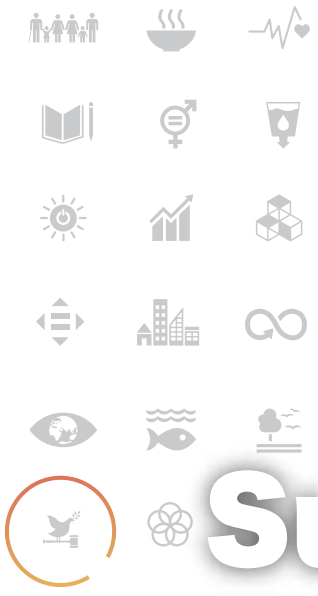


TTY  
Biopharm  
Company  
Limited



# 2020 Sustainability Report

Environment, Social, Corporate Governance



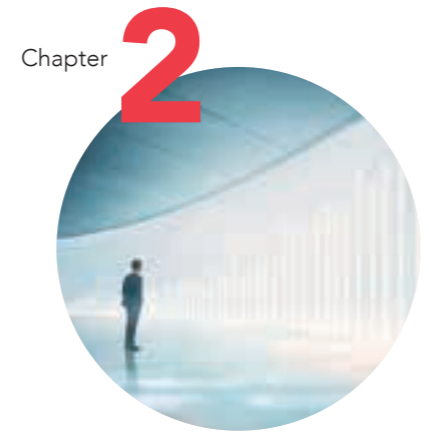
**TTY** *BIOPHARM*<sup>®</sup>

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54 Environmental

Our Earth deserves our serious attentions. We are committed to protect our planet; this is TTY's corporate mission as a citizen of the Earth, aspired to the formation of urban resilience and minimization of carbon footprint.



70 Social

People have always been TTY's priority. We care deeply for everyone involved in the manufacturing and using of our products to ensure human being's dignity, health and safety.



88 Governance

To exercise corporate governance, we have adopted the high standards of The OECD Principles of Corporate Governance. The goal is to generate values for stakeholders of every aspect, direct corporate governance to its entirety, make competence utmost among the industry.

102 Appendix

# Letter from the Chairman

In 2020, the impacts of Covid-19 influenced more than 180 countries, and the strategies introduced to address the pandemic have not yet combated or overcome the virus. Even during the period, TTY carries no fewer responsibilities to society and the environment and has kept its corporate governance program in place. Seizing every possible opportunity, we invest all our efforts into positively impacting the country and communities with a constructive approach amidst the pandemic.

To fulfill our part in society that is in line with the government's precautions strategy, TTY has introduced inhibitory programs as the virus spreads. Commencing in April 2020, our staff had options to work remotely, take COVID-19 preventive care leave, and commute in dedicated shuttles to and from work. The Autonomous Health Control Chart was put in place to help monitor colleagues' statuses. These practices aimed to safeguard personnel safety as well as maintain investors' faith in us. Furthermore, remote working and meetings were rolled out for two consecutive months as a result of our upgraded applications and hardware systems. We remained safe and healthy while our business operated without interruption. TTY places the well-being of our workforce at the core of the company, and an example of this philosophy in action was the industrial first "Shuttle Bus" plan, which alleviated some of the stress on society by providing a means of safe transport to staff.

In the interim, TTY monitored the progress of the global industry as it sought a cure for the disease. Pharma Mar, one of our partners in Europe, produces Plitidepsin, a new drug used against tumors, which is now believed to have the potential to fight the ongoing coronavirus. In Taiwan, TTY closely observes the clinical results of new drugs and stays in contact with the manufacturer with hopes of introducing safe drugs and/or vaccines with good efficacy to our people.

For a long time, TTY has been leading the development of patented technology and drug innovations and introducing new-on-the-market vaccines. Due to the pandemic, quadrivalent flu vaccines related to the prevention of respiratory diseases have largely been discussed and are in high demand. The current flu vaccines available in Taiwan are all egg-incubation-based, and so TTY presented the public with another option by introducing cell-incubated products. This new approach solidified efforts against the disease and boosted the clinical treatment field and public health.

To improve ecological sustainability, TTY seeks to improve manufacturing processes and the recycling and disposal of drug technologies. Three years ago, our academic partnership with National Central University (NCU) efficiently recycled Arsenic Ion from the cancer drug Asadin®. In year 2020, TTY was invited by the Industrial Technology Research Institute (ITRI) to share our most recent study results with participants during the TASS2020 Asia's Sustainable Supply & Circular Economy Conference and Exhibition. This achievement managed to reduce the volume of waste while recycling our valuable used sources.

Technological innovation has been adopted by the laboratory in TTY. The novel Arsenic Ion absorbing agent, vessel and tube equipment, and evaporative crystallization technology helped lower the Arsenic (As) concentration in sewage and the total volume of water required for sewage treatment. The Arsenic in the recycled liquid can be reused, resulting in positive contributions to the environment, biotechnology, and the circular economy.

TTY strives to continuously improve in the domain of corporate governance. In year 2020, the Risk Management Policy and Procedure was established and passed by the Board of Directors (BoD), including the "Risk Management Center" under the Sustainable Development Committee's supervision.

The purpose of the committee is to monitor unpredictability in the environment, identify material risks, and review the current risk management procedure of the company to include verification of potential issues in our business alongside evaluation, control, and stipulation of practical risk management and sustainable control programs.

As the external environment is constantly changing, the company must remain equipped to react to instabilities and increase awareness as part of the company culture among our staff. This is where our workforce learns to incorporate and perform risk awareness through functional risk management mechanisms.

TTY cultivated its business deeply for over six decades. We would like to express our gratitude for the support from the community who have motivated us to be proactive in the sustainability of our nation and further inspired us during these challenging times throughout the pandemic. Planning ahead and beyond, TTY seeks to promote a positive society through advocating environmental sustainability, social responsibility, and corporate governance in order to move towards a superior future with Taiwan.

Lin Chuan  
TTY Chairman





# About TTY Sustainability 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 five consecutive years (according to the Corporate Governance 3.0- the Blueprint of Sustainable Development, the CSR Report will now be known as the Sustainability Report starting this year.) Through this report, we demonstrate to all the stakeholders by 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 be implemented in corporate citizenship through concrete actions.

For questions or recommendations regarding the content of the Report, do not hesitate to contact us.

TTY Biopharm Co., Ltd.

Address: 3rd Floor, No. 3-1, Park Street, Nangang District, Taipei City

Contact: Finance Department

Phone: 02-2652-5999 ext. 2121

E-mail : [csr@tty.com.tw](mailto:csr@tty.com.tw)

Company website: <http://www.tty.com.tw/>

## Reporting Boundaries and Coverage

This report discloses data from the period of January 1st, 2020 to December 31st, 2020. The economic and societal aspects of this report include the Company's Nangang Headquarter, Chungli Factory, Liudu Factory, Neihu Factory, Pharmaceutical Development Center, and Translational Research Center. It excludes information regarding the Company's representative office in Vietnam and subsidiaries (refer to page 23 for TTY subsidiary information). Except for financial performance, all the changes in information over multiple years or within the scope of the disclosure will be explained separately in this report. Environmental data is based on the information provided by the Chungli Factory and Liudu Factory and is presented the calculation method of international adopted indicators.

## Issuance Frequency

The Company promises to continuously issue a sustainability report every year. The last report was published in July 2020 in the Sustainability section on the Company's website for stakeholders to download and review. This report is to be published in July 2021. The next publication is expected to be in July 2022.

## Compilation Guidelines

The Report is prepared and compiled according to the GRI Sustainability Reporting Standards (GRI Standards). In addition, the Report discloses data and information following the core option of GRI Standards and includes a GRI Content Index.

## 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

## Assurance Standard

The British Standards Institution (BSI), an independent assurance institute, was utilized to enhance the credibility of the information disclosed in the Report. BSI cited Type 1 – moderate Level of Assurance in the AA1000AS v3 Assurance Standard formulated by global non-profit organization AccountAbility as the assurance standard.

The financial data disclosed by TTY Biopharm is from the consolidated financial reports audited based on the International Financial Reporting Standards (IFRSs) by KPMG Taiwan, and is denominated in the New Taiwan dollar.

## External Initiatives

1. World Economic Forum, WEF's Partnering Against Corruption Principles for Countering Bribery.
2. Supporting the UN's 17 SDGs (Sustainable Development Goals, SDGs).
3. Taking part in the water conservation action "Do One Thing For The Tamshui River", an initiative hosted by Commonwealth Magazine.
4. Following GRI (Global Reporting Initiative) Standards to build and propose to the public the Sustainability Report of ESG (Environmental, Social, Governance) transparency.

# Stakeholder Engagement

## Identification of Stakeholders

TTY references the five principles of the Stakeholder Engagement Standard, AA1000SES 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 7 stakeholders identified this year include the government, shareholders/investors, customers (including hospitals and medical institutions, patients, manufacturers, and consumers), employees, suppliers, neighborhood & communities, and NPOs/NGOs.

## Communications with Stakeholders

Each TTY department communicates with stakeholders through normal business dealings, routine investigations, interviews, and questionnaires analyzing their Material Topics of Concern. The topics of concern of different stakeholders vary according to the nature of business; therefore, we looked into the needs and expectations of stakeholders through a diverse range of communication channels, including a year 2020 survey which totaled 120 valid returns, to delve into the issues that grabbed their attention. TTY also took into consideration of stakeholders' perspectives to adjust operations management. Moreover, we provide appropriate responses to stakeholders' key concerns.

## Material Topics of Concern, Communication Channels, Frequency and Specific Procedure Between TTY and Stakeholders

The following table shows the year 2020 achievement with stakeholders, which was presented on March 19, 2021, 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>Ethics and Integrity</li> <li>Workplace Environmental Health and Safety</li> <li>Safe Products</li> <li>Regulatory Compliance</li> <li>Sewage and Waste Management</li> <li>Air Pollution Control and Energy Management</li> </ul>	Visit; Phone; Official correspondence letters; E-mail; Dissemination; Policy and regulation training; GIA (Government, Industry, Academy) seminar; Regulatory audit; Stakeholder <i>Material Topics of Concern Survey</i>	Irregular intervals	<ul style="list-style-type: none"> <li>(online) participation 4 times in TPEX disseminations</li> <li>Participation 4 times in GIA seminars</li> <li>470+ official correspondence letters</li> <li>Occupational safety audit</li> <li>Toxic substance drill</li> <li>Fire safety inspection and report</li> <li>Regular GMP checkups</li> <li>Regulation conferences</li> <li>Industrial/Commercial wastes audit</li> </ul>
Investors	<ul style="list-style-type: none"> <li>Operational Performance</li> <li>Ethics and Integrity</li> <li>Information Security</li> <li>Regulation Compliance</li> <li>Sustainable Development Strategies</li> </ul>	<ul style="list-style-type: none"> <li>Annual general meeting; Annual report</li> <li>Quarterly financial report</li> <li>Operational announcement</li> <li>Investor Conferences</li> <li>Material information announcement; Press release; Corporate website; Phone; E-mail; Investor relation mailbox; Share affairs and investor contact; Reporter Q&amp;A; Domestic and international analysts' visits; Stakeholder <i>Material Topics of Concern Survey</i></li> </ul>	Annual Quarterly Monthly Quarterly or more frequently Irregular intervals	<ul style="list-style-type: none"> <li>39 material information announcements in Mandarin/English</li> <li>65 e-mail replies</li> <li>4 investor conferences</li> <li>8 conference calls</li> <li>9 foreign analysts' visits</li> <li>35 local analysts' visits</li> <li>25 replies to shareholders' calls</li> </ul>

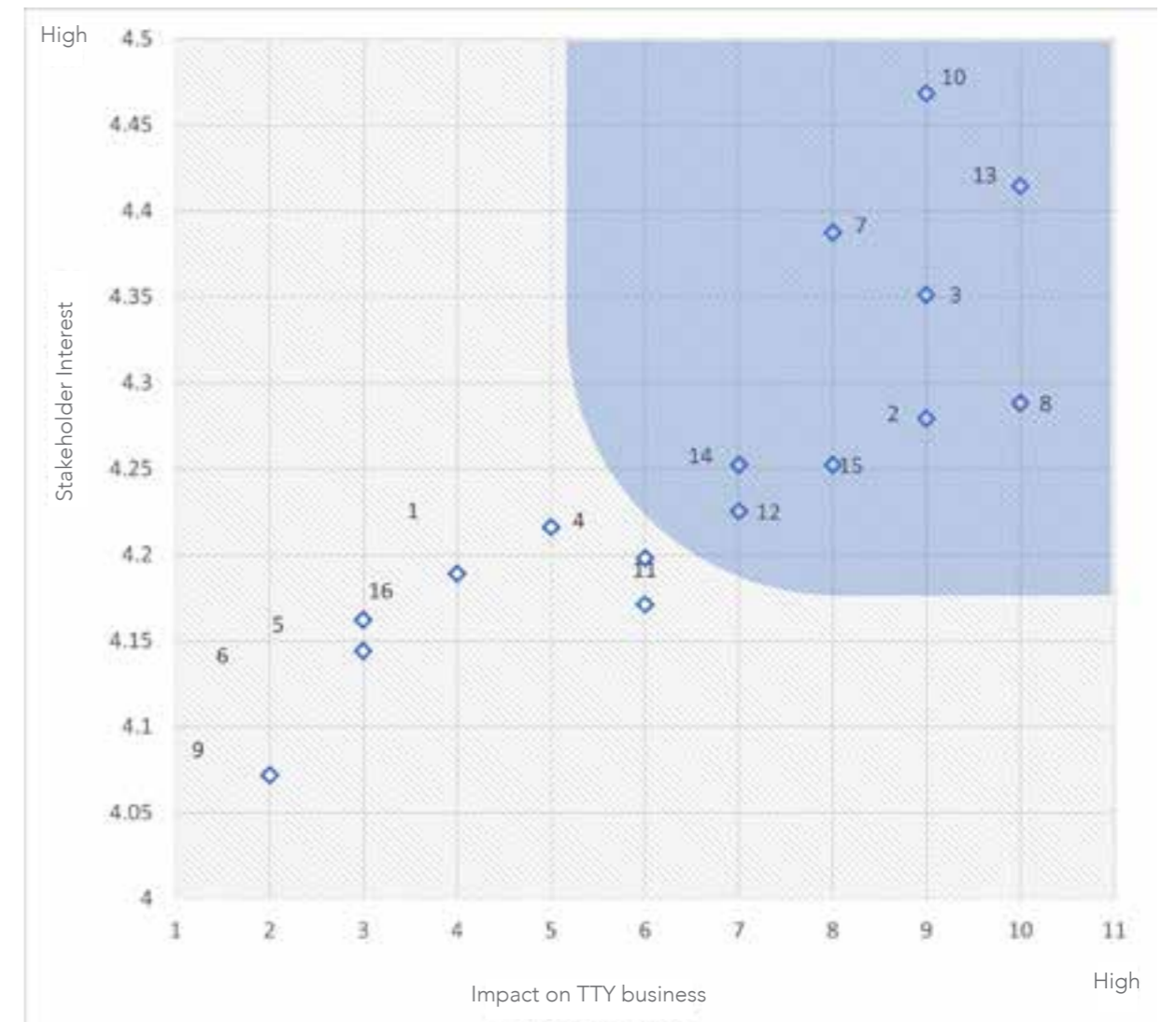
Stakeholders	Material Topics of Concern	Communication Channels Between Two Parties	Communication Frequency	Results
Customers	<ul style="list-style-type: none"> <li>• Ethics and Integrity</li> <li>• Safe Products</li> <li>• Customer Service</li> <li>• Regulation Compliance</li> </ul>	Exhibition; Academic event; Educational seminar; Academic platform; Clinical trial; Factory visit and inspection; Visit; Phone; E-mail; Written letter; Stakeholder <i>Material Topics of Concern Survey</i>	Irregular intervals	<p>To produce and provide quality products and market-oriented services to local and international customers, TTY conducted the following actions and activities (including, but not limited to):</p> <ul style="list-style-type: none"> <li>• 11 domestic/international medical seminars and exhibitions</li> <li>• 87 educational/academic seminars/activities</li> <li>• Academic platform: 3 new academic platforms; sustaining North Taiwan Hematology Academy</li> <li>• Clinical research: 9 cases of Oncology and severe illness</li> <li>• 21 factory visits by 100 participants</li> </ul>

