divided into "agents and authorized drugs" and "branded generics", where different safety measures are taken.

#### Agent and Authorized Drugs :

- With the introduction of agents and authorized drugs, TTY will first evaluate the approval of drugs in various countries around the world, such as whether they have received the approval from the US Food and Drug Administration (FDA), the European Drug Administration (EMA), or the top 10 pharmaceutical advanced countries.
- If the drug requires a clinical trial in Taiwan before launch, TTY will conduct clinical trials

in accordance with Taiwan regulations as an evaluation of the efficacy and side effects to support the efficacy and safety of the product. A dedicated person will be responsible for product safety monitoring.

- We also conduct assessments on the adverse reactions of drugs after the market launch. We have established a real-time reporting system, and set up adverse drug reaction reporting mailbox : [drugsafety@tty.com.tw](mailto:drugsafety@tty.com.tw)

#### Branded generics :

- Branded generics include two major areas, namely oncology and anti-severe infection drugs.
- Before human clinical trials, TTY Biopharm will first implement the necessary animal trials in accordance with the requirements of non-clinical and toxicity tests in the "Safety Specifications for Non-Clinical Drug Testing" set forth by Taiwan Food and Drug Administration (TFDA), in order to confirm the safety of drugs.

**“ To return what is taken from society, TTY has taken the initiative to establish a public welfare club “Boshiyuan,” collaborating with welfare groups to contribute to surrounding communities.**

On the second day of the Dragon Boat Festival, to echo the event of the TOT theme year, the beach cleaning activity arrived at Qianshuiwan Seashore Park.



## Number of drug licenses

	Oncology drugs	Anti- infective drugs	Healthcare	Total
Number of domestic licenses	33	20	7	60
Number of overseas licenses	43	2	4	49
Total	76	22	11	109

### Products sold by TTY Biopharm are licensed by the health authorities

The products of the pharmaceutical industry are mainly used to treat human diseases and are closely related to the lives and health of users. Therefore, special attention needs to be paid to their safety and effectiveness. TTY is committed to producing high-quality drugs by building a high-standard safety production systems. In order to improve their effectiveness on health and safety, the Company conducts assessments on 100% of all major products. There were no violations of health and safety regulations concerning these products and services.

TTY Biopharm has invested a large amount of resources in various processes, ranging from R&D, production, and storage of drugs to the use of labels, to conduct strict inspection of product safety. TTY Biopharm has also developed featured products with liposome or microsphere-coated, long-acting and gradual-release injection technologies, in order

to reduce the burden of drugs on the body, thereby achieving our mission of "improving the quality of human life with scientific innovation." TTY Biopharm, excluding its subsidiaries, has a total of 36 products. All the products sold are licensed by the health authorities, where a total of 109 drug licenses have been granted to the Company.

The drugs sold by TTY are in accordance with regulations and are accompanied by a medicine package insert, and that is the instructions for use in the medicine package. Taking the TTY Lipo-Dox product as an example, a package insert of the drug is attached to the official website for inquiry. <https://reurl.cc/O1oDrA>. All products manufactured by TTY comply with local laws and regulations regarding drug information and labeling requirements. During the reporting period, there were no violations of product and service information and labeling regulations.

## Boshiyuan With and For the World

TTY Chairman Lin Chuan has formed the culture of the Company with the slogan "Be a Civilized Person". Along with the aim to realize UN's 17 SDG goals, TTY employees initiated "Boshiyuan", a charity club to give without borders, to remember our origins, and to help the less privileged. Boshiyuan gathers workers

to offer care to society and activities that promote a healthy environment. The actions grow little by little into TTY culture and become part of our daily lives. Working to be a civilized person with and for the world, "Boshiyuan" sets the start point of TTY public welfare value and expects to extend social care and eco-friendly movements through community services. Every one of us is acting as a seed for a strong and solid society.

## TTY for Water Resources

TTY has committed to cherishing and protecting water resources. This echoes SDG goal 14 of the United Nation's 17 SDGs, and this activity also targets the sub-item 2 of SDG 14, described "sustain manage, and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience and take action for their restoration, to achieve healthy and productive oceans". This operation took place at a beach and river cleaning.

Following the flow of every river, littered waste goes into the sea. We have seen that the sea and rivers contaminated with all sorts of rubbish, so we decided

to walk out of our offices and factories and start picking up unwanted trash along the creeks and on the beach. Through this event, TTY's employees realized how water is directly impacted by human activities. TTY shall continue this event to foster a sustainable future of our water resources.

The water cleaning events were jointly hosted by Boshiyuan and TTY Biopharm's TOT Oncology Business Unit. In 2019, a total of 7 events cleaned up more than 350kg of waste, with the help of over 100 volunteers. These actions have given our water resources a clean and fresh appearance and have helped build our environment into a sustainable and environmentally friendly home.

Location	Chaishan Secret Beach	Sanzhi Chianshui Bay	Chihsing Lake	Fenggang Wharf	Yulu Historical Trail	Dajia River Park	Yilan Chingren Bay
Date	2019/6/3	2019/6/8 International Ocean Day	2019/7/27	2019/8/4	2019/11/23	2019/11/23	2019/11/30
Participants	8	50	13	10	12	40	13
Wastes gathered	19.02kg	108.60kg	10kg	54.64kg	5.59kg	104.60kg	54.64kg



## A Mid-autumn Festival Time with the Less-privileged

What is taken from the society is used in the society, "Boshiyuan" takes and implements it as the core value of the Company, and partners with Yu-Cheng Social Welfare Foundation to assist mentally disabled groups. This action is a realization of SDG Goal 10: "Reduce inequality within and among countries." TTY hereby gathered 27 employees and family members to accompany and celebrate mid-autumn festival with the mentally disabled people. The event helped to create a "home" style moment for those who lost their parents or were not looked after. "Boshiyuan" brought western and Chinese food, hosted fun group games, and provided them with the support and resources they needed.

Furthermore, TTY's fundraising event successfully raised NT\$17,000 for the Foundation, in hopes of benefitting their activities and operations. TTY expects everyone to live positively and grow with a public-welfare mindset.

## Second-hand Charity Sale

"Boshiyuan" also passes wishes and positive energy to the mentally disabled through charity sales. The event is conducted in response to the SDG goal 17: "Strengthen the means of implementation and revitalize the global partnership for sustainable development." The 2019 year-end secondhand market on November 1st, took place at Nangang Software Park. TTY employees showed their support by contributing garments, shoes, backpacks, accessories and creative items for a charity sale. An independent musician was invited to perform live, and the people responded enthusiastically.

The charity event received all sales items from our colleagues and was supported by people from all industries and different backgrounds. Around 30 colleagues helped with the promotion of the purpose of the sale and successfully raised NT\$15,000 from nearly 200 buyers. TTY is honored to donate all funds to "Parents' Association for Persons with Intellectual Disability, Taipei City", and "Yu-Cheng Special Welfare Foundation". The 6 shelter workshops under Yu-Cheng produce western and Chinese bakes and provide car washes, in hope of assisting them with jobs, alleviating their family burden and society cost, and helping the public to understand better.



“Regional Care for the Cancer Effected Area”. Since 2003, TOT has been helping junior high school and elementary school students realize cancer prevention and knowledge in the remote area, giving health education to cancer patients, as well as study aids to support their family. It is our responsibility as a bio-tech pharmaceutical company to perform social related functions that can lead Taiwan to a better, healthier future.

## Regional Care for the Cancer Effected Area

In view of the yearly growing statistics of people living with cancer, TTY Biopharm as a member of the pharmaceutical industry does continuously invest resources and establish collaborations with international pharmaceutical companies to import new drugs for cancer treatment for the people of Taiwan with a global connection. These products are on par with global levels, and the development of branded generics go far to helping the people of Taiwan purchase oncology drugs of similar quality at affordable prices. TTY also makes donations to families with cancer patients and spreads cancer-awareness and information to the public. This is done with the hopes of realizing SDG Goal 3: “Ensure healthy lives and promote wellbeing for all at all ages”, and SDG Goal 4: “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”

Since 2005, the TOT Oncology Business Unit of TTY has been working with cancer-related non-profit organizations to organize a series of seminars on cancer prevention diet for junior high school students. This will impart them with the necessary knowledge and the importance of cancer prevention. In 2019, cancer education initiatives that are dealing with rural schools have visited 39 junior high schools in Yunlin, Chiayi, Tainan, Miaoli, Hualien, Taitung,

Kinmen, Matsu and Penghu. We invited professional medical specialists from major medical centers to be the speakers and hosted our seminars on cancer prevention diets for attended students. We are devoted to bring health knowledge to remote area residents and to create a positive impact for the communities.

The purpose of this seminar series is to convey the correct knowledge and methods of preventing cancer, and how to live a healthy life. Through knowledge transmission, we hope that these students can adjust their daily lives and help their family members to develop an understanding of cancer prevention.

## Remote Primary School Health-Building

Since 2012, employees of TTY Biopharm have taken turns volunteering to conduct anti-cancer and health promotion events at elementary schools in Ludao, Taitung. By introducing fun competitions, the volunteers gave their full-hearted attempt at teaching children to stay away from cancer associated risk factors, from a young age.

Now into its 8th year, the program has been favored and supported by students, teachers and principals of Ludao Gongguan Elementary School and Ludao Elementary School. These efforts may not seem grand by any measure, they are things that the volunteers

feel able, willing and satisfied in doing. By sharing our knowledge with those in need, we hope to constantly direct people's attention towards cancer prevention, while moving one step closer toward SDG goal 4: “Quality Education.”

## Scholarships and Study Aids for Students from Cancer-affected Families

Taiwan's rate of cancer in its younger population continues to increase over time. If cancer patients are the breadwinners of the family, most of the children affected will still be minors. As a family becomes burdened with the additional spending arising from the costs of treating the disease, it eventually affects the children's ability and willingness to study. In an attempt to relieve the financial burden of cancer-affected families, so that their children may study and grow without disruption, TTY Biopharm has been sponsoring HOPE Foundation for Cancer Care since 2010 by offering study aids at NT\$20,000 per student from cancer-affected families. In 2019, TTY Biopharm sponsored a total of 75 college students, among 283 applicants applied, and contributed a sum of NT\$1 million to the program. This was in hopes of realizing SDG Goal 4: “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”

TTY supports the Hope Foundation for Cancer Care to launch the Hope Seed Camp program, in providing care and companionship for the children of cancer patients to get through the difficult times of facing

their loved ones (parents) diagnosed with cancer. Students are encouraged to discover their abilities, find their stance and have self-confidence, which is also includes the process of learning adjustment and adaptation for children of cancer patients. The sharing of voices through the Project not only helps alleviate stress and undertake responsibility, but the children also find strength from similar people's stories, and feel supported.

## Health Education for Cancer Patients

In response to SDG Goal 3: “Ensure healthy lives and promote wellbeing for all at all ages,” TTY partners with cancer-related non-profit organizations and conducts regular health educations for people whose family members or themselves are currently undergoing cancer treatment. These health sessions assist patients who are going through the adverse effects caused by treatment and illness, and also educate the family with the correct knowledge and how to fight against the disease. In total, 12 education sessions were held in 2019 with 646 participants attending. Since 2009, a total of 6,025 patients have participated in these seminars. In addition, educational lectures for osteoporosis and bone health are conducted to remind people on the causes of such diseases arising from a lack of calcium and Vitamin-D along with the bone density test, and instructions and recommendations were provided on how to have enough calcium intake in your daily dietary and from good eating habits. The sessions ran 46 times and served 4,010 people in 2019.



## NPO Souvenirs

TTY has for a long time paid attention to social issues and is aware of the lack of resources and manpower of non-profit organizations (NPO). In addition to the usual donations, TTY also purchases products from NPOs as souvenirs for shareholders' annual meetings, and simultaneously promote the visibility of NPOs. Annual Shareholders' in 2018 selected Syin-Lu Social Welfare Foundation handmade soaps as souvenirs, ordering more than 15,000 packs. 2019 Annual Shareholders' Meeting ordered 19,000 packs of Himalayan Rose Rock Salt packaged by the Yu-Cheng Special Welfare Foundation as souvenirs. TTY Biopharm fulfills its responsibilities as a corporate social citizen.



## Internalized the 17 SDG Goals in Us

In 2019, we dedicated one of our office walls to showcase SDG efforts. It was not long before this location became a photo hotspot. SDGs are a plan launched by the United Nations with the projected date of realization being 2030. This public welfare program has also been heeded and practiced by governments and companies alike, all over the world.

The "SDGs Online Celebrity Wall" adopted the 17 colors of SDGs and the colors are painted onto a pair of wings. This symbolizes an SDG angel breaking through time and space, leading all TTY staff to keep going and remain strong.

The official icons of the 17 Goals are aligned vertically on both sides of the "SDGs Online Celebrity Wall", and a QR Code has been designed to remind those passing by of the SDGs, to implement them in their daily lives and to dedicate them to their work.

Through the installation art of wings on the SDGs Wall, TTY has transformed difficult UN goals into an artistic, trending social-media check-in location. TTY colleagues not only take and share pictures, some even call this creative idea the "most impressive CSR movement".



Singer Astrid expects people to find resonance, empathy and comfort in her voice.

SDGs Online Celebrity Wall to initiate sustainable goals



## A Song to Encourage Public Welfare and Public Awareness of Health

"Improving the quality of human life with scientific innovation" has always been TTY's core value. To develop such values, we began to sponsor young amateur-singers since 2019. The voice is accessible on video sites and is able to reach everyone regardless of location. TTY Biopharm encourages the young generation by providing young artists who follow their musical dreams, with an opportunity to spread beautiful values to the world by showcasing their talents through singing.

The quality of medicines produced by pharmaceutical companies is related to the health of patients, and the health of people is the primary condition for a sustainable society. Therefore, TTY is actively investing in various kinds of cancer drugs, anti-infective drugs, chronic diseases and other medical and health care

drugs, but in addition to physical health, the health of the soul cannot be ignored.

TTY has long been concerned about the World Health Organization's (WHO) annual initiative themes, from the theme "Mental Health" in 2001, to "Depression, Let's Talk" in 2017, the WHO annual themes that we keep following have highlighted how people of today are affected with mental health problems. Therefore, TTY hopes to present its CSR activities by linking to the World Health Day goal set by the WHO as a starting point. TTY invited young lyricist Astrid to write a song "Grow a Tree" to reflect and echo the health of the society.

TTY has observed that many social incidents are related to mental health problems. Whether it is depression or a mental disorder that are the themes covered by the annual WHO initiative, we are committed to eliminating discrimination, and in turn spread love and care. By continuously investing in social welfare activities, giving support to society,

planting and growing seeds of health and relief, are all for the purpose of promoting the mental health of all mankind and building a sustainable society.

Moreover, the title of the song "Grow a Tree" urges us to wake up positive thinking in the disease sufferers, and all. The CSR environmental and social goals can be realized with solid footsteps and echo our TTY Seeds project. This CSR movement, which can be found on TTY's website, is reacting to the 17 SDG goals, targeting sub-item 4 of SDG 3 "promote mental health and well-being", and sub-item 4 of SDG 4 "increase the number of youth and adults who have relevant skills, including technical and vocational skills".

### Communication with Stakeholders

We emphasize the value of communication with stakeholders, which can be realized with the release of a dedicated song, like the revision of UNICEF's World Version Image which successfully bought children safety to the world's attention. We take advantage of such stakeholder communication channels and practice it with a song for and of public welfare related topics.

Moreover, we also place great importance on one of our stakeholders. Namely CSR experts, judges for the Commonwealth Corporate Citizen Awards, the Global View Monthly Magazine Corporate Social Responsibility Awards, and the Taiwan Corporate Sustainability Awards. These experts have long been calling on enterprises to continuously think of how brands can participate in social issues to exert their influence when planning social welfare activities. Therefore, TTY uses the touched song to motivate the actions of society.

### TTY connects to the world through a song to deliver sustainability value

The first song for public welfare advocated by TTY met the world on the 7th of April 2020. By reaching out to every individual, the song is aimed at promoting the social welfare idea of human health in line with the theme of World Health Day. This represents and echoes human health together with the WHO's annual initiative theme in its lyrics through artistic melodies.

It is newsworthy in noting that this CSR activity (held by TTY Biopharm) is planned and executed with the view of promoting local microenterprises, by concrete actions while also connecting with an international audience. This young generation can unleash their outstanding talent and become stars of the future by bringing positive energy to the world and inspiring the next generation. Human health issues around the world can once more be made the focus of society through the musical performance of young musicians expressing their creative capabilities. We hope that this public welfare song, sponsored by TTY, can refresh the public's reflection and draw attention to mental health.

### Grow a Tree

I saw tears in your eyes  
I worry about you, yet I feel a little relieved  
After all the patience, what do we get here?  
You know what you'll achieve, if you grow the tree with persistence

Out there, the other side  
The fireworks, the anticipation, the resplendence, the dreams  
And the seeds underneath are breaking through

I know you're feeling uneasy  
You are about to grow up  
When you are feeling nervous you can count on me  
Side by side we will overcome

You are always on my mind  
I know your worth  
Feed with honesty, grow with altitude  
You will see your difference from the past

Find a place that belongs to you too  
Find a way towards your faith  
The persistence, the strength  
Guide us through, lead us on

It'll be worth it, it's going to be fine



<https://youtu.be/S2k4NOw9ldU>

# 3

## Governance



To facilitate corporate sustainable development, TTY has initiated 17 SDGs, including the following, among others: BoD to facilitate SDG 5 “Gender Equality”; introduce Taiwan Intellectual Property Management System (TIPS) to improve intellectual confidentiality management, echoing SDG 9 “Industry, Innovation, and Infrastructure”; Sustainable Development Committee (SDC) and the Ethical Management Promotion Center (EMPC) to realize corporate sustainable operational

development to respond to SDG11 “Sustainable Cities and Communities”; proper system to prevent conflicts of interest, realize independent supervision, ethics and integrity to meet SDG 16 “Peace, Justice, and Strong Institutions”; and follow international trends, implement risk evaluation and management and global sustainable development partnerships, in response to SDG 17 “Partnerships for Goals”.

## Key Leading Policies

TTY Biopharm proactively advocates ESG sustainable principles among its corporate governance guidelines. ESG stands for environment, social responsibility, and corporate governance. We observe trends and the evolution of the capital market over the long run. Investors determine whether a company deserves long-term investment by expanding a single group of past financial indicators into non-financial ESG indicators. Furthermore, the OECD Principles of Corporate Governance are the international initiatives applied to exercising corporate governance. Therefore, all the members of the Board of Directors at TTY Biopharm share a common belief of not only creating value for TTY Biopharm's stakeholders, but also contributing to global sustainability goals. After years of diligence, we have achieved the exciting results outlined below.