Stakeholders	Material Topics of Concern	Communication Channels Between Two Parties	Communication Frequency	Results
Employees	<ul style="list-style-type: none"> <li>• Remuneration</li> <li>• Operational Performance</li> <li>• Recruitment and Turnover Rates</li> <li>• Workplace Happiness and Health</li> <li>• Workplace Environmental Health and Safety</li> <li>• Corporate Image</li> <li>• Safe Products</li> <li>• Regulation Compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Annual performance interview and evaluation</li> <li>• Labor and employer meeting</li> <li>• 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; Stakeholder <i>Material Topics of Concern Survey</i></li> </ul>	<ul style="list-style-type: none"> <li>Twice annually</li> <li>Quarterly</li> <li>Irregular intervals</li> </ul>	<ul style="list-style-type: none"> <li>• The initial setting, mid-term adjustment, and final assessment. 97.03% of employees underwent regular performance review in 2020.</li> <li>• 4 labor and employer meetings on 3/24, 6/23, 9/22, and 12/25.</li> <li>• 1 employee complaint case in 2020. [Case received on 1/3, the committee completed the investigation on 1/21.]</li> <li>• Orientation plan (satisfaction survey included) started in July 2018; satisfaction rate in 2020 scored 91.075 out of 100.</li> <li>• New hire turnover rate 6.07% (calculation based on the new hire stay for more than 6 months.)</li> <li>• Employee welfare committee created according to Employee Benefit Regulations and in charge of the welfare of employees.</li> <li>• Annual budget and welfare for marriage, bereavement, illness, and childbirth; birthday money, festival money, and travel subsidy. <ul style="list-style-type: none"> <li>a. 2020/1/21 Announcement of the commencement &amp; subsidy amount for employee travel</li> <li>b. 2020/3/2 Announcement for the educational subsidy (2019 first semester scholarship/ study aid)</li> <li>c. 2020/7/31 Announcement for 2020 employee health examination</li> <li>d. 2020/9/24 Announcement for the educational subsidy (2019 2nd semester scholarship/ study aid)</li> <li>e. 2020/9/12 Family Day – Pushin Ranch</li> </ul> </li> <li>• 24 professional courses held in 2020. Internal course satisfaction rate 4.61/5, and 6.55 training hours/person/year.</li> <li>• 109 received subsidies for external learning courses. Total 2,956.5 training hours and NTD 308,000 reimbursed. The learning results are presented by written reports and presentations.</li> </ul>

Stakeholders	Material Topics of Concern	Communication Channels Between Two Parties	Communication Frequency	Results
Suppliers	<ul style="list-style-type: none"> <li>Ethics and Integrity</li> <li>Workplace Environmental Health and Safety</li> <li>Safe Products</li> <li>Customer Service</li> <li>Information Security</li> <li>Regulatory Compliance</li> </ul>	<ul style="list-style-type: none"> <li>Supplier survey</li> <li>Supplier audit</li> <li>E-mail; Phone; Visit; Stakeholder <i>Material Topics of Concern Survey</i></li> </ul>	<ul style="list-style-type: none"> <li>Bi-annually</li> <li>Annually</li> <li>Irregular intervals</li> </ul>	<ul style="list-style-type: none"> <li>New suppliers are required to complete a supplier survey.</li> <li>Supplier information upkeep is done every three years to ensure accuracy.</li> <li>Owing to COVID-19, on-site inspection in 2020 was suspended, and instead, phone calls and e-mails were used to check supplier operation and material condition.</li> </ul>
Neighborhood & Communities	<ul style="list-style-type: none"> <li>Remuneration</li> <li>Workplace Environmental Health and Safety</li> <li>Corporate Image</li> <li>Safe Products</li> </ul>	E-mail; Visit; Phone; Meeting; Education; Stakeholder <i>Material Topics of Concern Survey</i>	Annually or at Irregular intervals	<ul style="list-style-type: none"> <li>2/23 &amp; 9/18 Chungli Industrial Labor Safety and Health Promotion Association and Industrial Zone Regional Joint Defense Organization Assembly were held to provide communication channels, training, and education of member companies at the service center.</li> <li>5/22 Taoyuan City fire brigade Neili Squad annual drill at TTY Chungli Factory.</li> </ul>
NPOs/ NGOs	<ul style="list-style-type: none"> <li>Ethics and Integrity</li> <li>Community Welfare</li> <li>Safe Products</li> <li>Customer Service</li> <li>Regulatory Compliance</li> <li>Sustainability Development Strategies</li> </ul>	Event; E-mail; Visit; Phone; Meeting; Stakeholder <i>Material Topics of Concern Survey</i>	Irregular intervals	<ul style="list-style-type: none"> <li>Supporting Taiwan Foundation for the Blind with NTD 1.89 million worth of products purchased.</li> <li>Sponsor of HOPE Foundation for Cancer Care. NTD 1 million scholarship for college students from cancer-affected family.</li> <li>NTD 120 thousand donation gathered in the name of the Charity project "Pandemic Prevention Won't Prevent Us from Love Sharing". The proceeds went to social welfare groups.</li> <li>Co-host of Tamsui River History Tour with Tamsui Traveler.</li> <li>Industrial &amp; business decree forward.</li> <li>Participate Keelung Industrial Association Labor Training Course.</li> </ul>

## Materiality Analysis

In 2020, a "Material Topics of Concern Survey" was launched to enhance the communication and interaction between stakeholders and TTY. Compared to the reporting period of previous issuances, the latest report has redirected material topics and their boundaries. We kept current communication channels between each department and stakeholders, and in 2020 the addition of the survey results was presented in 9 brand new material topics.



Stakeholder concerned topics:

- |                                  |   |                          |  |
|----------------------------------|---|--------------------------|--|
| 1 Remuneration                   | 5 Manpower Incubation and Development       | 9 Community Welfare      | 14 Sustainable Development                     |
| 2 Operational Performance        | 6 Workplace Happiness and Health            | 10 Safe Products         | 15 Sewage and Waste Management                 |
| 3 Ethics and Integrity           | 7 Workplace Environmental Health and Safety | 11 Customer Service      | 16 Air Pollution Control and Energy Management |
| 4 Recruitment and Turnover Rates | 8 Corporate Image                           | 12 Information Security  |  |
|                                  |   | 13 Regulatory Compliance |  |



## 2020 TTY Material Topics and its Boundaries



Material Topics	Corporate Image	Operational Performance	Sustainable Development Strategies
Significance to Operation	Besides reinforcement and realization of corporate governance, TTY works on implementation of CSR to solid internal control system and capital structure to achieve a sustainable operation.	Emphasizing operational sustainability with the direction of inclusiveness and economical sustainability. Accelerated development to meet unmet medical needs, high-barrier drugs, and the needs of brand-name drugs and new drugs of a Specialty dosage form of profitable value. Improving the quality of human life with scientific innovation is the goal.	The Sustainable Development Committee (SDC) aims at a more specific, and better-planned actualization of social responsibility and sustainability goals. The Committee stipulates, revises, and reviews the policies, execution, results, and systems of the environment, society, and governance of corporate development sustainability.
Stakeholder			
Government Agencies			●
Investors	■	■	■
Customers			
Employees	■	■	
Suppliers	▲		
Neighborhood & Communities	●		
NPOs/NGOs			●

Material Topics	Sewage and Waste Management	Information Security
Significance to Operation	Clean water is essential for the manufacturing of drugs. TTY devotes effort on process improvement and sewage treatment, and makes water conservation a habit throughout the organization, bringing civil obligation and responsibility into daily life. The goal of environmental friendliness in sustainable governance is approachable. Based on the Waste Disposal Act, a total of three dedicated waste disposal personnel are in place to clean and dispose of industrial waste and daily rubbish according to the related laws and regulations. According to the direction of cleaning, transportation, and follow-up of waste, it is reported for an immediate investigation by the authority and TTY.	To safeguard Company intellectual property and the privacy of employees and stakeholders, TTY have established a complete information security management system and strengthened security awareness. Strict management, control, and protective standards ensure the protection of personal data. Meanwhile, the intellectual property and confidentiality management system is upgraded to secure Company's intellectual property and to reduce the launching risks of company products, hence more resources can be invested in the development and protection of new drugs.
Stakeholder		
Government Agencies	■	●
Investors		
Customers		■
Employees		■
Suppliers	▲	■
Neighborhood & Communities	●	
NPOs/NGOs	●	

## Material Topic Management Guideline Elements and Assessment

### Safe Products

**GRI 416-1**  
Assessment of the health and safety impacts of product and service categories

#### Management guidelines and elements

Drug safety control to make sure quality, safe and effective products are accessible to users.

#### Management guidelines assessment

The products are classified into "agents and authorized drugs" and "branded generics". The process and quality of the former should meet drug manufacturing regulations in the country of origin and Taiwan. The latter should comply with manufacturing regulations in Taiwan, and the quality requirements and production regulations stipulated by import countries.

### Ethics and Integrity

**GRI 205**  
Anti-corruption

#### Management guidelines and elements

Strict practice is especially relevant to stakeholders.

#### Management guidelines assessment

The "Ethical Operation Promotion Center" is established based on corporate culture's ethical operations and development system.

### Regulation Compliance

**GRI 307-1**  
Non-compliance with environmental laws and regulations

#### Management guidelines and elements

The product name, packaging, package inserts, label, and marketing advertisement must comply with regulations.

#### Management guidelines assessment

Package inserts as required by relevant laws and regulations. Links to package inserts are accessible on the Company website. Advertisements should only follow the review by the health authority with an advertisement number.

**GRI 419-1**  
Non-compliance with laws and regulations in the social and economic area

### Workplace Environmental Health and Safety

**GRI 403-9**  
Work-related injuries

#### Management guidelines and elements

Labor insurance, health insurance, group insurance, and accident insurance for all employees; public accident liability insurance in all workplaces. Manage nurses and physicians to provide staff with professional medical assistance.

#### Management guidelines assessment

Personal protection gear like a glove box, enclosed & isolated facility, and chemical leakage management vehicles to be provided onsite. Employee annual health examination is conducted, and health education follow-up is executed by nurses and physicians.

### Sewage and Waste Management

**GRI 303-4**  
Water discharge  
**GRI 306-5**  
Waste directed to disposal

#### Management guidelines and elements

To reduce the impact on the environment due to the manufacturing process, Neihu Pharmaceutical Development Center worked together with NCU to develop an Arsenic Ion recycling process. The efficient production follows local regulations for proper waste treatment.

#### Management guidelines assessment

The recycling of As Ion proceeds to separate the arsenic from wastewater produced during manufacturing processes so that the As concentration is lowered to meet discharge standard. The concentration of COD and SS also falls within the local standards. GHG emission disclosure pushes us to minimize energy consumption from every unit product produced. Dedicated waste disposal personnel are in charge of and the submission of the waste disposal plan. Each month articulations with manufacturers are completed with GPS tracking system.

### Corporate Image

**GRI 102-16**  
Values, principles, standards, and norms of behavior

#### Management guidelines and elements

As TTY is closely related to the national economy, human health, and sustainable environment, we were awarded the TCSA 13th Silver Prize in 2020.

#### Management guidelines assessment

TTY has applied stricter corporate governance, and proper communication with stakeholders, which has resulted in a solid performance. For the 5 consecutive years since 2016, TTY has been achieved the top 5% of TPEX-listed companies in the Corporate Governance Assessment. This is the 2nd year in a row that TTY ranked in the top 10% of non-financial and non-tech companies with market capitalization more than NTD 10 billion.

### Operational Performance

**GRI 201-1**  
Direct economic value generated and distributed by the organization

#### Management guidelines and elements

Maintain stable operation is required for a sustainable operation.

#### Management guidelines assessment

BoD regularly reviews financial performance and the financial reports are audited by independent professional accountants.

### Information Security

**GRI 418-1**  
Substantiated complaints concerning breaches of customer privacy and losses of customer data

#### Management guidelines and elements

The intellectual property and confidentiality management system is upgraded to secure Company's intellectual property, to reduce the launching risks and information security risks of company products, hence more resources can be invested in the development and protection of new drugs.

#### Management guidelines assessment

The implementation of TIPS (Taiwan Intellectual Property Management System) enforces intellectual property management, regular audits and improvements are implemented and patent infringement risk assessment is conducted for launching products. The information security (IS) control and execution were enhanced to elevate IS safeguard measures.

### Sustainable Development Strategies

**GRI 102-27**  
Collective knowledge of the highest governance body

#### Management guidelines and elements

Enhance corporate governance to reach sustainable operation.

#### Management guidelines assessment

The Sustainable Development Committee (SDC) aims for the actualization of social responsibility and operational sustainability goals





# TTY SDGs Implementation



- Handmade soaps as shareholder gifts to support the Taiwan Foundation for the Blind
- Scholarships and financial aid to students whose families are affected by cancer
- Donation to the HOPE Foundation for Cancer Care as an event fund
- Donations to social welfare groups and foundations
- Donations to at-home care and respite care



- Honored Corporate Philanthropy Award by the Taiwan Organ Registry and Sharing Center
- Sponsor the "Planting a Seed of Hope" project by the HOPE Foundation for Cancer Care
- Support and full transportation fee coverage for individuals that require at-home hospice care
- Sole agent in Taiwan with PharmaMar for effective drug importation
- Two cancer-related drug licenses obtained in Mexico
- Provided 550,000 public-funded flu vaccines and another 95,000 for self-funding dosages
- More than NTD 1.5 billion invested in R&D over the past 5 years
- Taiwan Intellectual Property Management System (TIPS) was implemented to minimize the risks of new drug development and launching.
- "Family Care Leave" expanded to disease prevention
- WFH to minimize groups gatherings
- Employee Shuttle Service and Car Pooling
- All products in accordance with health and safety regulations and inspections



- TTY Summer Internship Program for 13 consecutive years
- "Regional Care for the Cancer-Affected" seminars on remote campuses
- Health education for cancer-affected people and/or their family members
- Educational lectures about osteoporosis and bone health



- Of 9 directors in 2020, 2 are women
- 42.65% of females in the Company hold managerial roles or higher key-leadership positions. Equal pay for equal work, regardless of gender



- Co-developed with NCU of As Ion recycling technology
- The water discharged by Lioudu, Chungli, Neihu factory and Pharmaceutical Development Division falls within national effluent standards
- Implementation of systematic water management plan



- Lioudu and Chungli factories have conserved 85,936.5 kWh of electricity. CO<sub>2</sub> emissions volume has decreased by 47,608.8 (kgCO<sub>2</sub>e).



- Winner of 2020 "Best Companies to Work for in Asia" by *HR Asia*
- The standard salaries for entry-level employees of TTY compared to local minimum salaries are 1.54 times more for females and 1.61 times more for males
- No supplier committed forced or compulsory labor or other material risks



- Trained colleagues and acquired certificates of professional technical management personnel to verify toxic chemicals



- TTY human rights policy follows internationally recognized human rights standards.
- One feedback was received in January, 2020, and it urged the Company on the dissemination of human rights to ensure that no such case occurs again in the future
- Remuneration Committee works in accordance with relevant laws and principles of impartiality



- Corporate sustainable development policies and action plans for the Environment, Society, and Governance are drafted by the Sustainable Development Committee



- Completed the identification of risks and opportunities brought by climate change
- Responsive policies based on those identification results



- Took action to support "Do one thing for the Tamsui River"
- Guided tour of the Tamsui River Pact and coastal cleaning activities



- No employees are forced or compulsory laborers to perform labor services or the employment of child labor
- Whistleblowing reward systems and whistleblowing channels
- The "Ethical Management Promotion Center" was established to stipulate "Principles of Procedures for Ethical Management" and relevant execution procedures
- No corruption or dishonest acts reported in 2020



- Two drug licenses in Mexico initiated the first TTY shipment overseas.
- Mexico, Columbia, Panama, Brazil, and Argentina are contacts for partnership inquiries



# TTY BIOPHARM

## 台灣東洋藥品

TTY Biopharm Company (hereinafter referred to as TTY) has been established since 1982. With a production and sales volume of over 1 billion NTD, TTY has become one of the leading pharmaceutical companies in Taiwan. TTY is committed to providing high-quality pharmaceutical products and services to our customers. We are dedicated to research and development, manufacturing, and distribution of various pharmaceutical products, including injectables, oral solids, and biologics. TTY is also committed to social responsibility and environmental protection. We are proud to be a part of the TTY family and to contribute to the health and well-being of our customers.