- Female Directors ● 2 were elected as directors to reflect gender diversity in the Board of Directors.
- 4 Consecutive Years ● Ranked in the Top 5% OTC Companies by TWSE Corporate Governance Evaluation.
- BoD ● Average of 92.22% attendance (excluding proxy attendance) within a total of 10 BoD meetings.
- Independent Directors ● 3 independent directors make up 33.33% of the overall Board of Directors.
- 2019 ● Corporate governance officer established.
- 2019 ● Attended 4 domestic and overseas investor conferences and investment forums.
- 2019 ● SDC established under the BoD (taking over the former “Corporate Social Responsibility Promotion Team” and “Ethical Management Promotion Team”, which were changed to the “Corporate Social Responsibility Promotion Center” and “Ethical Management Promotion Center”, respectively).

# Board of Directors Shows Inclusiveness

## Diversity of Board of Directors

The Board of Directors (BoD) serves as the highest governing authority of the Company. Of its 9 directors, 3 act as independent directors, accounting for one-third of all directors. The establishment effectively supervises the Company to exercise relevant risk management, fraud detection and prevention, trade secret protection, and information security protection.

All the directors fully assist the Company in making profitable moves and proactively advocate the best corporate governance practices issued by OECD. Furthermore, BoD members are specialized in various fields, including biotechnology, finance, banking, etc., and possess professional experience in such areas as business, law, financial management, and accounting. It has the capacity to develop management strategies and make material decisions in order to supervise the management team and manage risks. The Board of Directors also emphasizes gender equality, with 2 female directors, and takes in voices from all age levels, with one director aged between 31-40 years old.

Chairman	♂	Lin Chuan		Age 61-70
Vice Chairman	♀	Chang Wen-Hwa		Age 51-60
Director	♂	Carl Hsiao		Age 31-40
	♂	Yang Tze-Kaing		Age 61-70
	♂	Chang Hsiu-Chi		Age 61-70
	♀	Liao Ying-Ying		Age 51-60
Independent Director	♂	Tsai Duei		Age 71-80
	♂	Hsueh Ming-Ling		Age 61-70
	♂	Lin Tien-Fu		Age 61-70

“ Improve Governance and Protect Rights and Interests  
 OECD Initiative to Implement Best Practice ”



## Progressive Governance Team

10 BoD meetings were held in 2019, with an average attendance rate of 92.22%. The BoD members pay attention to new knowledge, such as international developments related to corporate governance, and attend continuing professional training courses every year. In 2019, the Board of Directors attended an average of 9.56 hours of advanced courses.

Furthermore, the Directors widely refer to international trend reports to implement the best risk management for the Company. For example, the Global Risks Report published by the World Economic Forum (WEF) is referred to every year. According to the report, global climate change, data theft, and cyber-attacks have become 3 of the current major risk issues.

To monitor global risk trends and develop group knowledge about the economy, the environment, and society, members of the BoD attended advanced courses of related subjects, the hours of which are shown in the following table. The purpose is to optimize operational value for all stakeholders.



**Economy  
(Governance)  
Subject**

**69.3** Hours

### 2019 Advanced Training Courses and Total Hours Attended by the BoD

1. Corporate M&A Critical Contract Clauses
2. Emerging Technology and Data Risk Development Trends
3. OTC/Listed Company Insider Share Education
4. Workshop for Directors, Supervisors (including independent directors and supervisors), and Governance Management Personnel
5. Legal Scope of Digital Development in Taiwan Industries
6. Anti-Money Laundering and Bribery Risk Management Practice
7. Corporate Operation Legal Risks and Risk Management
8. Digital Decisions - An Example of PCBs Operational Model
9. Global Economic Status and Technology Trends – Critical Corporate Lessons
10. Anti-Money Laundering and Anti-Insider Trading Case Share
11. Anti-Money Laundering Regulations and Updates
12. Financial Consumer Protection Act
13. 2019 Global Trends Analysis – Risks and Opportunities
14. Global Risks and CSR
15. The Importance of ESG Incorporated Investments
16. Multinational Management and Sustainable Operations
17. Sustainable Financial Industry Development vs. Yuanta Financial Holdings Joining DJSI

## Social Responsibility

To realize corporate governance, fulfill its management obligations, and supervise the implementation of CSR and its policies, CSR training and education are scheduled to improve CSR management. The establishment of the CSR (Corporate Social Responsibility) Promotion Center is responsible for proposing and executing CSR policies, systems, and related guidelines as well action plans, and report them to the BoD on a regular basis.

TTY is not only responsible for CSR but also respects the rights and interests of stakeholders. An effective, reachable communication channel is available in the Stakeholders Section on the TTY website to listen and respond to stakeholders' reasonable expectations and needs and relevant critical CSR topics.



**Environment  
Subject**

**8.3** Hours



**Social  
Subject**

**8.3** Hours

1. Global Risks and CSR
2. The Importance of ESG Incorporated Investments
3. Multinational Management and Sustainable Operations
4. Sustainable Financial Industry Development vs. Yuanta Financial Holdings Joining DJSI

1. Global Risks and CSR
2. The Importance of ESG Incorporated Investments
3. Multinational Management and Sustainable Operations
4. Sustainable Financial Industry Development vs. Yuanta Financial Holdings Joining DJSI

## Withdrawal Due to Conflicts of Interest

Directors and independent directors shall withdraw themselves during discussions and voting when the proposals raised in Board of Directors' meetings pose a conflict of interest for themselves or the legal entities they represent. They shall also not exercise voting rights on behalf of other directors.

Details regarding the withdrawal of directors due to conflicts of interest posed by Board of Directors' proposals are disclosed in the shareholders' annual report. Information regarding the performance evaluation results for directors in 2019 is disclosed on the Company's website.

## Officer of Corporate Governance

The BoD nominated Chang Kuo-chiang, the Chief Financial Officer (CFO), to be the Officer of Corporate Governance on March 26th, 2019. Chang has many years of complete qualifications in accounting issues, financial operations, stocks, and other related affairs management in public companies. The main responsibilities of the Officer of Corporate Governance include providing information required for directors to perform business affairs, handling matters related to the Board of Directors, Audit Committee, and Shareholders' Meeting in accordance with the law; assisting directors in legal compliance, and handling matters related to change of registration for the Company.

## Independent Supervision Units

To supervise the executions of the BoD, the Board of Directors formed the "Remuneration Committee", "Audit Committee", and, in 2019, the "Sustainable Development Committee" (SDC) to take over the former "Corporate Social Responsibility Promotion Team" and "Ethical Management Promotion Team". These 2 were later changed to the "Corporate Social Responsibility Promotion Center" and the "Ethical Management Promotion Center", respectively.

## Remuneration Committee

The Remuneration Committee is composed of 3 independent directors and 2 external experts. The Remuneration Committee convened a total of 7 meetings in 2019, where the overall attendance was 97.14%. The Remuneration Committee assists the Board of Directors in assessing the connection between the compensation level of directors and managers and the Company's operating performance, as well as determines the percentage of reward allocation.

## Audit Committee

The Audit Committee is composed of 3 independent directors, and 6 meetings were convened by the Committee in 2019, with an attendance rate of 100%. This committee is responsible for reviewing financial statements; internal control and internal auditing; the acquisition or disposal of major assets or derivative transactions; lending funds; acting endorsements or guarantees; launch or issuance of securities; legal compliance; determining whether related party transactions exist and possible conflicts of interests involving managers and directors; fraud investigation reports; risk management for the Company; the appointment, dismissal, or remuneration of certified public accountants (CPAs); and the appointment and dismissal of finance, accounting, or internal audit managers.

## Sustainable Development Committee

To realize corporate governance, environmental sustainability, social welfare, corporate sustainability, and CSR, on October 7th, 2019, the Sustainable Development Committee was established under the Board of Directors with 5 members nominated from the directors based on the BoD resolution. Under the "CSR Practice Rules", at least 50% of the members should be independent directors. In 2019, 3 meetings were conducted with a 100% attendance rate. The job scope and authority of the Committee are as follows:

- Stipulate corporate sustainable development policies, goals, strategies, and action plans. The sustainable development of the corporation includes the areas of Environment, Society, and Governance.
- Execute and review sustainable development results, strategic goals, and the amendment of related regulations. The Committee shall draw up the policies, goals, and strategies of corporate sustainable development in 2020 and the work plan for 2021. The execution of the work plan shall be reviewed and reported to the BoD on an annual basis.
- Under the Committee, the "Corporate Social Responsibility Promotion Center" and the "Ethical Management Promotion Center" will be established (to replace the "Corporate Social Responsibility Promotion Team" and "Ethical Management Promotion Team" respectively with the authority unit from the BoD shifted to the Committee) in order to facilitate and carry out the strategic goals of the business. The sole Executive Secretary, who is also the Officer of Corporate Governance, shall execute Committee meeting affairs and related works.

**“ 5 members of the Sustainable Development Committee have been appointed under the resolution of the BOD. The members are formed by directors. Half or more of the members should be independent directors. In total, 3 meetings were held in 2019, with a 100% attendance rate. ”**



## Corporate Social Responsibility Promotion Center

Since 2016, the "Corporate Social Responsibility Promotion Team" (renamed "Corporate Social Responsibility Promotion Center") has been set up to jointly discuss non-financial performance issues. This team proactively advocates 17 sustainable development goals (SDGs) and verifies specific measures that can be taken by TTY Biopharm to create a management guide for sustainable development and then reports to the SDC. The 2020 Work Plan was approved by the Committee on November 13th, 2019.



**Corporate Governance**



**Environmental Sustainability**



**Employee Care**



**Social Participation**



**Products and Services**

The CSR Promotion Center includes and enhances CSR information disclosure as required by relevant regulations. Reliable and accountable CSR information is revealed to contribute to information transparency.

CSR Information Disclosure items are as follows:

- BoD resolution-backed CSR policies, systems, guidelines, and action plans.
- The risks and impact to the company's operation and financial status caused by the realizing corporate governance, environmental sustainability, and social welfare.
- CSR action goals, measures, and achievements stipulated by the Company.
- Major stakeholders and issues of concern.
- Major suppliers' management and performance disclosure of critical environmental and social issues.
- Directions for improvement and future goals.
- Other CSR information.

## Whistleblowing System

- Set up whistleblowing and reward systems, as well as whistleblowing channels on the corporate website and internal employee website, where whistleblower cases are accepted by dedicated personnel in the "Ethical Management Promotion Center".
- Establish standard operating procedures for investigating whistleblower cases and a related confidentiality system.
- A system in which whistleblowers may choose to remain anonymous.
- Measures for protecting whistleblowers from improper actions due to whistleblowing.
- Impose heavy punishments on personnel who leak the identity of whistleblowers and whistleblowing contents.

## Ethical Management Promotion Center

In 2019, the Committee covered the authority of not only the CSR Promotion Center but also the "Ethical Management Promotion Center". With the General Manager acting as the convener, the management of the Management Center, Department of Finance, Audit, Organization Development and Human Resources Department, and Legal Department formed the Committee's members. Its functions range from the establishment of corporate culture, ethical management and development to the stipulation of the "Principles of Procedures for Ethical Management", "Procedures for Ethical Management and Guidelines for Conduct", and "Operating Procedures for Handling Internal Material Information", making every effort to practice anti-corruption.

To prevent the potential for dishonest behavior, a "Risk Evaluation for Dishonest Conduct" has been established as the basis for the Ethical Management Promotion Center to perform interviews with departments where the business scope may be exposed to higher risks of dishonest conduct and assess the risk level of their activities as a way to enforce internal control. Furthermore, by signing the "Statement of Integrity and Code of Conduct", members of the TTY senior management team (GM and deputy general manager) are obligated to follow the Company's ethical management policy.

The "Procedures for Ethical Management and Guidelines for Conduct" have been established to specify knowledge to be noted by Company personnel when executing relevant businesses and clearly stipulate disciplinary and grievance policies for any violations. The guidelines specify measures for preventing unethical behavior to strictly prohibit directors, managers, and employees from giving and collecting bribes and engaging in illegal conduct. Employees who engage in activities that violate the regulations will be punished, suspended, or dismissed based on the actual situation. It was confirmed that no corruption incident was found during the reporting period within 6 operational sites.

## Operational Practice

The "Ethical Management Promotion Team" regularly reports operational results to the Board of Directors every year, and the operational results of 2019 reported on March 16th, 2020 are as follows:

- Promotion of ethical management policy: Notified all employees of the establishment of the "Procedures for Ethical Management and Guidelines for Conduct" via email notification and has disclosed these procedures and guidelines on the internal employee website.
- Educational training: Conducts ethics-related training on drug safety, business secrets, intellectual property rights, information safety, insider trading prevention, drug advertisements, and company regulations. In total, 15 training sessions were conducted in 2019, involving 238 employees and 845 man-hours of training. One online "Anti-corruption" course was attended by 437 employees with a study rate of 78.88%. The brief report has been submitted by email to Directors for reference.

- Ethical management promotion for new employees: Since May 14th, 2018, each new employee is required to attend ethical management promotion sessions on a day when on board for duty.
- Reporting of whistleblowing status: The "Ethical Management Promotion Team" reports whistleblowing status filed via the whistleblowing mailbox to independent directors every quarter. In 2019, a total of 213 pieces of mail were received, most of which were deemed junk mail with no unethical behavior, such as corruption, being recorded.
- Identify the risk of possible dishonesty in operational activities: Perform interviews with departments in which the business scopes are exposed to higher risks of dishonest conduct and assess the risk level of such activities. The results indicated low risk.
- TTY's senior management team (GM and deputy general manager) has signed the "Statement of Integrity and Code of Conduct" in accordance with the Company's ethical management policy.

## TIPS to Guard R&D Property

TTY is one of Taiwan's few one-stop manufacturers that provide service from development to manufacture to marketing. As a pharmaceutical company, TTY tops Taiwan's industrial development capacity, with R&D funds exceeding TWD 2.1 billion over the past 7 years. Therefore, guarding the Company's intellectual property, preventing and minimizing the risks of infringement of others, and maximizing our intangible assets are all critical. The implementation of TIPS (Taiwan Intellectual Property Management System) enforces intellectual property management and reduces product launching risks. To continue improving and enhancing risk control and reacting capability, every year, at least one internal audit and patent infringement risk control for launching main products on target markets are conducted according to each product's development strategy.

## Grade A Certified: Internal Audit to Run Strict Discipline

The TIPS system was introduced pursuant to the 2014 annual strategy meeting. Under the assistance of the TIPS, a corporate intellectual property management diagnosis was run, and the related departments (R&D, Intellectual Property, Legal, IT, and HR) passed the first validation. The measure has then expanded to the entire company, and in 2016, TTY completed the basic validation as a whole. Meanwhile, monthly TIPS meetings review current TIPS documents and discuss the addition and amendment of regulations by the management team and employee representatives according to different documents integrated management systems. The purpose is to build a consistent standard and procedure for integrating the document management of headquarters and every site.

With 8 TIPS training courses across headquarters and each site, all colleagues have completed the training and are aware of the importance of intellectual property knowledge. This statement applies to newly recruited personnel as well. To accommodate the new version of TIPS in 2016, TTY will be reviewed and then make revisions accordingly. Our internal auditors will also be trained to conduct audits. So far, TIPS internal audit training has produced 40 internal auditors to strictly inspect the execution of the new version of the regulations.

All departments have undergone internal audits by cross-departmental mutual auditing to discover issues and review the insufficiency of the system and its execution. Through discussion and communication, implementation and execution can be adjusted to perfect the PDCA system and minimize execution difficulties. The procedure is shared among the industry for best practice enhancement. TTY conducted the audit with the strictest standards, continued with system development to improve procedure management and efficiency. As a positive result, in 2018, TTY acquired the 2016 TIPS LEVEL A Certificate with a successful external audit.

## Competence: Multi Intellectual Property Routes towards Maximum Benefit

To make our intellectual property management more effective, we expect our employees to be properly aware of the expectations and principles of intellectual property management, pay attention to company classified information, and value innovation and development.

The application of TIPS allows all employees to follow a complete and specific set of regulations. Through online learning courses, members can access intellectual property related knowledge without the restrictions of time and space. The proper control of the Company's classified information helps retain its confidentiality, completeness, and availability. The "Patent History Lookup" is established and applied prior to any development of a new product or technology to prevent wasting resources. The integrity of the intellectual property management validation system can help enhance the Company's competence with systematic intellectual property management.



# International Level Risk Assessment and Management

TTY Biopharm has long been paying attention to risk reports issued by international benchmark companies as the highest management guide for corporate governance and risk management. These risk reports include but are not limited to the "Global Risks Report" issued by the World Economic Forum (WEF) and the "Ten Threats to Global Health" annually published by the World Health Organization (WHO). We monitor the changing trends of international risks and hold them as risk management guidelines for future corporate governance.

## Risk Management Items

To achieve sustainable operation, TTY continues to conduct control over all types of risks, assesses the possible existence of the most seen risks, and has taken precautionary measures over possible risks that are more likely to cause negative impact.

Risk Items	Impact Level towards Finance	Countermeasures
Change of interest, exchange rate	Low	<ul style="list-style-type: none"> <li>Interest: Measure financial needs with TTY development plan and supply with mid-to-long term or short-term loan to minimize costs.</li> <li>Exchange rate: Annual net exchange position buying (selling) to minimize exchange rate changes.</li> </ul>
Lending Funds to others	Low	Loans, endorsements, and guarantees can only be made to and for reinvested companies, and the execution is subject to the Company's Regulations for Lending Funds to Other Parties.
Future development plans	Low	Drugs with specialty dosages, biological drugs, new drug development, and acquiring approvals for new indications are the future development directions.
Change of policies and laws	Low	<ul style="list-style-type: none"> <li>Sales network across Taiwan to expand sales.</li> <li>Enhance the quality of drugs with high market value to increase the opportunity to be used in prescriptions.</li> <li>Introduce new drugs for target treatments at late clinical stages to create most suitable revenue.</li> </ul>
Corporate image and risk management	Low	<ul style="list-style-type: none"> <li>Reinforcement and realization of corporate governance.</li> <li>Implementation of CSR.</li> <li>Solid internal control system and capital structure.</li> </ul>
Expansion of factory	Low	<ul style="list-style-type: none"> <li>Extend and expand manufacturing sites to elevate productivity and income.</li> <li>Carefully planned expenditures to prevent operational risks.</li> </ul>
Single supplier	Low	Only one supplier whose supply value exceeds 10% of the total value. The supplier is a world-renowned international manufacturer, so the risk is relatively low.

See Page 223 of the Annual Report on our website for complete risk management information. <https://reurl.cc/62RkQ5>

# Activated Information Security

The Information Technology Department assumes responsibility for the domain. Under the Information Technology Manager, various technology experts are in charge of stipulating the internal information security policy and executing information security operations and its policies. The department reports the overall status of corporate information security to the BoD on a regular basis.