## KEY PERFORMANCE

- Consolidated revenue was NTD\$ **4,221,836** thousand in the year 2020 (**5.7%** CAGR for 2015-2020).
- **PIC/S GMP** certified Chungli Factory and Lioudu Factory.
- Chungli Factory owns the sole Liposome automated manufacturing equipment in Taiwan that withstood **24** inspections from **16** countries to date.
- Lioudu Factory hosts Italian-made Automatic Tunnel-Styled Filling Machines. As the Liposome production center, it has undergone **6** international inspections from **2** countries to date.
- **113** drug licenses were granted in 2020.
- More than **44** pharmaceutical items were listed in the NHI Pharmaceutical Benefits and Reimbursement Schedule.

# 1 About TTY Biopharm



# About TTY Biopharm

TTY Biopharm Co., Ltd. (hereinafter referred to as TTY) was founded on July 22<sup>nd</sup>, 1960. It is currently headquartered at 3F, No. 3-1, Park Street, Nangang District, Taipei City, and has a total of 538 employees. Major business activities include the 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. TTY was listed in Taipei Exchange in September, 2001 (4105:TT). The paid-in capital was NTD\$2.486 billion, and consolidated revenue reached NTD\$4,221,836 thousand in year 2020.

The "Liposome and microspheres Technology platforms" have been our niche, maintaining a leading position in Taiwan in developmental capability. The consistency and stability outputs of mass production exceeding the industry average is the motivation for the Company growth. The current six operation sites are the headquarter, factories in Chungli, Lioudu, and Neihu, the Translational Research Center, and the Pharmaceutical Development Center.

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 manufacturing of raw materials (active pharmaceutical ingredients), while the downstream sector involves the drug manufacturing and operations of various sales channels. Drugs can be simply classified into three types, namely original, imported or locally produced bioequivalent generics (BE Generics), and non-bioequivalent generics (Non-BE Generics). TTY focuses on developing Specialty dosage forms and new drugs, and is one of a few pharmaceutical companies in Taiwan that possesses the technology needed to provide one-stop pharmaceutical services from research and development to manufacturing and sales. And the supply chain experienced no material changes during the reporting period.

TTY Biopharm mainly provides services in Taiwan and also exports to Thailand, the Philippines, Vietnam, and Malaysia. In addition, no products or services are prohibited in any specific market. 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 infections, and patients with conditions such as gastroesophageal reflux, osteoporosis, high uric acid, and bacterial infection.

## Participation in External Associations and Position held

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; 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	Taiwan Society of Regulatory Affairs for Medical Products	Member
10	T.M.U. Pharmacy Foundation for culture and Education	Member
11	Taiwan Parenteral Drug Association	Executive Director
12	Keelung Federation of Labor	Member
13	Medical and Pharmaceutical Industry Technology and Development Center	Member
14	Taiwan Generic Pharmaceutical Association	Director

“ TO ENHANCE R&D TECHNOLOGY TO IMPROVE THE QUALITY OF HUMAN LIFE ”

## TTY Financial Operation Overview

TTY & Subsidiaries Consolidated Financial Figures for the most Recent 5 Years (NTD)

Item	Unit	2016	2017	2018	2019	2020
Paid-in Capital	Thousand	2,486,500	2,486,500	2,486,500	2,486,500	2,486,500
Operating Revenue	Thousand	3,760,717	4,078,760	4,036,196	4,466,308	4,221,836
Gross Profit	Thousand	2,556,944	2,671,059	2,663,879	2,907,241	2,607,052
Operating Income (Loss)	Thousand	1,179,687	1,256,990	1,059,677	1,228,609	957,379
Income Tax	Thousand	257,335	226,753	205,769	294,949	222,848
Net Income	Thousand	1,254,724	1,368,314	1,462,299	907,705	978,677
Net Income Attributed Majority	Thousand	1,193,324	1,344,731	1,461,381	900,081	924,178
EPS	NTD	4.8	5.41	5.88	3.62	3.72
R&D Expense	Thousand	341,685	295,675	361,063	298,552	261,597
Labor Salary and Benefit Cost	Thousand	862,873	881,703	938,506	988,792	1,035,162
Community Investment	Thousand	34,144	48,444	52,445	52,787	46,230
Cash Dividend	NTD/share	3.8	4.5	4.5	4.0	4.0 *

\* Due to severe epidemic, the Annual General Meeting (originally AGM date is June 9th, 2021) has been postponed. The cash dividend will be suspended accordingly.

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

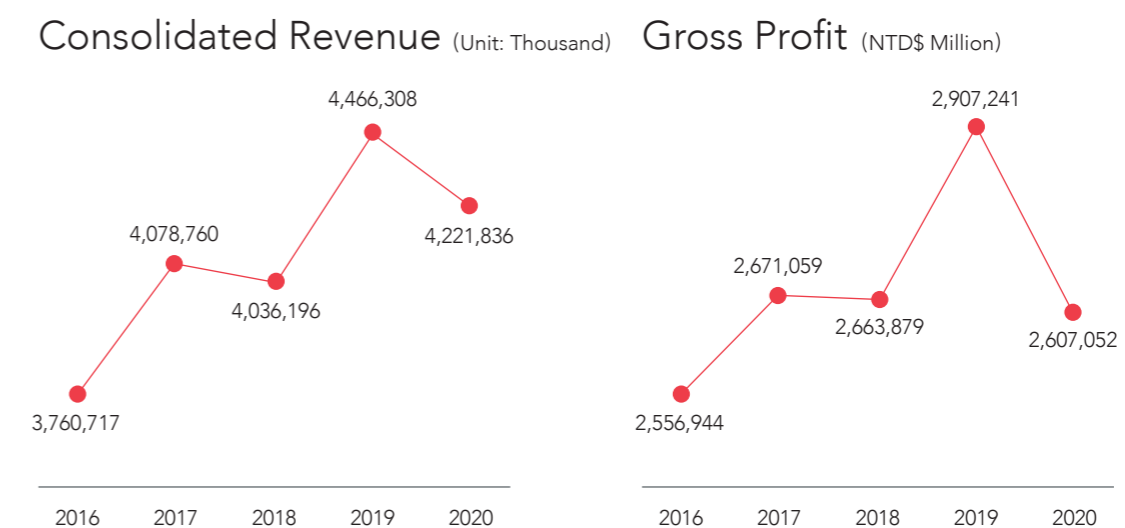
Main Product	2016		2017		2018		2019		2020	
	Sales Volume		Sales Volume		Sales Volume		Sales Volume		Sales Volume	
	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export
Ointment	3,228	-	2,290	-	2,036	-	2,479	-	2,491	-
Oral Drug	366,795	4,790	360,700	10,765	358,317	12,111	393,049	15,551	346,908	15,725
Injection	3,380	579	5,137	513	4,250	330	4,592	486	5,151	205
Others	366	-	439	47	727	1,551	789	-	505	-

### Sales in the Recent 5 Years (Currency: NTD, Unit: Thousand NTD)

Main Product	2016		2017		2018		2019		2020	
	Sales		Sales		Sales		Sales		Sales	
	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export	Domestic Sales	Export
Ointment	99,513	-	73,160	-	74,630	-	89,429	-	88,869	-
Oral Drug	1,529,875	42,784	1,667,333	45,889	1,820,313	92,307	2,006,218	130,556	2,035,732	150,747
Injection	1,022,160	542,933	1,351,268	947,217	1,327,902	461,879	1,478,173	555,205	1,683,176	125,056
Others	52,618	-	52,618	-	133,938	7,167	112,712	-	109,662	-
Total	2,704,166	585,717	2,704,166	993,106	3,356,783	561,353	3,686,532	685,761	3,917,439	275,803

### TTY Subsidiaries

Company Name	Subsidiary
TTY	<ul style="list-style-type: none"> <li>Xudong Haipu Pharmaceutical Industry Limited Company (Cayman) (Xudong Haipu)</li> <li>Worldco Int. Co., Ltd. (HK)(Worldco Int.)</li> <li>American Taiwan Biopharma Philippines</li> <li>TSH Biopharm Co., Ltd. (TSH)</li> <li>EnhanX Biopharm Inc. (EnhanX)</li> <li>Chuang Yi Biotech (CYB) Co., Ltd.</li> </ul>
Worldco Int.	<ul style="list-style-type: none"> <li>Worldco International Co., Ltd. (Chengdu)(Worldco Chengdu)</li> </ul>
Xudong Haipu	<ul style="list-style-type: none"> <li>EnhanX Biopharm Inc. (EnhanX)</li> <li>TTY Biopharm Korea Co., Ltd.</li> <li>TTY Biopharm Mexico S.A. de C.V.</li> </ul>
Worldco Int.	<ul style="list-style-type: none"> <li>TTY Biopharm Mexico S.A. de C.V.</li> </ul>
EnhanX Biopharm Inc.	<ul style="list-style-type: none"> <li>EnhanX Biopharm B.V.</li> </ul>
TSH Biopharm	<ul style="list-style-type: none"> <li>Chuang Yi Biotech (CYB) Co., Ltd.</li> </ul>
CY Biotech	<ul style="list-style-type: none"> <li>Immortal Fame Global Ltd.</li> <li>Chuang Yi (HK) Biotech Co., Ltd.</li> </ul>
Immortal Fame Global	<ul style="list-style-type: none"> <li>Chuang Yi (Shanghai) Trading Co., Ltd.</li> </ul>







## Manufacturing Advantages

“ **The only Automated Liposome Mass Production Factory in Taiwan** ”

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.

### Chungli Factory

#### Features

- The sole liposome manufacturing equipment for automated mass production in Taiwan.
- Oncology facilities and exclusive equipment are compliant with PIC/S GMP international requirements.
- Successfully passed international pharmaceutical standards and various inspections conducted by the 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

The factory was founded in 2011 and was 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.

### Lioudu Factory

#### 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 the USA and Europe to be conducted gradually.
- Best CMO partner for international pharmaceutical manufacturers.
- Capacity to develop new drug microbiology analysis methods consistent with USP, EP, and JP Pharmacopoeia; PIC/S GMP, and standards of global advanced countries.

#### Certified International Inspection

2 countries, 6 international, and Taiwan GMP certified inspections

- 2020 Taiwan - Production lines for orally administered and liquid injection products
- 2018 Taiwan - Production lines for orally administered and liquid injection products
- 2016 Taiwan - Production lines for orally administered and liquid injection products respectively  
Japan - Production lines for orally administered products
- 2013 Taiwan - Production lines for orally administered products







Over 70% of employees at the Pharmaceutical Development Center (PDC) hold 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, and from analytical method development to product manufacturing. We are able to process diverse projects flexibly, 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 timely, reliable, and excellent service provider with leading product quality.

The Company specializes in the manufacturing of clinical trial supplies, pilot batches, and submission batch production. There is a 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 & Services



### Neihu Factory

#### Parenteral Production Line

Compliant for 11 years 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 an on-site audit by international partners and QP from Netherlands, Germany, China, and the 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

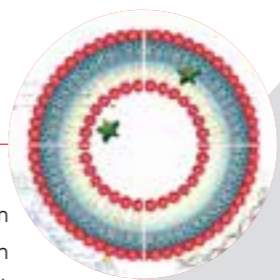
# Technology Development

## Liposomes

We have over twenty years of dedication to the liposome, a 30nm-500nm phospholipid particle with hydrophilic and hydrophobic properties. With specialized techniques, TTY inserts the API (Active Pharmaceutical Ingredient) into a tiny ball that is only 1/500 times the diameter of a hair by the requests from doctors or pharmaceutical companies. The Lipo-Dox® (Liposomal Doxorubicin Injection) and Lipo-AB® (Liposomal Amphotericin B) received FDA's approval in 1998 and 2013. Along with high-barrier generics and novel drug development, TTY has an automated-skid for liposomal injection in Chungli factory, and lyophilized liposomal injection equipment in Lioudu factory to meet the global demands.

Lipo-Dox (Liposomal Doxorubicin Injection), is known for liposomes encapsulating drugs in the hydrophilic region. Doxorubicin is retained within the aqueous core area of liposomes, coated with PEG (polyethylene glycol) to prevent detection and destruction by the immune system, to improve stability, and to lengthen the half-life in circulation.

Liposomal Amphotericin B injection (Lipo-AB®) is composed of liposomes containing amphotericin B (AmB) intercalated within a membrane. AmB is an effective but toxic antifungal drug, known to increase the permeability of the cell membrane, presumably by assembling into transmembrane pores in a sterol-dependent manner. The aggregation of AmB molecules in a phospholipid bilayer is crucial for the drug's activity. Liposomal preparations of AmB have the advantage of lower toxicity compared to conventional preparations.



## Microspheres

Through this unique drug delivery technology that consists of biodegradable high molecule encapsulated bioactive drugs; microspheres are capable of long-term release after injection. The sterile microsphere production complies with GMP and is a world-leading process at Lioudu factory with more than billion NTD investment. Strict parameters and an aseptic environment are quintessential for microsphere manufacturing, adding extra difficulty to its production. TTY has scientific expertise in developing PLA (Polylactic acid)/PLGA (Poly lactic-co-glycolic acid) microsphere formulation, the capability of providing professional GMP production for small molecule and peptide microspheres, as well efficient animal PK analysis. The superior custom-made capacity for excipient and GMP grade factory, formulation, and process development are competitive advantages for TTY.

## Conventional Products

TTY has years of experience in conventional dosage form development, especially in oral dosage (immediate and sustained-release), liquid injection, ointment, and gel administration forms; TTY obtains extensive product combinations and has its own market share worldwide. More than the many products that are already available on the market, the R&D team works beyond expectations by upgrading the formulas of Amtrel®, Gemmis®, Tyxan®, and Oxalip®. TTY values and invests in relevant instruments for in-vitro release and dissolution, nanoparticle size analyzer, chromatography for chemical identification and separation, and other testing facilities.

TTY has expanded the formulation from laboratory scale to accommodate commercial production, meanwhile, TTY owns three production plants with respective function in Taiwan. The Chungli factory underwent inspections by Taiwan, Japan, the EU, and the US. It's a dedicated factory for multiple cancer drug production lines such as for oral tablet, oral capsule, liquid injection, liposome, and lyophilized form. The Lioudu factory is a manufacturer of non-cancer drugs in an oral tablet, oral granule, oral capsule, liquid injection, liposome, slow-release microspheres for injection, and lyophilized product. The Neihu factory excels in clinical trial products including varieties of parenteral injections and excipient production lines. It has undergone inspections and has been approved by Taiwan and the EU.



## Formulation Capabilities

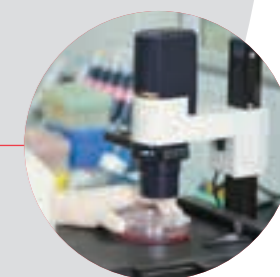
With over 20 years of partnership with global pharmaceutical companies, TTY has accumulated solid, professional R&D and production capacity. TTY even provides holistic approaches to drug delivery technology. The pharmaceutical R&D procedures include the development of formulation, analytical development, microbiological development, and process development, as well as animal studies, functional excipient synthesis, GMP manufacturing, and the preparation of documentation for Chemistry, Manufacturing, and Controls (CMC).



## CRO Translational Research Center

TTY Translational Research Center focuses on drug innovation to meet unmet medical needs, and also provides a contract research service based on new drug development and concept validation experiences, assisting in drug development for pre-clinical candidates and clinical specimens through multiple analytical and testing methods.

1. Biomarker Detection: With a professional pathology laboratory, it provides services of pre-clinical pharmacology analysis and clinical specimen biomarker detection.
2. Cellular and Molecular Biology Technologies: Our Laboratory is equipped with numerous high-end analytical equipment providing bioassays of RNA, DNA, protein, and cells.
3. Disease Animal Model Development: We have profound experience in establishing tumor animal models and also developing the Near-IR in vivo imaging system to assist clients to conduct efficacy or safety tests.
4. Proof of Concept for New Drug Development: Multiple bio-analysis platforms and animal models for human diseases are provided, such as drug efficacy, toxicology, mechanism of action, and pharmacokinetics studies, consistent with international regulations to assist customers to develop pre-clinical candidates.
5. Contract Research Services: We have an abundance of experiences in the early stages of new medicine development. Through close discussions with clients and based on experiment needs and feasibility assessment, we offer customized development of assays that are consistent with the latest development trends and are executed in a speedy, effective, and comprehensive manner based on project management methods.