Information security supervision is audited by the Auditing Office. Under the Office Manager, various auditors are responsible for auditing the internal information security implementation status. If any deficiencies or weaknesses are found, the responsible department will be required to propose an action plan. Follow-up and regular checks of progress are conducted to minimize information security risks.

## 2019 TTY Information Security Measures and Plan

1. Training: training and education session on information security is conducted for newly recruited personnel on a quarterly basis. All members have completed the courses and passed the exam.
2. Internal & External Security Audits
  - Internal Audit
    - a. In addition to the daily audit related inspection of information security control, an annual audit of information security implementation is conducted based on the "Regulations Governing the Establishment of Internal Control Systems by Public Companies", along with reinforced internal control effectiveness by the design and re-assessment of self-evaluations. If any deficiency or abnormality is found, the responsible unit will be required to make corrections within a designated time.
    - b. As a TIPS certified company, TTY conducts annual intellectual property management audits. The action particularly focuses on self-audits of classified document management, cross-departmental mutual audits, regular meetings of review management, and the review of management deficiencies, as well follow-up measures for improvement.
  - External Audits
    - a. The Institute for Information Industry (III) conducts audits of TTY on intellectual property management standards to ensure its procedures comply with TIPS standards.
    - b. KPMG conducts a TTY computer audit to ensure that its information security management complies with industrial standards.
3. Information Guard Upgrade: to improve network infrastructure and internet access control, TTY has upgraded entire internet firewall, enhanced the internet information security of each site office, and created a backup system to assure internet service quality.

In order to implement information security policies and procedures, TTY partners with Sophos, IP Guard, Quest and CyberArk to install information security application systems and provide endpoint security and firewall.

4. Local/Remote Disaster Recovery Drill: an automated daily backup ensures that the environment of critical systems (e.g., ERP, database, File Server, etc.) and its data can be restored online in the case of disaster. An annual local/remote backup recovery drill is on a regular schedule as well.
5. Website Vulnerability Check: the company website and product websites complete vulnerability checks and then repair high, medium, and low risks in order to minimize the risk of hacking into the system using vulnerable spots.
6. Major Information Security Management Plan Installation
  - a. "Privileged Access Management": privileged identities and accounts' behaviors on the system are logged, and high-risk operations are detected to minimize risks from the improper use of accounts.
  - b. File Server Access Management Monitoring System: the inventory of file server authority is executed with such implementation. File access will be logged, and any abnormalities will be detected in real-time to alarm the management team.

## 2020 Ongoing/New Installation of Information Security Measures and Plans

1. Internal & External Security Audits
2. Local/Remote Disaster Recovery Drills
3. Information Security Training and Education
4. Building "Privileged Access Management" and "File Server Access Management Monitoring System", and calibration of the detection system to precisely locate real-time abnormalities.
5. "HoneyPot" is to be installed to analyze and monitor intranet hacking and unknown virus activities.
  - The HoneyPot is a mechanism that can locate attempts at unauthorized use (hacking, virus) of company information systems and thus enhance the information security environment.
6. Building log manager "Information System Diary" to consolidate the management of critical systems/equipment.
  - Collects and delivers critical host/network equipment system logs back to the Log Manager, which analyzes system abnormalities and their correlation with information security incidents.
7. Quarterly information security report to senior managers.

## Achievement of CSR Report in TCSA Awards

As the winner of the 12th Taiwan Corporate Sustainability Awards' Silver Award, TTY was the first corporation to compile a report with the three Environmental, Social, and Governance (ESG) topics, CSR content that has long been practiced in advanced countries. The incorporation of international CSR content, which speaks to global stakeholders with innovative agreement and communication, has gained the recognition of the TCSA review panel.

More than a slogan, the core value of ESG should be openly inspected and evaluated. Furthermore, it is a daily implementation, an internalized individual behavior that has grown and become part of every TTY employee. We expect all TTY employees to be enlightened citizens.





The TTY CSR Report was awarded with TCSA Silver Prize. A photo of receiving the award in November 2019. Thanks for the support!

# BSI Certification Statement Approved

## AA1000 Inspection Standards/ GRI Standards

The outstanding achievement included in the TTY CSR Report is approved by The British Standards Institution (BSI Taiwan Subsidiary) that the content has been compiled according to AA1000 Standards and GRI Standards. The British Standards Institution (BSI Taiwan Subsidiary) is a globally-recognized independent organization that provides inspection, verification, testing, and validation services.

**bsi.**    
By Royal Charter

**INDEPENDENT ASSURANCE OPINION STATEMENT**

TTY Biopharm Company Limited. 2019 Corporate Social Responsibility Report

The British Standards Institution is independent to TTY Biopharm Company Limited. (hereafter referred to as TTY Biopharm in this statement) and has no financial interest in the operation of TTY Biopharm 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 TTY Biopharm only for the purposes of assuring its statements relating to its corporate social responsibility (CSR), more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by TTY Biopharm. 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 TTY Biopharm only.

**Scope**

The scope of engagement agreed upon with TTY Biopharm includes the followings:

1. The assurance scope is consistent with the description of TTY Biopharm Company Limited. 2019 Corporate Social Responsibility Report.
2. The evaluation of the nature and extent of the TTY Biopharm's adherence to AA1000 AccountAbility Principles (2018) in this report as conducted in accordance with type 1 of AA1000 Assurance Standard (2008) with 2018 Addendum 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 TTY Biopharm 2019 Corporate Social Responsibility Report provides a fair view of the TTY Biopharm CSR programmes and performances during 2019. The CSR 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 TTY Biopharm and the sample taken. We believe that the 2019 economic, social and environmental performance information are fairly represented. The CSR performance information disclosed in the report demonstrate TTY Biopharm's efforts recognized by its stakeholders.

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

**Methodology**

Our work was designed to gather evidence on which to base our conclusions. Our activities included:

- a review of issues raised by external parties that could be relevant to the appropriateness of statements made in the report.
- discussion with managers on approach to stakeholder engagement with external stakeholders.
- 9 interviews with staffs involved in sustainability management, and 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 against the principles of Inclusivity, Materiality, Responsiveness and Impact of 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 TTY Biopharm has continually sought the engagement of its stakeholders and established material sustainability topics, as the participation of stakeholders has been conducted in developing and achieving an accountable and strategic response to sustainability. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the TTY Biopharm's inclusivity issues.

**Materiality**

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

**Responsiveness**

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

**Impact**

TTY Biopharm has identified and fairly represented impacts that were measured and disclosed in probably balanced and effective way. TTY Biopharm 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 TTY Biopharm's impact issues.

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

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

**Assurance level**

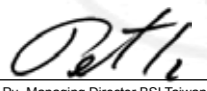
The moderate level assurance provided is in accordance with AA1000AS (2008) with 2018 Addendum in our review, as defined by the scope and methodology described in this statement.

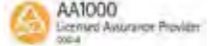
**Responsibility**

The CSR report is the responsibility of the TTY Biopharm'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

 **AA1000**  
Licensed Assurance Provider  
2008-4

Statement No: SRA-TW-2019052  
2020-06-10

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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

## GRI Standards Index

GRI Standards Material Topics	Material Topics	Disclosure No.	Disclosure Item	Page	Comments
GRI 102: Organizational profile 2016	Organizational profile	102-1	Name of the organization	P14 About TTY Biopharm	
GRI 102: Organizational profile 2016	Organizational profile	102-2	Activities, brands, products, and services	P14 About TTY Biopharm P78~P79 Grade A Certified TIPS to Guard R&D Property	
GRI 102: Organizational profile 2016	Organizational profile	102-3	Location of headquarter	P14 About TTY Biopharm P89 Location of operations	
GRI 102: Organizational profile 2016	Organizational profile	102-4	Location of operations	P14 About TTY Biopharm P89 Location of operations	
GRI 102: Organizational profile 2016	Organizational profile	102-5	Ownership and legal form	P14 About TTY Biopharm	
GRI 102: Organizational profile 2016	Organizational profile	102-6	Markets served	P14 About TTY Biopharm	
GRI 102: Organizational profile 2016	Organizational profile	102-7	Scale of the organization	P14 About TTY Biopharm	
GRI 102: Organizational profile 2016	Organizational profile	102-8	Information on employees and other workers	P48~P49 Create a Happy Workplace	
GRI 102: Organizational profile 2016	Organizational profile	102-9	Supply chain	P28~P31 Supplier Management P89 Supply Chain	
GRI 102: Organizational profile 2016	Organizational profile	102-10	Significant changes to the organization and its supply chain	P89 Supply Chain	
GRI 102: Organizational profile 2016	Organizational profile	102-11	Precautionary principles or guidelines	P80 International Level Risk Assessment and Management	
GRI 102: Organizational profile 2016	Organizational profile	102-12	External initiatives	P89 External initiatives	
GRI 102: Organizational profile 2016	Organizational profile	102-13	Membership of associations	P90 Participation of External Associations	
GRI 102 Strategy 2016	Strategy	102-14	Statement from decision-maker	P4~P5 Letter From the Chairman	
GRI 102 Strategy 2016	Strategy	102-15	Key impacts, risks, and opportunities	P80 International Level Risk Assessment and Management P81 Activated Information Security	
GRI 102 Ethics and integrity 2016	Ethics and integrity	102-16	Values, principles, standards, and norms of behavior	P69 Key Leading Policies	
GRI 102 Governance 2016	Governance	102-18	Governance structure	P70 Diversity of Board of Directors	
GRI 102 Governance 2016	Governance	102-27	Collective knowledge of highest governance unit	P72~P77 Progressive Governance Team	
GRI 102 Stakeholder engagement 2016	Stakeholder engagement	102-40	List of stakeholder groups	P8~P13 Stakeholder Engagement	
GRI 102 Stakeholder engagement 2016	Stakeholder engagement	102-41	Group agreements	P8~P13 Stakeholder Engagement	No Union No Group Agreement
GRI 102 Stakeholder engagement 2016	Stakeholder engagement	102-42	Identifying and selecting stakeholders	P8~P13 Stakeholder Engagement	
GRI 102 Stakeholder engagement 2016	Stakeholder engagement	102-43	Guidelines on Communications with Stakeholders	P64 Internalized the 17 SDG Goals in Us P8~P13 Stakeholder engagement	

GRI 102 Stakeholder engagement 2016	Stakeholder engagement	102-44	Key topics and concerns raised	P10~P13 Materiality Analysis on Issues	
GRI 102 Reporting practice 2016	Reporting practice	102-45	Entities included in the consolidated financial statements	P6~P7 About TTY CSR Report P16 TTY Subsidiaries	
GRI 102 Reporting practice 2016	Reporting practice	102-46	Defining report content and topic boundaries	P6~P7 About TTY CSR Report	
GRI 102 Reporting practice 2016	Reporting practice	102-47	List of material topics	P10~P13 Materiality Analysis on Issues	
GRI 102 Reporting practice 2016	Reporting practice	102-48	Restatements of information	P6~P7 About TTY CSR Report	
GRI 102 Reporting practice 2016	Reporting practice	102-49	Changes in reporting	P12~P13 Materiality Analysis on Issues	Add Economic Performance to Material Topics and Topic Boundaries
GRI 102 Reporting practice 2016	Reporting practice	102-50	Reporting period	P6~P7 About TTY CSR Report	
GRI 102 Reporting practice 2016	Reporting practice	102-51	Date of last report	P6~P7 About TTY CSR Report	
GRI 102 Reporting practice 2016	Reporting practice	102-52	Reporting cycle	P6~P7 About TTY CSR Report	
GRI 102 Reporting practice 2016	Reporting practice	102-53	Contact for questions regarding the report	P6~P7 About TTY CSR Report	
GRI 102 Reporting practice 2016	Reporting practice	102-54	Claim of reporting in accordance with GRI Standards	P6~P7 About TTY CSR Report	
GRI 102 Reporting practice 2016	Reporting practice	102-55	GRI content index	P86~P89 GRI Standards Index	
GRI 102 Reporting practice 2016	Reporting practice	102-56	External assurance	P84~P85 BSI Certification Statement Approved	
GRI 103 Management approach 2016	Management approach	103-1	Explanation of the material topic and its boundary	P8~P13 Stakeholder Engagement	
GRI 103 Management approach 2016	Management approach	103-2	The management approach and its components	P8~P13 Stakeholder Engagement	
GRI 103 Management approach 2016	Management approach	103-3	Evaluation of the management approach	P8~P13 Stakeholder Engagement	
GRI 201 Economic performance 2016	Economic performance	201-1	Direct economic value generated and distributed by the organization	P14 About TTY Biopharm P15~P16 TTY Financial Operation Overview	Material Topics
GRI 201 Economic performance 2016	Economic performance	201-3	Defined benefit plan obligations and other retirement plans	P49 Well-Organized Benefit Package	
GRI 202 Market presence 2016	Market presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	P49 Competitive Salary Policy	
GRI 203 Indirect economic impacts 2016	Indirect economic impacts	203-1	Development and impacts of infrastructure investments and services supported	P56~P67 Community Participation and Development	Material Topics
GRI 205 Anti-corruption 2016	Anti-corruption	205-2	Communication and training with regard to anti-corruption policies and procedures	P76~P77 EMPC	
GRI 205 Anti-corruption 2016	Anti-corruption	205-3	Confirmed incidents of corruption and actions taken	P76~P77 EMPC	
GRI 302 Energy 2016	Energy	302-1	Energy consumption within the organization	P33~P37 Enhanced Carbon Footprint Reduction	Material Topics
GRI 302 Energy 2016	Energy	302-4	Reduction of energy consumption	P33~P37 Enhanced Carbon Footprint Reduction	

GRI 303 Water 2016	Water	303-1	Water withdrawal by source	P38~P41 As a Global Citizen, TTY Treats Wastewater Seriously	
GRI 305 Emissions 2016	Emissions	305-1	Direct (Scope 1) GHG emissions	P33~P37 Enhanced Carbon Footprint Reduction	
GRI 305 Emissions 2016	Emissions	305-2	Energy indirect (Scope 2) GHG emissions	P33~P37 Enhanced Carbon Footprint Reduction	Material Topics
GRI 305 Emissions 2016	Emissions	305-5	Reduction of GHG emissions	P33~P37 Enhanced Carbon Footprint Reduction	
GRI 306 Effluents and waste 2016	Effluents and waste	306-1	Water discharge by quality and destination	P38~P41 As a Global Citizen, TTY Treats Wastewater Seriously	Material Topics
GRI 306 Effluents and waste 2016	Effluents and waste	306-2	Waste by category and disposal method	P42~P44 Waste Control for a Long Live Earth P90~P91 Waste by Category and Disposal Method	Material Topics
GRI 306 Effluents and waste 2016	Effluents and waste	306-3	Significant leakage	P42~P44 Waste Control for A Long Live Earth	Material Topics
GRI 307 Environmental compliance 2016	Environmental compliance	307-1	Non-compliance with environmental laws and regulations	P42~P44 Waste Control for a Long Live Earth	
GRI 308 Supplier environmental assessment 2016	Supplier environmental assessment	308-1	New suppliers that were screened by environmental criteria	P28~P31 Supplier Management	

GRI 401 Employment 2016	Employment	401-1	New and Departed Employees	P48~P49 Create a Happy Workplace P91 New and Departed Employees	Material Topics
GRI 401 Employment 2016	Employment	401-2	Benefits provided to full-time employees (Excluding temporary or part-time employees)	P49 Well-Organized Benefit Package	Material Topics
GRI 402 Labor/ Management relations 2016	Labor/ Management relations	402-1	Minimum notice periods regarding operational changes	P49 Adequate Labor-Management Communication	Material Topics
GRI 403 Occupational health and safety 2016	Occupational safety and health	403-1	Workers' representation in a formal joint safety and health committee	P52~P53 Occupational Safety & Health-TTY's Care and Responsibility	
GRI 403 Occupational health and safety 2016	Occupational safety and health	403-2	Types of injury and rates of injury, occupational hazards, lost days, and absenteeism, and number of work-related fatalities	P52~P53 Occupational Safety & Health-TTY's Care and Responsibility P92~P93 Statistics on Occupational Hazards in the last 5 years	
GRI 403 Occupational health and safety 2016	Occupational safety and health	403-3	Workers with high incidence or high risk of hazards related to their occupation	P52~P53 Occupational Safety & Health-TTY's Care and Responsibility	
GRI 404 Training and education 2016	Training and education	404-1	Average hours of training per year per employee	P50~P51 Comprehensive Training & Education P94 Training & Education	Material Topics
GRI 404 Training and education 2016	Training and education	404-2	Programs for upgrading employee skills and transition assistance programs	P51 Career Development (Become a TTY Successor)	
GRI 404 Training and education 2016	Training and education	404-3	Percentage of employees receiving regular performance and career development reviews	P51 Career Development (Become a TTY Successor) P94 Regular Performance Evaluation in Percentage	Material Topics
GRI 405 Diversity and equal opportunity 2016	Diversity and equal opportunity	405-1	Diversity of governance units and employees	P48 Gender-Friendly Workplace	
GRI 405 Diversity and equal opportunity 2016	Diversity and equal opportunity	405-2	Ratio of basic salary and remuneration of women to men	P49 Competitive Salary Policy	
GRI 406 Non-discrimination 2016	Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	P55 Labor Rights Advocate	No such occurrence
GRI 413 Local Communities 2016	Local Communities	413-1	Operations with local community engagement, impact assessments, and development programs	P56~P67 Community Participation and Development	

GRI 416 Customer health and safety 2016	Customer health and safety	416-1	Assessment of the health and safety impacts of product and service categories	P58~P59 Drug Safety Control	Material Topics
GRI 417 Customer health and safety 2016	Marketing and labeling	417-1	Requirements for product and service information and labeling	P58~P59 Drug Safety Control	Material Topics
GRI 417 Customer health and safety 2016	Marketing and labeling	417-2	Incidents of non-compliance concerning product and service information and labeling	P58~P59 Drug Safety Control	Material Topics
GRI 417 Customer health and safety 2016	Marketing and labeling	417-3	Incidents of non-compliance concerning marketing communications	P58~P59 Drug Safety Control	Material Topics

## Other Information Disclosure General Information

### Operational Locations

#### Headquarter

- +886-2-26525999
- 3rd Floor, No. 3-1, Park Street, Nangang District, Taipei City

#### Chungli Factory, Taoyuan

- +886-3-4522160
- No. 838, Section 1, Zhonghua Road, Chungli District, Taoyuan City

#### Liudu Factory, Keelung

- +886-2-24512466
- No. 5, Gongjian West Road, Qidu District, Keelung City

#### Translational Research Center

- +886-2-26971775
- 32nd Floor-5, No. 99, Section 1, Xintai 5th Road, Xizhi District, New Taipei City

#### Pharmaceutical Development Center

- +886-2-27967383
- 3rd Floor, No. 124, Xingshan Road, Neihu District, Taipei City

#### Neihu Factory

- +886-2-27967383
- 5th Floor, No. 118, Xingshan Road, Neihu District, Taipei City

### Supply Chain

The structure of the pharmaceutical manufacturing industry can be divided into the upstream, midstream, and downstream sectors. The upstream and midstream sectors involve the search and manufacture of raw materials (active pharmaceutical ingredients), while the downstream sector involves the manufacture of preparations and various sales channels. Drugs can be simply divided into three types, namely original, imported or locally produced bioequivalent generics (BE Generics), and non-bioequivalent generics (Non-BE Generics). At present, Taiwan's pharmaceutical manufacturing industry is generally located in the downstream sector and primarily engages in the manufacture and sale of non-BE Generics. However, this industry has been gradually trying to move toward the development of new drugs. The supply chain experienced no material changes during the reporting period.