# Storage and Cool Chain Logistics

As the leading manufacturer in the mass production of liposomes in Asia, to ensure customers' safety, TTY implements strict control over API management, product storage, and Cool Chain Logistics for the purpose of securing drug quality and stability at international standards.



## API Management

Despite that Taiwan's API management is not yet under GDP\*, Chungli factory has followed the international management system and is ready to follow potential regulations in Taiwan. API storage and management have been complied with the GDP of PIC/S GMP. The liposome is a product under the Cool Chain management. Since their arrival at the factory, the API and excipient of Liposome are stored in a temperature-controlled warehouse with refrigeration equipment until entering manufacturing process.

\* GDP stands for "Good Distribution Practice"



## Product Storage

Upon the completion of the product packaging, the products will be immediately stored in a warehouse of 2°C ~8°C . To ensure 24-hour temperature control, all refrigeration warehouses are equipped with 2 air conditioners and fans. That is, either one would cover a faulty air-conditioner if the occasion should arise. All equipment of refrigeration warehouses is linked to backup power to prevent equipment malfunction or power disruption.

For general refrigeration warehouse maintenance, in addition to twice inspections every day, inside manufacturing warehouses have a nonstop data logger and alarms in place. When the temperature exceeds a certain range, flashing lights and a sound alarm will go off and security guard will notify the relevant authorities upon hearing the alarm. Every refrigeration warehouse in the Chungli factory is access controlled, and only authorized warehouse personnel may enter the factory for operation. This is to safeguard products and minimize the change of temperature by unnecessary entry and exit. A Temperature Mapping Qualification (TMQ) is conducted in every refrigeration warehouse at the coldest and hottest season of a year to ensure the temperature at every corner meets the requirements of storage.



## Cool Chain Product Transportation

2°C ~8°C end-to-end temperature control must be followed during the transportation and delivery of Liposome to hospitals and clients. To find a qualified logistics company, the warehouse and QC departments have conducted a number of visits and audits to ensure the storage, delivery, and temperature control of LN2, gel pack, and dry ice, TTY then signs agreements with the logistics companies and these companies become qualified Cool Chain logistic suppliers for TTY.

Our Liposome is packed in the most suitable Refrigerated Delivery Box made from a suitable material of a scientific method when being delivered from Chungli factory's refrigerated warehouse. Moreover, the maximum number of times the ice can be used, its efficacy period and other standard procedures are specified as well. The package is then sealed by TTY-Logo void tape with a 3M Monitor Mark. Every year TTY invests nearly million NTD on WHO-certified 3M Monitor Mark. There were no cases of abnormal temperatures in 2020.

Cool Chain delivery by ground or by air, to Taiwan mainland, Kinmen and Penghu should not exceed 24 hours from pickup to proof of delivery. 3 statistic tests and route dynamic tests are each to be performed for different box sizes, and the shortest delivery time should be selected and recorded as a standard for general transportation management. Validation should be run once every summer and winter to eliminate various factors affecting temperature changes during transportation.



## Ongoing Improvement

In 2018, TTY renewed and updated its Refrigerated Delivery Box Validation, and completed a SOP (Standard Operation Procedure) amendment and stipulation, as well as manufacturing personnel training. The current operation is stable and meets clients' requirements as well. Chungli factory has implemented reliable storage and Cool Chain logistics, and will continue to comply with the updated PIC/S GDP, enhance and improve QC processes, manufacturing safety, and drug safety.



# Drug Safety

## Active Investigation

Products of the pharmaceutical industry 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 high-standard safety production systems and implementing effective drug safety management. The Company conducts regulation inspections on 100% of all major products, and there were no violations of health and safety regulations concerning these products and services.

TTY Biopharm has invested a large number of resources in various processes, ranging from R&D, production, and storage of drugs to the use of labels and conducting strict inspections of product safety. Featured products are liposome and microsphere-coated, long-acting, and gradual-release injection technologies that help relieve body pains. The drugs sold by TTY are in accordance with regulations and are accompanied by a medicine package insert, the instructions for use in the medicine package, and also provided on TTY website for inquiry.

In 2020, all labels and information manufactured by TTY were aligned with the local drug labeling requirements. There were no violations of information and labeling regulations for products and services, or regulations governing marketing campaign.

### Number of Drug Licenses

Number of Licenses	Oncology	Anti-infective	Healthcare	Total
Local (No.)	34	19	8	61
International (No.)	46	2	4	52
Total	80	21	12	113

## Enhance Management

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

Agent and Authorized Drugs	<ul style="list-style-type: none"> <li>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 approval from the US Food and Drug Administration (FDA), the European Medicines Agency (EMA), or the top 10 pharmaceutical advanced countries.</li> <li>When a drug requires a clinical trial in Taiwan before its launch, TTY will conduct clinical trials according to 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.</li> <li>Assessments will be conducted on the adverse reactions of drugs after the market launch. We have established a real-time reporting system and set up an adverse drug reaction reporting mailbox: <a href="mailto:drugsafety@tty.com.tw">drugsafety@tty.com.tw</a></li> </ul>
Branded Generics	<ul style="list-style-type: none"> <li>Branded generics include oncology, and anti-severe infection drugs.</li> <li>These products undergo necessary bioequivalence tests in accordance with the Regulation of Bioavailability and Bioequivalence Studies to acquire a launch permit from the central health authority.</li> </ul>

# Supplier Management

## Step 1 Choosing New Suppliers

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

"Quality Assurance", "Stable Production Capacity", "Cycle Time Reduction", and "Sustainability" are the 4 major policies of TTY, and it is important to evaluate supplier's financial status, organization management, and CSR implementation capability. The "Supplier Sustainability Management Assessment" is executed as a standard to select and assess new suppliers, re-evaluate and renew contracts with existing ones, conduct a risk assessment and management, and assist with improvements. The aim is to properly choose and manage suppliers with sustainability and transparency as key factors.

- Quality assurance: Assessment and onsite due diligence to ensure a quality system and quality supply.
- Stable Production Capacity: Multiple suppliers are required to maintain a flexible and stabilized supply and quantity.
- Cycle Time Reduction: Credible suppliers with qualified delivery capabilities are needed to promote cycle time reduction.
- Sustainability: Long-term partnerships are necessary to build stable developments and establish a sustainable supply chain. TTY demands suppliers to observe eco-friendly actions, and constantly consider safety and security, human rights, and CSR, as well as engage in risk management and have a sustainable operation plan.

## Step 2 The Eligibility of New Suppliers

Active pharmaceutical ingredients (API) are substances extracted from natural plants and synthesized chemically, which are 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 of the effectiveness and safety of drugs, thus TTY proceeds with 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. We further examine and assess their manufacturing of raw materials, any product risks, quality system control competency, and their order execution.

## 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 conducts once a year, and the assessment items include: Cycle Time (on time, credibility); Quality (stable supply quality); Customer Complaint (a timely improvement over customer quality complaint); Supportiveness (speedy and immediate return and exchange of goods); and Sustainability (Environmental protection and human rights assessment).
- TTY conducts a risk evaluation based on the above two items for classification management.
- Suppliers with scores lower than TTY requirements will be terminated from the purchase contract and will be removed from the 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 an action plan according to the inspection results. When the improvement fails to meet TTY requirements, on-site inspection** will be conducted.
C	High	≤ 69	1. Cease the purchase of items from the suppliers. 2. Deemed as disqualified suppliers and the contract is terminated.

### \*Paper Review-

Conducted through the document provided by suppliers and the "Sustainable Supplier Evaluation Questionnaire". The questionnaire consists of the following content:



#### Economy

1. Operation Overview
2. Client Management
3. Raw Material Management
  - Safety Stock, Cycle Time
  - Original Supplier Management



#### Environment

1. GHG Emission
2. Water Management
3. Energy Management
4. Waste Management
5. Overall Environmental Evaluation
6. Compliance with Laws and Regulations



#### Human Rights

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

### \*\*Onsite Inspection-

Suppliers are to provide the following information for onsite inspections:

- Company Introduction: Product supply, capacity, process description, facility, and equipment introduction.
- Environment Safety, and Hygiene Management: Information regarding overall environmental safety, hygiene control and management, waste control, cross-contamination prevention.
- Certificates and Licenses: The acquired government or global certified QC documents (PIC/S GMP or ISO 9001) and certification of the environmental management system (ISO 14001).
- Quality System Management: A document for the procedure 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.



## Chungli Factory

The qualified suppliers of Chungli factory include 474 raw materials (OEM included) and 106 manufacturers, of which 119 are raw materials (API and Excipient) and 355 are materials. There were 25 additions in 2020, of which 4 were raw materials and 21 were materials.

The 282 items purchased in 2020 by Chungli factory were assessed based on cycle time, quality, customer complaints, supportiveness, and sustainability. The results came out as 280 classified as Grade A, 2 as Grade B, and no supplier classified Grade C. Follow-ups and improvement will be required for Grade B suppliers, and these suppliers will be prioritized on the supervision list with increased frequency for review in year 2021 when necessary.

### 2020 TTY Chungli Factory Supplier List

	API	Excipient	Packing Material	Total
Material Supplier (items)	37	82	355	474
Manufacturer (numbers)	30	43	33	106

### 2020 TTY Chungli Factory Supplier Assessment Results

Grade	API	Excipient	Packing Material	Total
Grade A Supplier (lowest risk)	27	60	193	280
Grade B Supplier (moderate risk)	1	0	1	2
Grade C Supplier (highest risk)	0	0	0	0
Total	28	60	194	282





## Liudu Factory

The qualified suppliers of Liudu factory include 437 raw materials and 157 manufacturers, of which 190 are raw materials and 247 are materials. There were 19 additions in 2020, of which 5 were raw materials and 14 were materials.

The 327 items purchased in 2020 by Liudu factory were assessed based on quality and customer complaints. The results came out as 323 classified as Grade A, 4 as Grade B, and no supplier classified Grade C. Follow-ups and improvement will be required for Grade B suppliers, and these suppliers will be prioritized on the supervision list with increased frequency for review in year 2021 when necessary.

### 2020 TTY Liudu Factory Supplier List

	API	Excipient	Packing Material	Total
Material Supplier (items)	72	118	247	437
Manufacturer (numbers)	54	60	43	157

### 2020 TTY Liudu Factory Supplier Assessment Results

Grade	API	Excipient	Packing Material	Total
Grade A Supplier (lowest risk)	53	94	176	323
Grade B Supplier (moderate risk)	1	0	3	4
Grade C Supplier (highest risk)	0	0	0	0
Total	54	94	179	327



## Neihu Factory

Onsite audits and paper reviews are the methods to evaluate suppliers' qualification. A supplier engages closely without major deficiency, and delivers with consistently good standards, it is identified as a qualified supplier. Conversely, where a reviewee with poor commitment shows significant faults or fails to deliver with consistency, they will be regarded as disqualified and the candidate will be removed from the contract. In this case, proper sources of material will be on request.

The qualified suppliers of Neihu factory include 140 for raw materials, 54 are manufacturers, and 30 agents, of which 72 are raw materials and 68 are materials. There were 3 additions in 2020, of which 1 was raw material and 2 were materials.

The 35 items purchased in 2020 by Neihu factory were assessed based on quality and supportiveness. The results came out as 22 classified as eligible, and no supplier failed the assessment.

### 2020 TTY Neihu Factory Supplier List

	API	Excipient	Packing Material	Total
Material Supplier (items)	7	65	68	140
Manufacturer (numbers)	6	29	19	54
Agent (numbers)	4	18	8	30

### 2020 TTY Neihu Factory Supplier Assessment Results

Eligibility	API	Excipient	Packing Material	Total
Eligible	3	13	19	35
Ineligible	0	0	0	0
Total	3	13	19	35

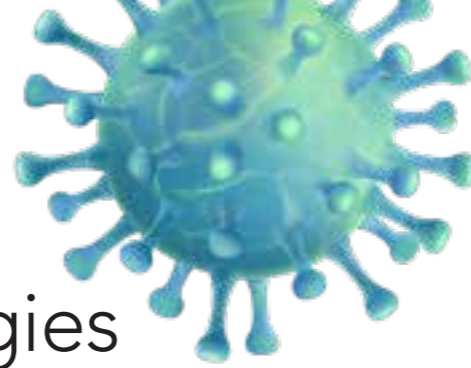
# 2 TTY Development Strategies

## KEY PERFORMANCE

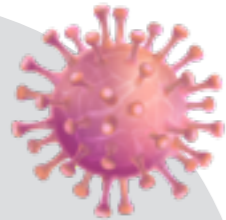
- Resumed the flu vaccine market in year 2020 as a response to the national disease prevention strategy to safeguard public health.
- Exclusive licensing agreement with PharmaMar for a potential COVID-19 medication.
- Two oncology licenses were granted in Mexico in year 2020.
- Work-from-home (WFH) and an Employee Shuttle Service was launched as a pioneer of the industry.



# TTY Development Strategies



## COVID-19



### TTY's Progress in Distributing Potential COVID-19 Drug

TTY's partner, Spanish drug maker PharmaMar, announced in October 2020 that the cancer drug candidate Aplidin (plitidepsin) is found to be able to block down the reproduction of coronavirus in phase I/II clinical trials. It is regarded internationally as another potential treatment to COVID-19 alongside Remdesivir and Favipiravir; solid progress in the battle against the current pandemic.



#### Positive Clinical Data

In April 2020, the Spanish Health Agency approved Spanish-listed drug-maker PharmaMar's clinical trial and the results from the phase I/II human clinical trial presented Plitidepsin's primary trial target and secondary treatment target have established safety profiles that significantly reduced virus counts and CRP in patients. The trial recorded the patients who were hospitalized for at least seven days and found that the virus count dropped significantly on day 4 to day 7 following administration. A 50% drop in virus count on day 7, and a 70% drop on day 15. It also recorded that 38.2% of the patients were discharged before day 8 of hospitalization, and 80.7% were discharged before day 15 of hospitalization. No patient showed symptoms of COVID-19 or contamination afterward.



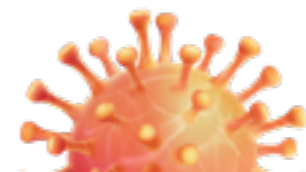
#### Planning for Clinical Trial Phase III

The first study results encouraged AEMPS to expand the trial target number. The patient numbers subjected to Plitidepsin treatment increased. PharmaMar's ongoing correspondence with the Spanish Health Agency is preparation for clinical trial phase III.



#### Executive Distribution in Taiwan

TTY entered into an exclusive license agreement in year 2015 to market and distribute the drug candidate Plitidepsin, which could be a potential treatment for COVID-19. To clarify that Plitidepsin is accessible for citizen's health in Taiwan, TTY follows and communicates with PharmaMar closely and will apply to the TFDA for new drug permission once the safety and efficacy of the candidate are validated.



## Going Forward into the Global Market

### Two Mexico Licenses in Year 2020

In December 2020, the Mexico authority approved and licensed the drug TTY originally used for the treatment of metastatic bone cancer. This was the second oncology license in Mexico. The first license was granted for a breast cancer drug in July of the same year. The approvals are a stepping stone to the global market.

After the establishment of TTY Mexico in June 2018, the adjuvant drug that contains Zoledronic were submitted for registration to take care of the needs of cancer patients in Mexico. On December 4<sup>th</sup>, 2020, the license was issued. As for ABC (advanced breast cancer) patients, the drug containing Anastrozole was shipped on December 2<sup>nd</sup> after approval in July of the same year, expecting a cross-nation collaboration to mitigate suffering from the disease.

### Stepping into Latin America

Latin America is one of the many key overseas markets. Holding two licenses in Mexico and completing the first shipment abroad, TTY is taking and expanding its business to Central and South America. Starting from Mexico, we are receiving voices from Columbia, Panama, Brazil, and Argentina enquiring about partnerships. TTY's world mapping has begun with positive recognition.

As an entity, TTY is directing the world as our development goal. Our culture emphasizes honesty and integrity, which helps boost the Company's performance to achieve progress. Hence, we wish to help more patients with illnesses and contribute to a promising global market advancement.



## Entering the Flu Vaccine Market

### Satisfying over 600 Thousand Flu Vaccine Dosages in Taiwan

Brazilian research indicates that, of more than 92 thousand COVID-19 victims, the hospitalization needs for those who were flu vaccinated were reduced by 8%, Ventilator demand decreased by 18% with lower mortality, even to 17% less mortality among 10-19-year-old patients. Canadian studies found that when community vaccination is at 90%, cumulative cases of COVID-19 fell by 23%, with a 92.9% decrease in cross-infection cases.

As a provider of the public-fund flu vaccine in year 2020, TTY entered the flu vaccine market with 550 thousand vials. Meanwhile, the increased demand due to the COVID-19 outbreak is a sign of going in for self-paid dosage supplies. The 95 thousand vials for self-paid administration from TTY are cell-based and have a lower virus variation. The high unit price is expected to contribute hundreds of million in revenue.

### Increasing Demands Expected in Year 2021

"The demand for the flu vaccine in year 2021 shall surpass this year before the COVID-19 vaccine's prevalence," said Chairman Lin during the "Don't Bring the Flu into My House" press conference on September 23<sup>rd</sup>. In 2020 the import of nearly 650 thousand cell-based flu shots, produced in Germany by an Australian drug-maker is looking to be upscale to at least 800 thousand doses in year 2021, as added by General Manager Shih. With a 10-million-doses yearly potential in Taiwan, TTY holds a favorable business outlook of future flu vaccine needs.

Chairman Lin mentioned that the year 2019 and year 2020 posed challenges from the COVID-19 pandemic that forced the formation of new lifestyles, and the seasonal flu outbreak every October to February/March. The public is severely affected when two respiratory viruses co-exist, threatening human lives. Despite the 7-8 million vaccines provided in 2020 for public-fund and self-paid demand which have outnumbered those of recent years, the global vaccine output increased by 15%, yet overall demands were not satisfied. The forecast expects quadrivalent flu vaccines next year to cap the volume counted in 2020. Inquiries have arrived from hospitals and clinics for future needs in 2021, pushing the import amount to 800 thousand or even 1 million dosages.

1. TTY Chairman Lin Chuan encouraged the public to receive flu vaccination as soon as possible in a press conference.
2. Free flu vaccinations available to all TTY employees and their family members.
3. It is considered part of our social responsibility to create a social protection net that offers safety and security to our people/employees.

1

2

3



## Disease Prevention Management

### WFH Leader

As early as before the year 2020 CNY, TTY noticed the disease's quick prevalence and reminded all colleagues to increase their awareness. After the CNY holiday, the disease spread and case numbers climbed. In response, TTY established strict discipline at work, including monitoring body temperatures, autonomous health, and implementing social distance among colleagues. Masks and sanitizers were provided by the Company. "Family Care Leave" was activated following the government's policy.

An ad-hoc team was quickly assembled along with the spread of the virus. To tackle enclosed area risks, using staircases was recommended instead of elevators, visitor

control, and online meetings were implemented to avoid confined spaces and in-person contact. Full masks were worn throughout the day when in the office, and all business trips were suspended. Remote working began as of March to further minimize the risk of group infection. Potential operational risks and contingency plans were launched to secure employees' health and safety and to calm investors' faith. The industrial first Shuttle Service was on the road, dedicated to helping employees with their commute. Exclusive vehicles and carpooling were encouraged to avoid mass transportation which could increase exposure to infection.

As the pandemic worsened, the Company activated work-from-home, and all employees were required to update a daily health check form and stay away from crowded areas. Self-protection was very much on the agenda. Six weeks after the activation of WHF (3/30-5/8), the office was reopened as the situation lightened and no local infections were reported, yet the policy remains as national disease prevention continues. Our sales and promotion have remained unaffected thus far with sound operations.

## Active Implementation of the Employee Shuttle

With 795 confirmed cases reported by March 31<sup>st</sup>, the rapid outbreak of COVID-19 in Taiwan emphasized the importance of a relevant response. Advanced preparations with reinforced measures were drawn up explicitly for the return of the workforce after CNY. Therefore, the "Employee Shuttle Service" hit the road, allowing TTY staff to commute to and from work safely. Three routes are available within the Taipei area, from the farthest Tamsui MRT Station, the Taipei Zoo MRT Station of the Brown Line, and down to Haishan Station of the Blue Line, and each shuttle bus carries around 20 employees. The service is solely for TTY employees so that they can commute between work and home with a minimum risk of cross-infection.

The shuttle bus is not restricted to fixed pickup and drop-off points; the service is flexible and can accommodate adjustments to staff residences. Each vehicle has an employee who is responsible for recording the temperatures, ensuring hands are sanitized correctly, wearing masks properly, and assurance of a safe trip to the workplace and back every time.

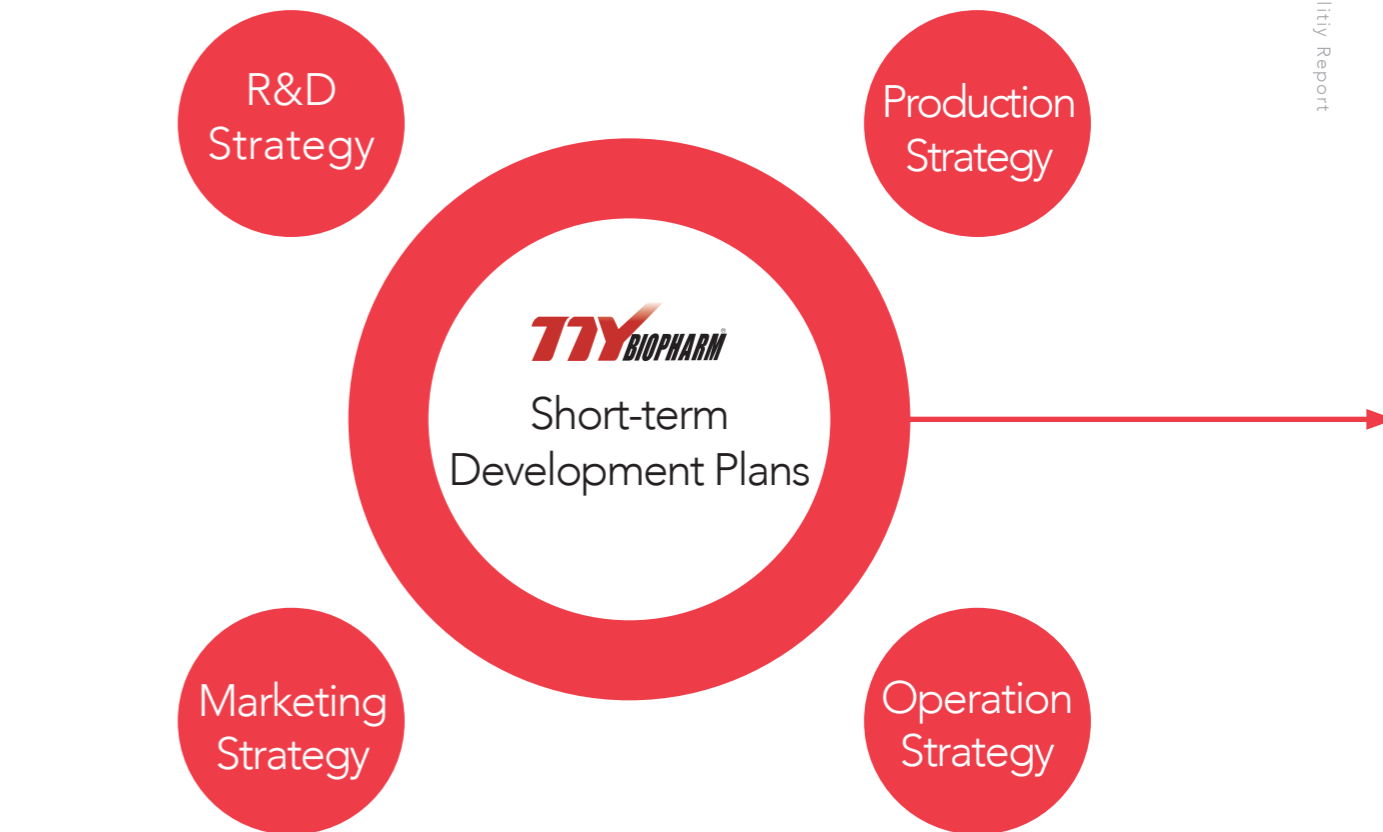
In addition, TTY's "Car Pool" option encouraged Keelung and Neihu commuters to plan their routes and take alternative transportation to Nangang headquarter, and the same for employees working at Chungli and Lioudu factories. To meet the needs of employees who work at Chungli factory, "Ride Sharing" vehicles rented by TTY with parking fees covered are available to transport staff between their homes and the workplace. For staff whose traveling time is prolonged by making use of Ride Sharing, their work hours are compensated by flexible punch-out times, allowing riders a common finishing time that enables them to share transportation.

# TTY Development Strategies

## TTY Short, Medium, and Long Term Goals for ESG

	<b>E</b>	<b>S</b>	<b>G</b>
<b>2021</b>	<ul style="list-style-type: none"> <li>Environmental sustainability campaign (2 events/year)</li> <li>2 factories to complete the Supplier Risk Level Inventory</li> <li>2 factories to complete the supplier/contractor social responsibility questionnaires and letter of commitment content design</li> </ul>	<ul style="list-style-type: none"> <li>LOHAS Health Education Lectures (4 sessions/year)</li> <li>Daytime Hospice &amp; Care Service</li> </ul>	<ul style="list-style-type: none"> <li>Risk Management Center and Policy establishment</li> <li>Risk identification and associated management guideline</li> <li>Audit committee's approval for quarterly financial reports</li> </ul>
<b>2022</b>	<ul style="list-style-type: none"> <li>2 Environmental sustainability campaigns</li> <li>2 tons of waste recycle and reuse</li> </ul>	<ul style="list-style-type: none"> <li>Employee LOHAS activities</li> </ul>	<ul style="list-style-type: none"> <li>Climate change risk evaluation under TCFD</li> <li>Corporate risk management mechanism and framework improvement</li> </ul>
<b>2023</b>	<ul style="list-style-type: none"> <li>2 Environmental sustainability campaigns</li> <li>3 tons of waste recycle and reuse</li> <li>Expense assessment &amp; implementation of 1% power saving project: purchase of green energy or additional energy-saving facility installation</li> </ul>	<ul style="list-style-type: none"> <li>Encourage employees' families to join LOHAS activities</li> </ul>	<ul style="list-style-type: none"> <li>Excellent corporate risk management mechanism</li> </ul>

- Ensure that key products are launched on schedule to seek short-term profit. Consistent quality manufacturing of products with a long life cycle.
- Enlarge the foundation of the high-barrier technology platform for Specialty product combinations, and improve the commercialized economic scale.
- Carefully select development targets for innovative drugs and partner with international marketing companies; release the market authorization when appropriate while retaining market rights in certain target countries to increase the number of direct drug sales of products with a long life cycle.
- Continue implementing training courses to keep up to date with the pharmaceutical regulation; international and domestic inspections on factories to sustain stability and superior quality in production.
- Properly plan the manufacturing production lines, production and sales coordination in the production management process to ensure the balance of production capacity and marketing.
- Independent manufacturing and management of raw materials, functional excipients, and special packaging materials. Establish supplier quality regulations to implement cost control and to maintain stable supply sources.



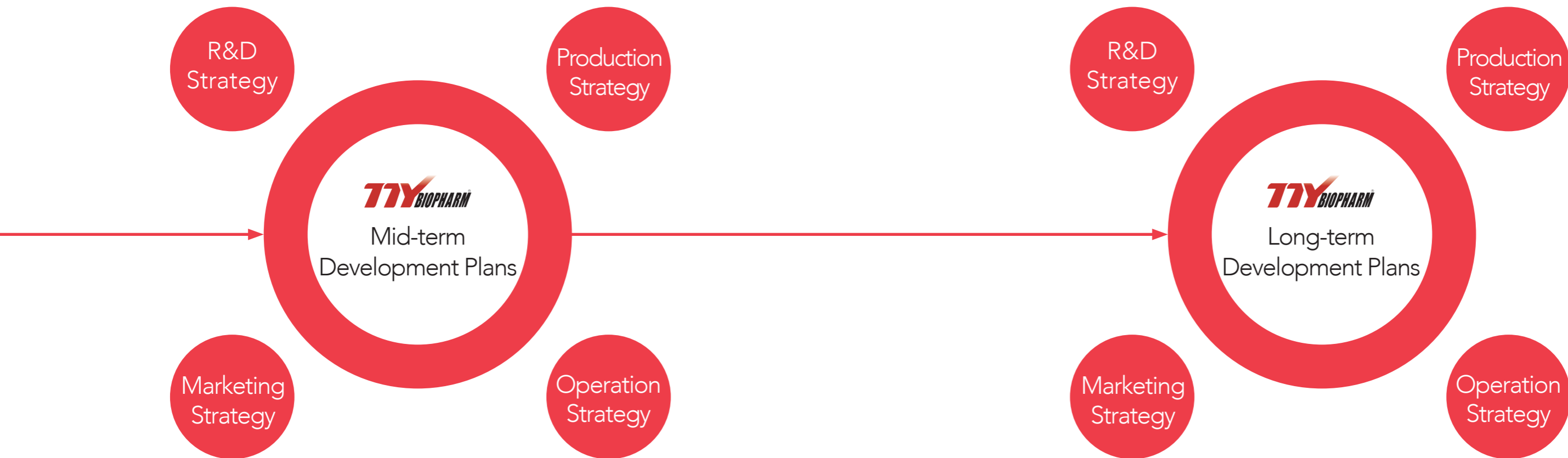
- Continue research and introduce suitable drugs to meet unmet medical and clinical needs; become the best clinical therapy partner with advanced solutions for clinical doctors.
- Enhance the integration of commercial products and the value chain, be the best CRO/ CMO/ CDMO partner to global Specialty drug companies.
- Increase local and overseas market income to support product development and new territory expansion.
- Increase income from OEM and co-development of international Specialty drugs to cover factory operation expenses.
- Introduce development results to global markets with overseas authorization; combine product and R&D income to support new products and business, and create a positive business cycle.
- Focus on global biotech investment targets; monitor medical care changes in target countries; create ultimate group profit, seize mid-to-long-term development opportunities.
- Speedy recruitment and cultivation of local talent resources with start-up ability; enhance staff product development capacity to meet scientific, regulatory, and enterprise operation requirements; intensify department internationalization for future growth potential.

- Optimize the development of carefully selected innovative drugs, partner with international marketing companies at the correct time for co-development whilst input R&D expenses and company revenue through the tiered achievement of new contracts, milestone payments, and royalties.
- Continue with the development of brand-name drugs in Specialty dosage forms and new drugs of high economic value; enhance international partnerships; launch registrations for products.

- Upgrade equipment specifications, expand production capacity and keep consistent and top-quality products in compliance with global and local quality regulations.
- Install a new production line for new drugs in Specialty dosage forms for the commercialization and globalization of drugs of Specialty dosage forms for production integration.
- Fortify the association between supply chains and procurement to best control the quality and price of supplier materials; green procurement and supplier sustainability management mechanism promotion.

- Seek the evaluation and investment balance of targeted drug development for initial, middle, and final phases; optimize product combinations and competence of the targeted disease treatment domain (Specialty drug, biological drug, new drug). Sustain the Company's short- and long-term growth momentum as well as value chain integration.
- Foster international partnerships and/or self-accelerated development to meet unmet medical needs, high-barrier drugs, the needs of brand-name drugs and new drugs of Specialty dosage form of profitable value, or clinical and medical associated products with a market niche.

- Drug manufacturing sites that follow, renew, and comply with international drug regulations.
- Install a new production line for new drugs to accomplish the commercialization and globalization of drugs of Specialty dosage forms and new drugs for production integration.
- Maximize manufacturing energy and supply chain management through critical strategic actions including M&A, strategic alliances, and joint ventures; complete consolidation of production quality and efficiency.



- Introduce flu and other vaccines from abroad to contribute a well-established public health and safety system in Taiwan; a critical intensive care team is to be assembled to complete clinical treatment options for critical patients, and fulfill the void and requirement for medical solutions in the current system based on the foundation of the governmental health and care policy.
- Accelerate the setup of sales and distribution overseas with drug licenses; continue to focus on each targeted market for brand activities that promote differentiation for local optimization, together with the operation and management of the business life cycle; grow product sales overseas to increase revenue from global market coverage.