### External Initiatives

- TTY Biopharm joins with external initiatives in response to international standards.
- Seeks a sustainable environment together with society and supports the UN's 17 SDGs.
- The Ethical Management Promotion Team takes action to follow and implement the WEF's Partnering Against Corruption — Principles for Countering Bribery.
- Follows and promotes the theme of WHO "World Health Day" with a song to encourage public welfare and public awareness of health services.
- Follows GRI Standards to build and propose to the public of the CSR Report of ESG (Environmental, Social, Governance) transparency.

## Participation in External Associations

No.	Participation in External Associations	Position held in governing body
1	Institute for Biotechnology and Medicine Industry (IBMI)	Member
2	Taiwan Bio Industry Organization	Member
3	Taiwan Pharmaceutical Manufacture and Development Association	Director, Deputy Chairperson of Drug Administration Committee, and Deputy Chairperson of Intellectual Property and Legal Committee
4	Industrial Technology Research Institute (Small Molecule Drug Development Industry Alliance) and Biomedical Technology and Device Research Laboratories, Industrial Technology Research Institute	Member
5	Taiwan Pharmaceutical Manufacturers Association	Alternate supervisor
6	Taipei Pharmaceutical Agents and Distributors Association	Supervisor
7	Importers and Exporters Association of Taipei	Member
8	Taipei Pharmaceutical Business Association	Member
9	Cross-Strait Medical Academic Exchange Association	Member
10	Taiwan Society of Regulatory Affairs for Medical Products	Member
11	T.M.U. Pharmacy Foundation for Culture and Education	Member
12	Taiwan Parenteral Drug Association	Executive Director
13	Keelung Federation of Labor	Member
14	Medical and Pharmaceutical Industry Technology and Development Center	Member
15	Taiwan Generic Pharmaceutical Association	Director

## Environmental

### Waste by category and disposal method ( Unit: tons )

Factory	Waste type and name		Intermediate waste treatment method	Final waste disposal method	2015	2016	2017	2018	2019
Lioudu Factory	General industrial waste	Waste drugs (human or animal users)	Physical treatment	Incineration	17.03	9.03	10.05	11.74	8.52
	Hazardous industrial waste	Waste liquid with a flash point less than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)	Incineration	Landfill	No collection	6.26	No collection	6.61	4.71
		Infectious waste mixtures	Incineration	Landfill	No operation	No operation	No collection	1.47	0.96
Chungli Factory	General industrial waste	Waste drugs (human or animal users)	Incineration	Landfill	1.12	0.90	0.87	0.79	1.06
	Hazardous industrial waste	Waste liquid with a flash point less than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)	Physical treatment	Landfill	2.51	1.84	1.73	2.03	2.08

Factory	Waste type	Disposal method	2015		2016		2017		2018		2019	
			No collection	Percentage	No collection	Percentage	No collection	Percentage	No collection	Percentage	No collection	Percentage
Neihu Factory	General industrial waste	Waste drugs (human or animal users)	No collection	0.86	No collection	0.51	No collection	0.60				
	Hazardous industrial waste	Waste liquid with a flash point less than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)	Incineration	5.87	1.13	8.36	6.18	5.90				
		Waste liquid with a flash point less than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)	Physical treatment	No collection	9.97	No collection	No collection	No collection				
		Waste sharp tools	Incineration	0.63	0.20	0.23	0.10	0.17				
		Infectious waste (contaminated items or utensils)	Incineration	No collection	0.22	0.26	0.13	0.18				
		Infectious waste mixtures	Incineration	2.62	2.26	2.06	2.56	1.83				

## Social

### Employment by Age

Age	Male		Female		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
30 years old or younger	29	5.23%	53	9.57%	82	14.80%
31 to 50 years old	194	35.02%	192	34.66%	386	69.68%
51 years old and older	43	7.76%	43	7.76%	86	15.52%
Subtotal	266	48.01%	288	51.99%	554	100%

### New and Departed Employee

New employees						
Age	Male		Female		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
30 years old or younger	12	2.17%	15	2.71%	27	4.87%
31 to 50 years old	24	4.33%	19	3.43%	43	7.76%
51 years old and older	2	0.36%	1	0.18%	3	0.54%
Subtotal	38	6.86%	35	6.32%	73	13.18%
Departed employees						
Age	Male		Female		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
30 years old or younger	2	0.36%	3	0.54%	5	0.90%
31 to 50 years old	20	3.61%	21	3.79%	41	7.40%
51 years old and older	1	0.18%	2	0.36%	3	0.54%
Subtotal	23	4.15%	26	4.69%	49	8.84%

Notes (1) New employee rate = employee number of gender by age group/permanent employees by the end of the year

(2) Departed employee rate = employee number of gender by age group/permanent employees by the end of the year

## Employee Composition

Gender	Unit	2015	2016	2017	2018	2019
Male	Count	239	250	258	252	266
	%	48.88	49.21	49.62	47.55	48.01
Female	Count	250	258	262	278	288
	%	51.12	50.79	50.38	52.45	51.99
Total	Count	489	508	520	530	554

## Growth of employee compensation and welfare expenses for five consecutive years ( Unit NT\$ thousands )

Year	2015	2016	2017	2018	2019
Amount	764,352	862,873	881,703	938,506	1,000,476

## Occupational Safety and Health

### Statistics on occupational hazards in the last five years

Male							
Year	Occupational hazard		Number of working days lost	Injury rate	Percentage of days lost	Full-year total for male employees	
	Number of persons injured	Number of deaths				Total number of working days	Total number of working hours
2015	2	0	16	0	6.81	55,933	469,966
2016	1	0	60	0	24.29	59,060	493,998
2017	3	0	16	0	5.98	66,712	534,938
2018	1	0	200	0	73.21	66,711	546,384
2019	1	0	18	0.36	6.40	67,818	562,169
Female							
Year	Occupational hazard		Number of working days lost	Injury rate	Percentage of days lost	Full-year total for female employees	
	Number of persons injured	Number of deaths				Total number of working days	Total number of working hours
2015	0	0	0	0	0	68,614	489,071
2016	1	0	21	0	8.37	59,990	501,526
2017	0	0	0	0	0	68,870	552,058
2018	2	0	65	0	22.60	70,472	575,240
2019	3	0	9	1.01	3.04	73,330	592,928

## Statistics on regular special health examination items and number of participants in 2019

Factory	Health examination item	Number of participants
Chungli Factory	Specific chemical substance + dust	21
	Physical	0
Lioudu Factory	Specific chemical substance + dust	48
	Physical	0
Neihu Factory	Specific chemical substance	8
	Physical	0

Male															
Year	Number of Injured					Number of working days lost					Working days	Absence rate			
	Total Injured Number	Chungli	Lioudu	Pharmaceutical	HQ	Total Number of working days lost	Chungli	Lioudu	Pharmaceutical	HQ		Chungli	Lioudu	Pharmaceutical	HQ
2015	2	1	1	0	0	16	14	2	0	0	55,933	0.0250%	0.0036%	0.0000%	0.0000%
2016	1	0	1	0	0	60	0	60	0	0	59,060	0.0000%	0.1016%	0.0000%	0.0000%
2017	3	0	1	0	2	16	0	4	0	12	66,712	0.0000%	0.0060%	0.0000%	0.0180%
2018	1	0	1	0	0	200	0	200	0	0	66,711	0.0000%	0.2998%	0.0000%	0.0000%
2019	1	0	1	0	0	18	0	18	0	0	67,818	0.0000%	0.0265%	0.0000%	0.0000%
Female															
Year	Number of Injured					Number of working days lost					Working days	Absence rate			
	Total Injured Number	Chungli	Lioudu	Pharmaceutical	HQ	Total Number of working days lost	Chungli	Lioudu	Pharmaceutical	HQ		Chungli	Lioudu	Pharmaceutical	HQ
2015	0	0	0	0	0	0	0	0	0	0	68,614	0.0000%	0.0000%	0.0000%	0.0000%
2016	1	0	1	0	0	21	0	21	0	0	59,990	0.0000%	0.0350%	0.0000%	0.0000%
2017	0	0	0	0	0	0	0	0	0	0	68,870	0.0000%	0.0000%	0.0000%	0.0000%
2018	2	0	1	1	0	65	0	20	45	0	70,472	0.0000%	0.0284%	0.0639%	0.0000%
2019	3	0	2	0	1	9	0	6	0	3	73,330	0.0000%	0.0082%	0.0000%	0.0041%

### Notes

- Occupational injury statistics base includes commuting disaster when commuting to/from work.
- Injury rate = (total injuries\*200000) / total work hours
- Lost day rate (LDR) = (lost working days\*200000) / total work hours
- Work days lost: the number of days employees are rendered unable to work (rest days)
- Work days lost base includes occupational sickness leave, sickness leaves, and menstrual leave (No sickness leaves or menstrual leaves were applied in 2019)
- Absence rate calculation base = Work days lost/work days x100%
- The statistics covered the Headquarter + Chungli Factory + Lioudu Factory + Translational Research Center + Neihu Factory
- 0% occupational hazard rate in TTY in 2019.