- GIRA (Government, Industry, Research, Academy) partnership initiatives to gather voices and support from every direction. International experience sharing to expedite business development sustainability.
- Speedy recruitment and cultivation of local talent resources with start-up abilities; enhance the product development capacity to meet scientific, regulatory, and enterprise operations balanced and equally, as well as cross-field operations and marketing skills.

- The ongoing optimization of business activities and business life cycle management according to each target market.
- TTY international business development expansion through company-owned and co-developed competitive Specialty drugs, sustainable co-development business practice pattern, as well as a cross-border resource consolidated marketing strategies for new and Specialty drugs.
- Accelerate the expansion of overseas sales and distribution; strengthen proprietary trading markets and targeted management; extend corporate core market borders to enhance the Company's mid-to-long-term revenue and international development diversity.

- Commit to the development of new drugs, drugs of Specialty dosages, biological drugs, and medical treatment technology to create a more complete product portfolio.
- Continue to strengthen and develop high-barrier dosage drug platforms to extend their application benefit.
- Continue to expand the development and manufacturing territory of drugs for cancer, intensive care, anti-infection drugs, and Specialty dosage drugs; continue to increase international market share.
- Become one of the world's most innovative biotech pharmaceutical companies, and the best partner to work with for other international biotech companies.



# 3 Environmental

## KEY PERFORMANCE

- Lioudu factory ● The actual chemical oxygen demand (COD) emission in the water quality of the Lioudu factory was **26 times lower than sewer connection standards.**
- Lioudu factory ● The actual quantity of suspended solids (SS) discharged in the water quality of the Lioudu factory was **95 times lower than sewer connection standards.**
- Lioudu factory ● The actual particulate matters, SO<sub>2</sub>, and NO<sub>x</sub> emissions in the air pollution from the Lioudu factory were at least **2 times lower than sewer connection standards.**
- Chungli factory ● The actual chemical oxygen demand (COD) emissions in the water quality of the Chungli factory was **7 times lower than sewer connection standards.**
- Chungli factory ● The actual quantity of suspended solids (SS) discharged in the water quality of the Chungli factory was **70 times lower than sewer connection standards.**
- Chungli factory ● The actual particulate matters, SO<sub>2</sub>, and NO<sub>x</sub> emissions in the air pollution from the Chungli factory were at least **6 times lower than sewer connection standards.**

To join UN's 17 SDGs to facilitate eco-environment development, TTY has taken actions to improve environmental sustainability: increased energy efficiency by upgrade the infrastructure; lowered water consumption intensity and sewage discharge through overall process amelioration, and enhanced sewage treatment as a result of working with NCU on Arsenic Ion recycle technology in the year 2020.

On the commitment to rivers and water bodies, all TTY members united as one to safeguard our ocean ecology thereby contributing an endless future to Earth.



# Energy Management

Following the position of leading biopharm companies in Taiwan, TTY is deeply concerned about public health risks such as climate change and diseases spread through unclean air and water, and improper hygienic behaviors. In addition, increasing supportive data indicates that certain disease patterns are related to changes in climate conditions. As a result, a reduction of energy consumption has always been one of TTY Biopharm's major goals, and have been researching on how to increase the proportion of green energy in the future. Committed to "sustainable development" and "responsible

energy consumption", in year 2020, we continue our strategy of firstly, reducing the use of resources, and secondly, searching for methods to replace fossil fuels.

At the same time, we also comply with the Bureau of Energy's "Energy Conservation Goals and Implementation Plans for Energy Users" which state that: As of 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 views its support to improving energy efficiency at all their operating sites, and following the specific measures in accordance with international environmental standards, including ISO 14001, ISO 50001, and ISO 14064-1 as its management approach and compliance specifications for various energy conservation and carbon reduction measures.

## Results of Electricity Reduction

In year 2020, following the Bureau of Energy's "Energy Conservation Goals and Implementation Plans for Energy Users", two major TTY manufacturing sites reported relevant results over that period. Overall, the five energy-saving measures formed at both the Lioudu and Chungli factories have conserved 85,936.5 kWh of electricity. CO<sub>2</sub> emissions volume has decreased by 47,608.8 kgCO<sub>2</sub>e compared to the previous periods.

The schedule for TTY Lioudu factory's cooling water pump was updated by adding CMS night mode to the cooling-water pump resulted in more energy has been

saved. The lighting in Lab Building G was changed from T8 20W to steel frame lighting with T5 14W.

Natural gas boilers at TTY Chungli factory were replaced with new ones; consolidation of chiller units of 60RT in warehouse C2 and that of 120RT in oncology tablet dosage factory to keep 120RT main unit and pumps for primary use, and 60RT as secondary. The later unit will be in use when required during the summer season. The lighting in factory B1 was upgraded to LED lighting to reduce power consumption.

## 2020 TTY Electricity Saving Actions and Results at the Lioudu & Chungli Factories



- The 24hr-running cooling water pump in Building B changed its operation hours to 08 : 00~20 : 00 in 2020.
  - 18,799.167 kWh electricity saved
  - 67,677 MJ energy saved
  - 9,568.8 kgCO<sub>2</sub>e emission reduced
- Steel frame lighting in Lab Building G was changed to 20W\*4 T8 to 14W\*4 T5.
  - 2,400 kWh electricity saved
  - 8,640 MJ energy saved
  - 1,221.6 kgCO<sub>2</sub>e emission reduced



- Consolidation of chiller units of 60RT in warehouse C2 and that of 120RT in factory C1 to keep 120RT unit for primary use, and 60RT as secondary for the summer season when required.
  - 29,414 kWh electricity saved
  - 105,890.4 MJ energy saved
  - 14,971.7 kgCO<sub>2</sub>e emission reduced
- 51 T8 lightings in B1 of the cleanroom were switched to LED.
  - 7,663.333 kWh electricity saved
  - 27,588 MJ energy saved
  - 3,900.6 kgCO<sub>2</sub>e emission reduced
- Converters added to chiller pumps of factory C1 to lower operation frequency to 50HZ.
  - 27,660kWh electricity saved
  - 99,576 MJ energy saved
  - 14,078.9 kgCO<sub>2</sub>e emission reduced

## 2021 TTY Electricity Saving Plans in Lioudu & Chungli Factories



- Change Office Building. A to LED lightings.
  - 16,580 kWh estimated to be saved
  - 59,688 MJ energy to be saved
  - 8,439.2 kgCO<sub>2</sub>e emission to be reduced
- Building. C change to LED lightings.
  - 1,531.25 kWh to be saved
  - 5,512.5MJ energy to be saved
  - 779.4 kgCO<sub>2</sub>e emission to be reduced
- Improve chiller heat dissipation with auto doser on Building. C (Oral Drug) 900RT cooling towers to control water quality and pipe structure issues.
  - 47,457.591 kWh to be saved
  - 170,847.3 MJ energy to be saved
  - 24,155.9 kgCO<sub>2</sub>e emission to be reduced



- 51 T8-lighting in the B1 cleanroom switch to LED with 1-month recognition.
  - 696.667 kWh to be saved
  - 2,508 MJ energy to be saved
  - 354.6 kgCO<sub>2</sub>e emission to be reduced
- Converters add to air-con chiller pumps of Factory C1 to lower operation frequency to 50HZ with 4-month recognition.
  - 29,414 kWh to be saved
  - 105,890.4 MJ energy to be saved
  - 14,971.7 kgCO<sub>2</sub>e emission to be reduced
- Converters add to cooling-water pumps of Factory C1 to lower operation frequency to 50HZ.
  - 36,880 kWh to be saved
  - 132,768 MJ energy to be saved
  - 18,771.9 kgCO<sub>2</sub>e emission to be reduced
- Change T8 lightings in air-con rooms C2 & B1 to LED 20W lamps.
  - 1,830 kWh to be saved
  - 6,588 MJ energy to be saved
  - 931.5 kgCO<sub>2</sub>e emission to be reduced

Note:

- Calculation: 1 kWh =3,600,000 Joule of purchasing power
- The year 2020 discharge coefficient was yet to be published, hence, the 2019 discharge coefficient published by the Bureau of Energy in June 2020 was adopted as 0.509 kgCO<sub>2</sub>e/kWh in this report.

## Reduction of Energy Consumption

### Statistic on Energy Consumption

On the energy consumption in the year 2020, 8,713,400 kWh of electricity was purchased from TTY Lioudu factory with 340,769m<sup>3</sup> natural gas used; 5,723,500 kWh was purchased from TTY Chungli factory with 166,451m<sup>3</sup> natural gas used. The total consumption of these two factories has reached 68,958,623 MJ and 8,951 tonCO<sub>2</sub>e GHG emissions. In year 2020, with

the impact of COVID-19, the inventory increased and orders from local and international buyers dropped, resulting in an increase in energy intensity and GHG emission intensity from the previous reporting period. The demand for new dosage forms from the Lioudu factory also resulted in higher energy use as opposed to the last period.

In the future, TTY shall continue to work on the reduction of energy consumption and GHG emissions through the better practice of electricity-saving measures and higher energy efficacy, devoted to a greener and healthier Earth.



### TTY Energy Consumption for Recent 5 Years ( Unit: MJ )

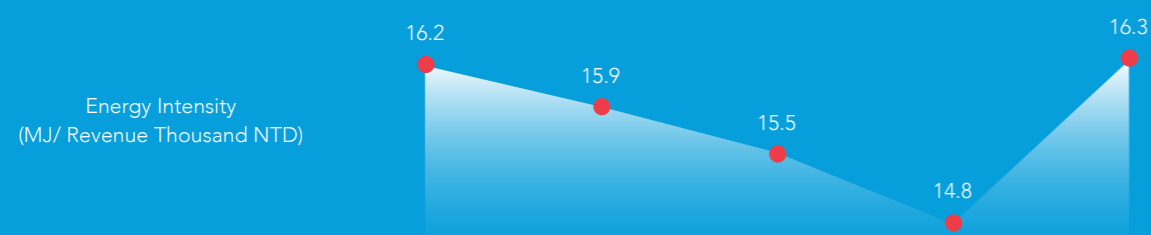
Factory	Energy Type	2016	2017	2018	2019	2020
Lioudu Factory	Category I	9,438,976	10,197,096	9,587,246	10,323,547	11,411,672
	Category II	24,773,422	28,809,360	28,142,064	28,156,536	31,368,240
Chungli Factory	Category I	8,017,027	7,208,292	5,611,316	7,094,433	5,574,111
	Category II	18,757,800	18,743,760	19,088,640	20,711,880	20,604,600
Total		60,987,225	64,958,508	62,429,266	66,286,396	68,958,623

Note:

- In January 2018, natural gas boilers have replaced the consumption of low sulfur fuel oil (LSFO) and reduced CO<sub>2</sub> emissions.
- Category I calculates the energy consumption in natural gas boilers. Calculations: natural gas 1 m<sup>3</sup> = 8000 kcal = 33,488,000 Joule
- Category II calculates the emissions from purchased electricity. Calculation: purchased electricity 1 kWh = 3,600,000 Joule

### TTY Energy Intensity for Recent 5 Years (Unit: MJ / Revenue Thousand NTD)

Year	2016	2017	2018	2019	2020
Energy Consumed (MJ)	60,987,225	64,958,508	62,429,266	66,286,396	68,958,623
Operational Revenue (Thousand NTD)	3,760,717	4,078,760	4,036,196	4,466,308	4,221,836



### Statistic on GHG Emission

### TTY GHG Emission for Recent 5 Years (Unit: tonCO<sub>2</sub>e)

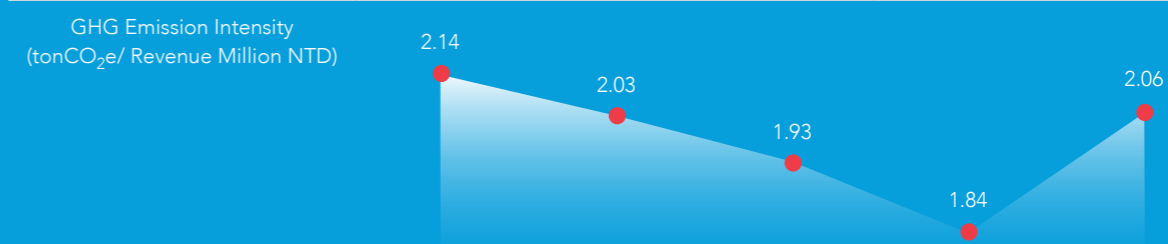
Factory	Energy Type	2016	2017	2018	2019	2020
Lioudu Factory	Category I	625	756	538	579	640
	Category II	4,094	4,225	4,128	4,169	4,827
Chungli Factory	Category I	594	534	315	398	313
	Category II	2,751	2,749	2,800	3,067	2,913
Total		8,065	8,264	7,780	8,213	8,693

Note:

- The emission from Lioudu and Chungli factories is within Category I & II. Category III is not included.
- In January 2018, the use of natural gas boilers replaced the consumption of low sulfur fuel oil (LSFO). The natural gas boilers dominate the emissions source of Category I. The calculation for natural gas GHG emissions: natural gas usage (m<sup>3</sup>)\*0.000033488(TJ)\*56100(CO<sub>2</sub> Emission factor)/1000(tonCO<sub>2</sub>/TJ)
- Category II mainly measures the emissions from purchased electricity. The discharge coefficient 0.509 kgCO<sub>2</sub>e/kWh published by the Bureau of Energy in June 2020 was adopted.
- The 2015 CO<sub>2</sub> Equivalent Factor (EF) declared by BoE was 0.525 kgCO<sub>2</sub>e/kWh; 0.530 kgCO<sub>2</sub>e/kWh in 2016; 0.554 kgCO<sub>2</sub>e/kWh in 2017; 0.533 kgCO<sub>2</sub>e/kWh in 2018; 0.509 kgCO<sub>2</sub>e/kWh in 2019. The one in 2020 was not yet declared during report compilation and therefore the 2019 EF was used for calculation.

### TTY GHG Emission Intensity for Recent 5 Years (Unit: tonCO<sub>2</sub>e/ Revenue Million NTD)

Year	2016	2017	2018	2019	2020
GHG Emission (tonCO <sub>2</sub> e)	8,065	8,264	7,780	8,213	8,693
Revenue (Million NTD)	3,760	4,078	4,036	4,466	4,221





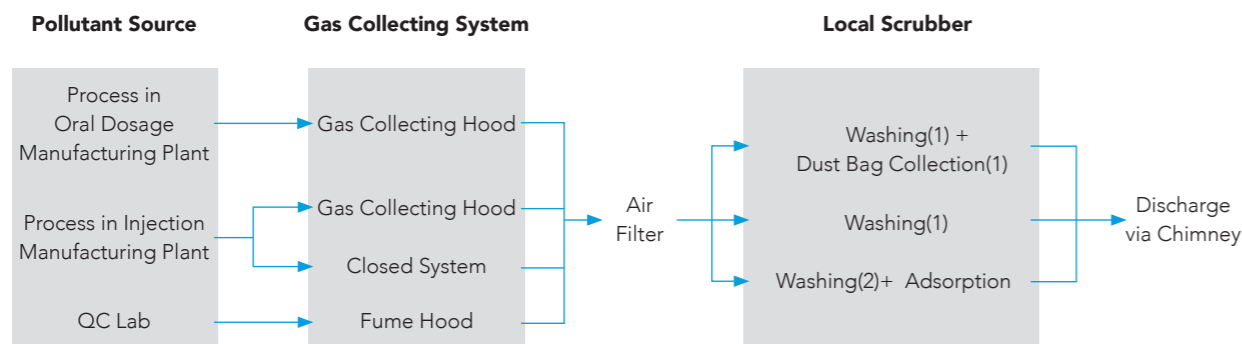
# Air Pollution Control

TTY presents no effort on the air pollution issue. In the year 2020, our two main manufacturing sites adopted source classification to minimize air pollutants during the manufacturing process. Treatment technology at multiple sections has helped elevate the processing performance of the terminal preventive facility. The annual inspection on air pollutant discharge as well as implementation meant that the maintenance and training were put in place to make certain that pollutants going into the air fall within the criteria of the "Stationary Pollution Source Air

Pollutant Emissions Standards" - with the pollutant concentration superior to existing regulation.

Taking control from the beginning works best to minimize pollutants. In TTY, the "effective minimization on emission sources and enhanced treatment at the terminal preventive facility" is our current practice. Starting at the source in phase I, the pollutants are classified based on their nature such as dust, organic solvents, and odors. Then the local scrubber is treated through washing, then activated carbon absorbers or bag-type dust collectors process the remaining exhaust before they are released into the air. The pollutant concentration is now in accordance with the relevant regulations. The sectional treatment is a perfect, all-direction solution to making air emission treatment more effective.

## Air Pollutant Control Process



### Lioudu Factory 2020 TTY Lioudu Factory Stationary Pollution Source Measure Results

	PM (mg/Nm <sup>3</sup> )	SO <sub>2</sub> (ppm)	NO <sub>x</sub> (ppm)
Stationary Pollution Source Air Pollutant Emissions Standards	50	100	150
Gas Boiler (P001)	1	1	61
Gas Boiler (P002)	1	1	68
Gas Boiler (P003)	2	1	51

### Chungli Factory 2020 TTY Chungli Factory Stationary Pollution Source Measure Results

	PM (mg/Nm <sup>3</sup> )	SO <sub>2</sub> (ppm)	NO <sub>x</sub> (ppm)
Stationary Pollution Source Air Pollutant Emissions Standards	50	100	150
Gas Boiler (P001)	2	1	24
Gas Boiler (P002)	2	1	21

# Water Management

## Reinforced Water Consumption Strategy

The water for Lioudu, Chungli, and Neihu (Neihu factory + Pharmaceutical Development Center) comes 100% from Water Plants. As indicated in the WRI (World Resources Institute)'s Aqueduct Water Risk Atlas, Taiwan is categorized as a low-medium (1-2) area in the Baseline Water Stress Map. There is no underground water usage to cause an impact on its source.

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. Within national effluent standards, the treated wastewater is discharged into receiving waters, thereby reducing environmental degradation. No leakage, overflow, or other non-scheduled

wastewater was discharged during the reporting period. All effluent is within the Water Pollution Control Act, Local Government Act, and sewage treatment plant "ingoing water quality standard" in the industrial area. The chemical oxygen demand (COD) emissions and SS (suspended solids) in the discharged water of Lioudu and Chungli factories are much lower than local sewer connection standards and do not impact the water and biodiversity.

In the year 2020, as the pandemic continues, inventory has increased while orders from local and international buyers have dropped, however, the water consumption intensity and wastewater discharge intensity has remained at the same level as the previous reporting period, thanks to the daily improvement in manufacturing processes and sewage treatment.

In the future, the overall water saving policy will further expand to systematic water management, inclusive of the circulation system, recycle and reuse of chilling tower water; chilling procedure upgrades, better heat recovery rate, and lower water demand. The importance of saving water is disseminated across employees up to the managerial level for fundamental action.

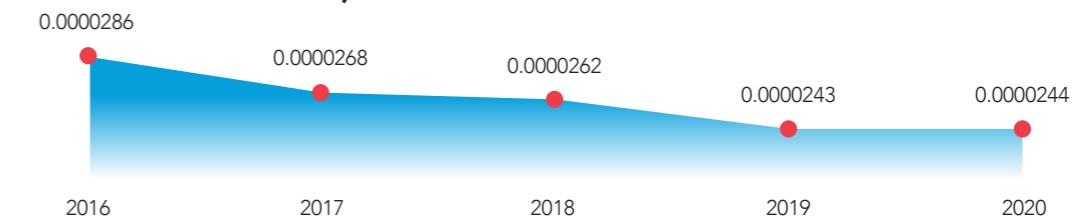
## Statistics on Water Consumption

### TTY Water Withdrawal for Recent 5 Years ( Unit: Megaliters /Revenue Thousand NTD )

Item	Unit	2016	2017	2018	2019	2020
Lioudu Factory	Megaliters	69.693	82.056	79.518	68.292	76.961
Chungli Factory	Megaliters	35.222	25.151	24.165	37.739	23.811
PDC (Note)	Megaliters	2.718	1.964	2.120	2.382	2.429
Total	Megaliters	107.633	109.171	105.803	108.413	103.201
Revenue	Thousand NTD	3,760,717	4,078,760	4,036,196	4,466,308	4,221,836
WUI (Water Usage Intensity)	Megaliters /Revenue Thousand NTD	0.0000286	0.0000268	0.0000262	0.0000243	0.0000244

Note: Neihu Factory & Pharmaceutical Development Included

### Lioudu Factory, Chungli Factory & PDC Water Intensity for Recent 5 Years (Unit: Megaliters/Revenue Thousand NTD)



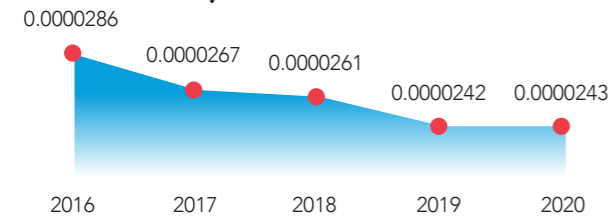
Note:

- The 2020 WUI was 0.0000244, and 0.0000243 in 2019, resulting in 0.4% higher compared to the previous year (ton/ Revenue Thousand NTD) [Calculation: (0.0000243-0.0000244) / 0.0000243 = -0.4%]
- Different from the previous report where a ton was used to denote the volume, this year a megaliter is adopted according to the GRI Standard 2020.

## TTY Management on Water Discharge & Relevant Impact for Recent 5 Years

Water Quality	Unit	Local Sewer Connection Standards	2016	2017	2018	2019	2020	
Lioudu Factory	Vol.	Megaliters	69.693	82.056	79.518	68.292	76.961	
	COD	mg/L	46.13	59.86	68.34	73.42	22.68	
	SS	mg/L	13.11	10.24	12.69	16.80	6.31	
Chungli Factory	Vol.	Megaliters	35.522	25.151	24.165	37.739	23.811	
	COD	mg/L	113.96	91.75	87.94	77.36	66.58	
	SS	mg/L	8.54	12.21	5.65	3.53	4.53	
PDC	Vol.	Megaliters	2.174	1.571	1.696	1.905	1.943	
	Total Discharge Volume		Megaliters	107.389	108.778	105.379	107.936	102.715
	Revenue		Thousand NTD	3,760,717	4,078,760	4,036,196	4,466,308	4,221,836
WUI (Water Usage Intensity)		Megaliters /Revenue Thousand NTD	0.0000286	0.0000267	0.0000261	0.0000242	0.0000243	

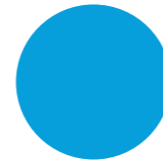
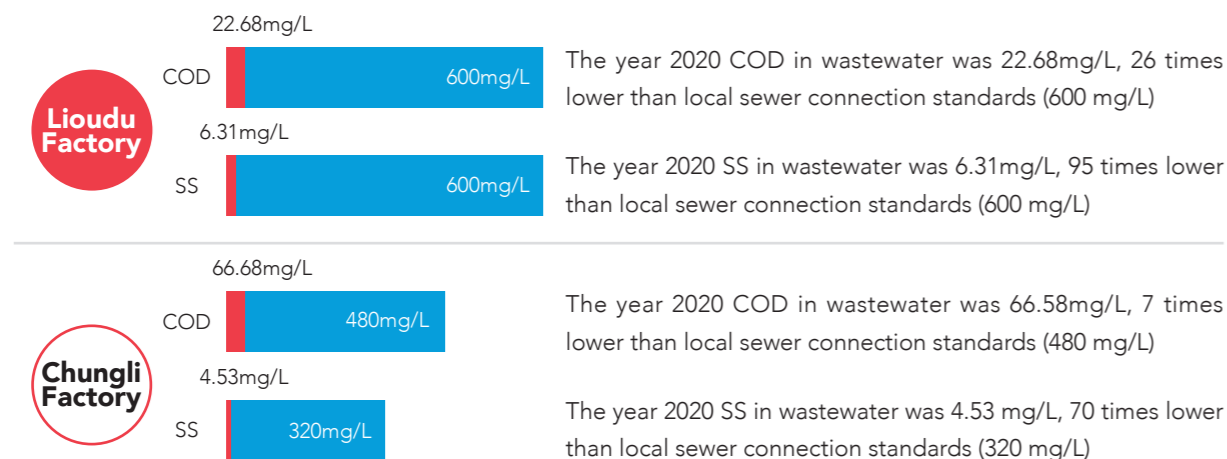
## Lioudu, Chungli & PDC Wastewater Discharge Intensity (Unit: Megaliters/ Revenue Thousand NTD)



Note:

- The year 2020 Wastewater Discharge Intensity was 0.0000243 and 0.0000242 in 2019, resulting in a 0.4% increase compared to the previous year [Calculation:  $(0.0000242 - 0.0000243) / 0.0000242 = -0.4\%$ ]
- Difference from the previous report where a ton was used to denote the volume, this year a megaliter is adopted according to the GRI Standard 2020.

## COD & SS in Wastewater Intensity v.s. Local Sewer Connection Standards



# Technology to Arsenic Ion Recycling

## Impact on Environment Alleviated

Arsenic (As) affected water lowers its BOD (Biochemical Oxygen Demand), the As from sewage deposits in the soil enters crops and causes crop stunting, reduced rice production, and its residual goes into milk and meat/poultry products due to food chain circulation. As a result, our diet will contain Arsenic which affects our health due to bioaccumulation.

TTY wishes to mitigate the environmental impact caused by production and has partnered with NCU to develop a process to recycle As ions, ensuring As concentration in wastewater falls within the discharge limit.

More usual than ever we are observing As poison incidents like the cases of contaminated brewing sugar in Manchester's beer that resulted in 71 deaths and the poisoning of 6,000; the Morinaga milk poisoning case in Japan where 131 people lost their lives to cerebral palsy and 12,157 individuals that were affected by; black foot disease which was discovered in southwestern Taiwan after they had consumed arsenic polluted underground water.

On account of that and its corporate social responsibility, TTY Neihu Pharmaceutical Development Center's collaboration with NCU is aimed at recycling Arsenic Ion. By reducing As ion in the manufacturing of sewage until discharge standard, it is expected to improve the manufacturing process and sewage treatment efficacy. With the terrific achievement of As ion recycling, TTY was invited by ITRI to share at the "TASS2020 Asia's Sustainable Supply & Circular Economy Conference and Exhibition" based on their most recent study results. In the future, TTY will ensure relevant regulation compliance on local and international levels and contribute to the sustainability of our environment.



Sharing research results on TASS 2020

## Circulation & Sustainability of Resource

Asadin is used to treat promyelocytic leukemia (M3), and each milliliter of Asadin contains 1.0mg Arsenic trioxide. The exceeding Arsenic concentration in sewage from production poses a threat to humans as a chronic poisoning source. TTY sought collaboration with Prof. Lee Tu, a Chemical and Material Engineer at NCU on this matter, expecting As Ion recycling and reuse technology to be established. The successful outcome with a novel As Ion absorbent, columns, and the evaporative crystallization technology combine to minimize the transfer of heavy metal.

Starting from high As concentration, the evaporative crystallization process first removes its moisture, washes, and purifies the remainder to get Arsenic trioxide; wastewater

with lowered concentration is further condensed through absorption columns followed by another evaporative crystallization to retrieve Arsenic.

The As Ion in the sewage then goes through adsorption columns and absorbent, and the liquid eluted to reduce the total amount of water required to be treated during evaporative crystallization. After 5 to 6 elutions, the wastewater reaches a discharge standard of no more than 10 ppb Arsenic Ion.

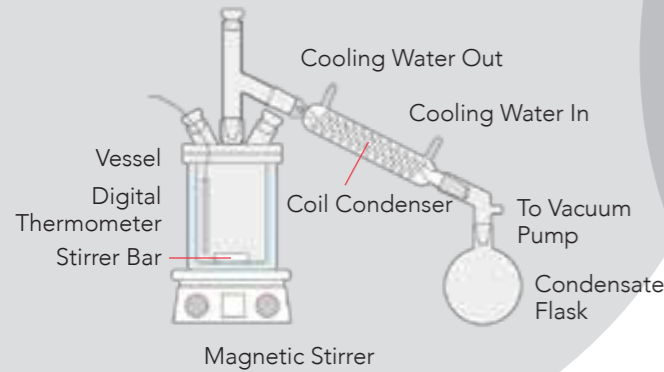
The absorbent in the "absorption column" is made of agar and iron tetroxide, which are cheap and easily molded into shapes, plus the iron tetroxide does not come off agar easily, thus the result is a high concentration of Arsenic trioxide. The technology applies practical needs and takes care of both high and low As concentration recycling, a great example of a business concept that follows recycling, purification, and sustainable circulation.



## Recycle Technology

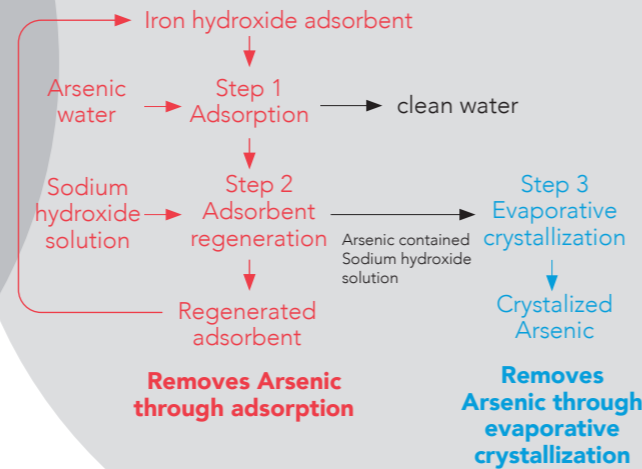
### Drug Material Recycling

Drug solutions containing Arsenic trioxide go through an evaporative crystallization process under proper pressure and heat to remove all solvents. The powder gained is then washed and purified to achieve crystalized Arsenic.



### Sewage Recycling

Solution goes through absorption columns for condensation, followed by recycling and purification using an evaporative crystallizer to gain crystalized Arsenic.



## Waste Management

In order to achieve environmental sustainability and sustainable governance, based on Article 28.2 of the Waste Disposal Act, a total of 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's waste disposal plan was submitted to the special municipality, county, or city competent authority for review and approval before the operation. Qualified cleaning agents who work under contract to clean and dispose of industrial waste and daily rubbish were according to the related laws and regulations.

Regarding the direction of cleaning, transportation, and follow-up of waste operations based on Article 14.2 of

Permit Management Regulations for Public or Private Waste Clearance and Disposal Organizations, waste disposal companies are obliged to report their transportation vehicles, and these 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 a 90% route-track feedback rate (for authority and TTY timely monitor). Other than weekly articulation and GPS abnormality follow-ups, track and confirm that the issues would be checked and corrected by contractors monthly, to ensure the waste streams are under control, and partners under enhanced examination.

The annual visit & onsite inspection keep up with the results of waste disposal and its flow. Unscheduled follow-ups are arranged to ensure the company's legal practice of waste cleaning and transportation. No violation, severe leakage nor regional impact caused by the factories was reported in the year 2020.