## Training and Education

### Average number of training hours per year per employee by gender and category

		Formula	Male	Female	Subtotal
Management and administration	Actual number of people during the reporting period	A1	29	49	78
	Training hours during the reporting period	B1	487	254	741
	Average number of training hours during the reporting period	$C1 = B1 / A1$	16.79	5.18	9.50
Sales and marketing	Actual number of people during the reporting period	A2	65	65	130
	Training hours during the reporting period	B2	1298	852	2150
	Average number of training hours during the reporting period	$C2 = B2 / A2$	19.97	13.11	16.54
Research and development	Actual number of people during the reporting period	A3	52	54	106
	Training hours during the reporting period	B3	627	700	1327
	Average number of training hours during the reporting period	$C3 = B3 / A3$	12.06	12.96	12.52
Factory	Actual number of people during the reporting period	A4	118	122	240
	Training hours during the reporting period	B4	1353	944	2297
	Average number of training hours during the reporting period	$C4 = B4 / A4$	11.47	7.74	9.57
Total	Hours	Q	3,765	2,750	6,515
Total number of employees at the end of the reporting period	Number of people	R	266	288	554
Average number of training hours per employee	Hours	$S = Q / R$	14.15	9.55	11.76

### Regular performance evaluation in percentage

Gender	Male			Female			Subtotal		
	Total number of employees at the end of the reporting period	Number of employees receiving regular performance and career development evaluations	Percentage	Total number of employees at the end of the reporting period	Number of employees receiving regular performance and career development evaluations	Percentage	Total number of employees at the end of the reporting period	Number of employees receiving regular performance and career development evaluations	Percentage
Formula	A	B	$C=B/A$	D	E	$F=E/D$	G	H	$I=H/G$
Management and administration	266	24	9.02%	288	46	15.97%	554	70	12.64%
Sales and marketing		61	22.93%		62	21.53%		123	22.20%
Research and development		51	19.17%		49	17.01%		100	18.05%
Factory		113	42.48%		117	40.63%		230	41.52%
Subtotal		249	93.61%		274	95.14%		523	94.40%

### Assessment of the impact of product and service categories on health and safety

The percentage of major product and service categories assessed to improve their impact on health and safety is 100%. The core philosophy of TTY Biopharm is to improve the quality of human life with scientific innovation. We are a pharmaceutical company that focuses on developing Specialty dosage forms and new drugs, thus enhancing human health and safety through product manufacturing. As a leading manufacturer in the commercial mass production of liposomes in Asia, this technology has been applied to breast cancer chemotherapy and has been proven to effectively reduce side effects, such as nausea and vomiting, poor appetite, hair loss, etc. No violations of health and safety regulations were found related to products and services during the reporting period.

## Governance

### Supplementary information on corporate governance

- Every director receives an average of 9.56 hours of training each year.
- Liability insurance is provided for all directors so that they can perform their occupational competence wholeheartedly, thus creating maximum benefits for shareholders.
- In 2011, we established the Remuneration Committee. During the reporting period, 7 meetings were convened by the committee, with an average attendance of 97.14%. Since 2016, the majority of the members of the Remuneration Committee have been independent directors, with a view to continuously strengthen the independence of the Remuneration Committee.
- In 2016, we established the Audit Committee. During the reporting period, 6 meetings were convened by the committee, with an average attendance of 100%.
- In 2019, the Sustainable Development Committee (SDC) was established under the BoD and took over the former "Corporate Social Responsibility Promotion Team" and "Ethical Management Promotion Team", which were later changed to the "Corporate Social Responsibility Promotion Center" and "Ethical Management Promotion Center", respectively. 3 meetings were recorded during the reporting period with a 100% attendance rate.
- Since 2016, self-assessment or peer assessment of the Board of Directors and individual directors has been regularly conducted every year, and the performance evaluation results are reported before the end of the first quarter in the following year.
- In 2019, in order to have consistent operation, SOP will be stipulated for the execution of demands proposed by the directors, assisting the directors in performing their duties and enhancing the efficacy of the BoD.
- The Officer of Corporate Governance was established in 2019.

### Sales Volume in the Past 5 Years ( Unit: Thousand Tablets/Thousand Pieces )

Main Product	2015		2016		2017		2018		2019	
	Sales Volume		Sales Volume		Sales Volume		Sales Volume		Sales Volume	
	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export
Ointment	2,298	-	3,228	-	2,290	-	2,036	-	2,479	-
Oral Drug	375,816	12,045	366,795	4,790	360,700	10,765	358,317	12,111	393,049	15,551
Injection	2,748	1,036	3,380	579	5,137	513	4,250	330	4,592	486
Others	4,247	-	366	-	439	47	727	1,551	789	-

### Sales in the Past 5 Years ( Currency: TWD, Unit: Thousand TWD )














Main Product	2015		2016		2017		2018		2019	
	Sales		Sales		Sales		Sales		Sales	
	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export
Ointment	94,300	-	99,513	-	73,160	-	74,630	-	84,429	-
Oral Drug	1,515,044	42,784	1,529,875	45,889	1,667,333	68,014	1,820,313	92,307	2,006,218	130,556
Injection	881,903	542,933	1,022,160	947,217	1,351,268	755,632	1,327,902	461,879	1,478,173	555,205
Others	47,894	-	52,618	-	71,466	217	133,938	7,167	112,712	-
Total	2,539,141	585,717	2,704,166	993,106	3,163,227	823,863	3,356,783	561,353	3,686,532	685,761

### 2019 Tax Amount ( Currency: TWD, Unit: Thousand TWD )

Item	Income Tax	Tax Preference	Government Subsidy
Amount	236,566	3,142	0



# SDGs Index

SDG Topic	SDGs	Strategy	Corresponding Material Topic
Breaking Poverty Cycle		Community Participation and Development- Boshiyuan with and for the World	Indirect Economic Impact
Sound Living Quality		Honorable Achievement-Create a Happy Workplace	Customer Health and Safety
		Occupational Safety & Health-- TTY's Care and Responsibility	Employment
		Community Participation and Development- Drug Safety Control	Customer Health and Safety Marketing and Labeling
		Community Participation and Development- A Song to Encourage Public Welfare and Public Awareness of Health	Indirect Economic Impact
		Community Participation and Development- Regional Care for the Cancer Effected Area	Indirect Economic Impact
Equal Learning, Life-long Learning		Community Participation and Development- Health Education for Cancer Patients	Indirect Economic Impact
		Comprehensive Training & Education	Corporate Governance Training and Education
		Career Development (Become a TTY Successor)	Corporate Governance Training and Education
		Community Participation and Development- Student Internship Project	Training and Education
		Community Participation and Development- Regional Care for the Cancer Effected Area	Indirect Economic Impact
		Community Participation and Development- Scholarships and Study Aids for Students from Cancer-affected Families	Indirect Economic Impact
Equal Opportunity Beyond Gender		Community Participation and Development- Remote Primary School Health-Building	Indirect Economic Impact
		Community Participation and Development- Internalized the 17 SDG Goals in Us	Corporate Governance
Sustainable City Motivation		Gender-Friendly Workplace	Corporate Governance Employment
		Create Career Opportunities	Employment
Environmental Protection Included Development		Competitive Salary Policy	Employment
		Enhanced Carbon Footprint Reduction	Corporate Governance Emission Energy
Reverse Disagreement to Advancement		TIPS to Guard R&D Property	Intellectual Property Security
		Workplace Equality	Corporate Governance Employment
		Labor Rights Advocate	Corporate Governance Labor/Management Relations
City Integration and Development		Community Participation and Development- A Mid-autumn Festival Time with the Less-privileged	Indirect Economic Impact
		SDC (Sustainable Development Committee)	Corporate Governance
Resource Management and Utilization		EMPC	Corporate Governance
		Responsible Storage and Cool Chain Logistics Chungli Factory - Taiwan's Unique Automated Liposome Mass Production Factory Lioudu Factory - PIC/S GMP Certified Analysis Methods and Development Capacity	TTY Manufacture Quality Assurance
Carbon Footprint		Enhanced Carbon Footprint Reduction	Energy Emission Exhaust gas, sewage and waste, toxic substance
		As a Global Citizen, TTY Treats Wastewater Seriously	Exhaust gas, sewage and waste, toxic substance
		Control Toxic and Chemical Substances Establish a Safe Environment for Using Chemicals	Exhaust gas, sewage and waste, toxic substance
Bio-diversity		Community Participation and Development- TTY for Water Resources	Indirect Economic Impact
Adequate and Effective Channel and Decision-Making		Withdrawal due to Conflict of Interests	Corporate Governance Ethics and Integrity
		Independent Supervision Units	Corporate Governance Ethics and Integrity
Overall Economic Stability		International Level Risk Assessment and Management	Economic Performance Corporate Governance
		Community Participation and Development- Second-hand Charity Sale Community Participation and Development- NPO Souvenirs	Indirect Economic Impact



# CSR

2019  
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