### 2020 Disposal Operators Inspection Results

	Weekly articulation rate	Monthly articulation rate	No. of physical inspection	No. of unscheduled follow-ups
<b>Lioudu Factory</b>	100%	100%	1	1
<b>Chungli Factory</b>	100%	100%	1	2

### Waste by Category and Disposal Method (Unit: tones)

Factory	Waste type and name	Intermediate treatment method	Final disposal method	2016	2017	2018	2019	2020	
<b>Lioudu Factory</b>	General industrial waste	Waste drugs (human or animal users)	Physical treatment	Incineration	9.03	10.05	11.74	8.52	13.36
	Hazardous industrial waste	Waste liquid with a flash point lower than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)	Incineration	Landfill	6.26	No collection	6.61	4.71	13.28
		Infectious waste mixtures	Incineration	Landfill	No operation	No collection	1.47	0.96	0.90
		Infectious waste (contaminated objects or vessel)	Incineration	Landfill	No operation	No operation	No operation	No operation	0.18
<b>Chungli Factory</b>	General industrial waste	Infectious waste (Pathology, blood, contaminated animal carcasses, stumps, and bedding related)	Incineration	Landfill	No operation	No operation	No operation	No operation	0.15
		Waste drugs (human or animal users)	Incineration	Landfill	0.90	0.87	0.79	1.01	No collection
	Hazardous industrial waste	Waste liquid with a flash point lower than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)	Physical	Landfill	1.84	1.73	2.03	2.08	3.09
	<b>Neihu Factory</b>	General industrial waste	Waste drugs (human or animal users)	Physical	Landfill	0.86	No collection	0.51	0.60
Waste liquid with a flash point lower than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)			Incineration	Landfill	1.13	8.36	6.18	5.90	5.67
Hazardous industrial waste		Waste liquid with a flash point lower than 60°C (excluding alcohol waste with an ethanol concentration less than 24%)	Physical	Landfill	9.97	No collection	No collection	No collection	No collection
		Sharp waste	Incineration	Landfill	0.20	0.23	0.10	0.17	0.14
<b>Chungli Factory</b>	Infectious waste (contaminated objects or vessel)	Incineration	Landfill	0.22	0.26	0.13	0.18	0.16	
	Infectious waste mixtures	Incineration	Landfill	2.26	2.06	2.56	1.83	1.61	

# Toxic Substances Management

## Management Policy

According to Taiwan's regulations, Toxic and Concerned Chemical Substances are categorized into 4 classes, of which Class 1 to 3 are the "not prone to decomposing", "Chronic Toxicity" and "Acute Toxicity" respectively, and Class 4 has endocrine disruptor properties, environmental pollutants or chemicals which endanger human health. There are currently 341 substances under Class 1 to 4. In the year 2020, N<sub>2</sub>O was declared by EPA as the first "Concerned Chemical Substance" under the Toxic and Concerned Chemical Substances Control Act.

Classification	Description
Class 1 (not prone to decompose)	Not prone to decomposing in the environment or pollute the environment or endanger human health due to bioaccumulation, bioconcentration, or biotransformation.
Class 2 (Chronic Toxicity)	Cause tumors, infertility, teratogenesis, genetic mutations, or other chronic diseases.
Class 3 (Acute Toxicity)	Endanger human health or the lives of biological organisms immediately upon exposure.
Class 4	Chemicals have endocrine disruptor properties, or environmental pollutant endanger human health.
Concerned Chemical Substance	Chemical substances other than toxic chemical matters and are based on their specification or local and international consumer expenditure subjects

Those that manufacture, import, export, sell, transport, use, or store Class 1, 2, or 3 toxic chemical substances must apply for a permit, registration, or approval documents; the disposal of such substances should have a report, an attached disposal declaration and detail by batch to the special municipality, county or city competent authority for registration according to the "Toxic and Concerned Chemical Substances Control Act", 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.

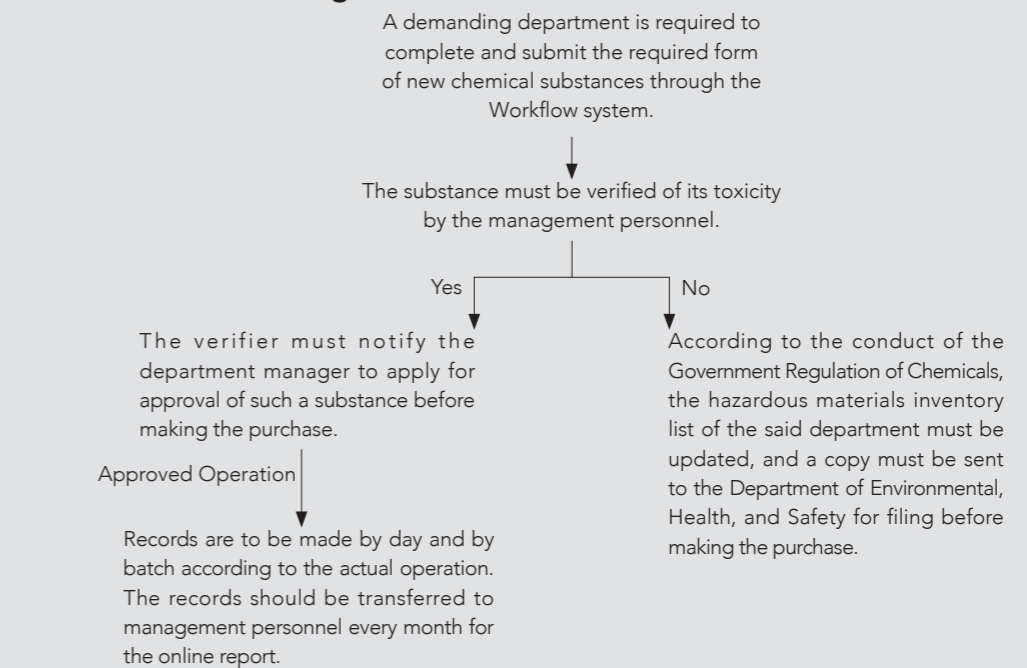


## Control Measures

According to the "The Employment Management Regulations of Environmental Dedicated Units or Personnel" as announced by EPA, TTY is not required to take the role of the dedicated personnel; however, to establish a safe environment for using chemicals, TTY has successively trained 8 colleagues (6 in Liudu factory and 2 in Chungli factory) and they acquired professional technical management certificates on verifying toxic chemicals.

Before the procurement of new chemical substances, it should be verified whether certain substances are under the control of the authority. If yes, license(s), registration, or approval should be obtained from the local EPB before procurement. After the use of the categorized substances, management persons are obliged to complete usage records and a monthly usage report should be filed online.

### Toxic Substances Management Flow Chart



Before the usage of toxic chemical substances, TTY will apply for the required documentation and prepare an SDS and Basic Disaster Prevention Data Sheet. The containers for such substances are labeled with cautionary warning signs. In addition, TTY has joined the "National Disasters Prevention and Protection Commission", an organization that reacts to disasters with agreed-upon protocols for incidents that occur during the use or storage of toxic chemical substances. Any incidents should be reported within 30 minutes, and contingency teams must reach the location within 2 hours. Members who handle toxic chemical substances in the area (who can) must be allowed to help one another in minimizing the impact of such incidents.

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

Toxicity Classification	Chungli Factory	Liudu Factory	Neihu Factory	Translational Research Center
Class 1 to 3	16	19	13	1
Class 4	10	15	22	1



# Commitment to Sustainable Environment

## Environmental Actions

TTY takes pride in effective water conservation. In association with SDG 14.1 which indicates "preventing and significantly reducing marine pollution of all kinds", we participated in the "Do One Thing for the Tamsui River", a water conservation initiative hosted by the Commonwealth Magazine in June. On November 7th, a Tamsui Traveler-guided tour of the "Tamsui River Pact" was organized to encourage employee participation in public governance, as a responsible water system citizen.

The guided historic tour hosted by TTY and Tamsui Traveler was meant to show the importance of the Tamsui River ecology, the human culture developed around it, and how the landscape has changed throughout history. By foot and on the ferry, the guide and role-model fishermen walked us through the journey and encouraged our colleagues and their families then took part in the coast-cleaning operation, where the importance of environmental conservation was conveyed and reinforced. We practiced how to love our planet in daily life, and participated in the public governance of the Tamsui River System.

TTY developed a DFC (Design for Change) to highlight the urgency of environmental conservation by showing our employees a river biology-related documentary film named "The Confessions of a River Creature", and expected to incorporate the idea of corporate sustainable development into everyday actions. (See P87 Community Participation- SDG 14 Life Below Water, Commitment to the Rivers)



**The devotion and impact from our organization to involve our employees as corporate citizens shows our commitment to fulfilling the obligation of the 5 promises to protect our Tamsui River environment, along with the mission of the sustainable development of the Taiwan ecology.**

1. Waste water discharge within standards
2. Supervision to ensure no illegal dumping
3. Green purchase
4. Inspire employee participation in the public governance of the Tamsui River System
5. TTY DFC for environmental conservation



## Environmental Goal

In compliance with the relevant environmental law and international guidelines, TTY takes the initiative when it comes to environmental conservation and has worked with every possibility to minimize ecological impact in the manufacturing process. In year 2020, there was no significant fine for the violation of related laws; besides, all activities and business including operation and interior management of all TTY

departments and sites should be conducted to fulfill sustainable environmental goals.

Dedicated EM departments or personnel are to designate, facilitate and maintain EM systems and action plans such as proper water consumption, recycling, and related measures to enhance water usage efficiency. Meanwhile, monitor the climate changes' impact on operational activities, policies and strategies were promoted to decrease carbon footprints and GHG emissions.



**TTY provides regular environmental education to introduce the concept of sustainable consumption to our employees. We worked to fulfill the following 5 environment-related goals to become an eco-friendly enterprise.**

1. Reduction of the consumption of resources and energy on product manufacturing
2. Reduction of the discharge of effluents, toxic substances, and wastes
3. Proper waste disposal
4. The recycling and reuse rate of raw materials and products
5. Extend efficacy of product performance and durability



Culture and history trip organized by TTY and Tamsui Traveler







# KEY PERFORMANCE

- **538** job opportunities created in year 2020.
- Growth in employee compensation and benefits for **6** consecutive years since year 2015.
- **42.65%** of managerial positions are filled by females, displaying a workplace in which there is gender equality.
- **49** new employees in year 2020 rated **91.075%** satisfaction (measured on a scale of 1 to 5 with 5 strongly agreeing, and 1 strongly disagree).
- **13** year since year 2008, a cumulative number of **339** interns were benefited from the Summer Internship Program (SIP).
- Named one of the "**Best Companies to Work for in Asia 2020 Taiwan Edition**" by HR Asia.
- Honored with the "**Corporate Philanthropy Award**" by the Taiwan Organ Registry and Sharing Center.

# 4 Social

It is our vision to improve the quality of human life with scientific innovation. Thus, TTY is paying attention actively to the SDGs of UNDP (United Nations Development Programme), and it is also our goal that the SDG 3 "good health and well-being", is realized through affordable basic medication and vaccinations that are safe, effective, and of good quality. Moreover, we engage our impact to fulfill SDG 4 "quality education" and SDG 8 "decent work and economic growth", aiming at a society where everyone is entitled to an equal and dignified learning environment and employment opportunity, and where inequality born from gender, religion, or economic status does not exist. The goal is to maintain an inclusive, sustainable society.



# Happy Workplace

## More Job Opportunities

We believe that employees are one of our most valuable investments. The provision of a friendly working environment that allows everyone to shine in their position is our commitment. Because of this, we were honored as one of the "Best Companies to Work for in Asia" by HR Asia in the Taiwan area with excellent scores in company culture / organizational leadership, employee recognition and satisfaction, and organizational atmosphere. This was including

among other outstanding performances in the categories outlining that the "company encourages constant self-enhancement and learning", and the company encourages cross-departmental collaboration and positions rotation.

By the end of year 2020, a total of 538 permanent employees in TTY as categorized by age are as follows: 15.61% of employees are less than 30 years old, 68.96% are 31-50, and 15.43% are 51 years and above. Furthermore, 52 new employees accounted for 9.67% of the entire crew. It is important to note that our 100% local employment rate signifies the priority of our domestic workforce. Moreover, 30 people were hired on regular contracts holding positions such as consultants and research nurses, and 21 were hired as temporary workers in response to production needs. Overall, the total number of employees represents a minor change compared to the previous reporting period.

### TTY 2020 Employee Composition

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
≤The 30s	27	5.02%	57	10.59%	84	15.61%
31s-50s	179	33.27%	192	35.69%	371	68.96%
≥51s	39	7.25%	44	8.18%	83	15.43%
Subtotal	245	45.54%	293	54.46%	538	100%

### TTY 2020 No. & Percentage of New and Departed Employees

#### New Employees

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
≤The 30s	6	22.22%	13	22.81%	19	22.62%
31s-50s	13	7.26%	19	9.90%	32	8.63%
≥51s	0	0.00%	1	2.27%	1	1.20%
Subtotal	19	7.76%	33	11.26%	52	9.67%

Note: New employee percentage = no. of the same gender in each age category/no. of employees in the category by the end of year 2020.

#### Departed Employees

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
≤The 30s	6	22.22%	9	15.79%	15	17.86%
31s-50s	30	16.76%	19	9.90%	49	13.21%
≥51s	5	12.82%	0	0.00%	5	6.02%
Subtotal	41	16.73%	28	9.56%	69	12.83%

Note: Departed employee percentage = no. of the same gender in each age category/no. of employees in the category by the end of year 2020.

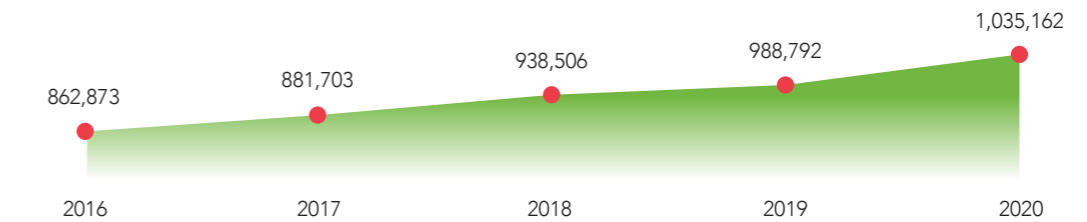
## Competitive Salary

Employees' contributions are closely related to a company's growth. Therefore, TTY is committed to introducing a competitive compensation policy. Based on the local basic salary, the minimum salary each month is NTD 24,000, which is 1:1 to the current basic salary. The ratio of standard salaries for entry-level employees of TTY to local minimum salaries is 1.54x more for females and 1.60x more for males. This was conducted by considering and analyzing the comprehensive array 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 year 2020, due to more male employees occupying managerial positions than females, the female-to-male salary ratio stood at 1:1.21.

In year 2020, the bonus base was adjusted to reflect the gap of the overall revenue goal and net profit after tax goal. The average salary for non-managerial positions was NTD 1,126 Thousand marking a slight fall from NTD 1,166 Thousand in year 2019. The median salary for non-managerial positions was NTD 936 Thousand.

### Growth of Employee Compensation and Benefits Expenses for Recent 5 years (NTD thousands)



### Benefit Packages

Besides Labor Insurance and National Health Insurance coverage, our employees enjoy special leave, maternity leave, and parental leave as current government regulations stipulate. Group accident insurance, travel leave, paid sick leave, year-end bonuses, regular health examinations, birthday, wedding and maternity cash-gifts, 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 are also included. As for the "Guideline for TTY Biopharma Pension Plan", it follows local employment regulations and specifies the retirement criteria and pension formula standards

with respect to these calculations. For details about pension standards, refer to the Annual Report at: <https://reurl.cc/j89kGL>

To protect our citizens from the double threats of the seasonal flu and COVID-19, TTY arranged vaccine distribution again to response to the national disease prevention system. For our staff and families, up to four with first-degree relatives to receive free flu shots, inclusive of the employee her/himself. As a member of society, the fulfillment of corporate social responsibility of public health and disease prevention starts by protecting our workforce and their families with a secured social safety net.



TTY GM Robbin Shin (Shih Chun-Liang) promotes on the first day of the flu vaccination

## Diversity and Equality in the Workplace

Diverse and inclusive talent recruitment is the engine of TTY's continuous innovation. TTY stands at a higher and better position knowing that our employees represent multitudes of diversity, whether it values, beliefs, race, age, gender, experiences, background. Everyone is given the opportunity to allocate themselves a stage to shine on within the Company. Consequently, we grow together, explore career possibilities, and live an enriched life. TTY strive to create an inclusive and non-discriminatory workplace that accommodates both male and female employees. Inclusiveness-mindsets are incorporated into our Human Resource Department to enable employees to fully perform their duties, and showcase their experiences and perspectives. Due to the requirement for the high-tech industry, pharmaceutical work relies heavily on the expertise and specific knowledge. We hire an equal number of female and male employees, regardless of the time of year. In year 2020, 245 male employees account for 45.54% of the entire workforce, with 292 females taking up the remaining 54.46%. Our female employees have remained at more than 50% for recent 5 years.

### TTY 2020 Employee Gender Distribution

Gender	Unit	2016	2017	2018	2019	2020
Male	No.	250	258	252	266	245
	%	49.21%	49.62%	47.55%	48.01%	45.54%
Female	No.	258	262	278	288	293
	%	50.79%	50.38%	52.45%	51.99%	54.46%
Total	No.	508	520	530	554	538

## Maternal Health Protection

The Act of Gender Equality in Employment clearly states the right to apply for unpaid parental leave (UPL). Employees may apply for unpaid parental leave before any of their children reach the age of three years old. The period of this leave is until their children reach the age of three years old, but may not exceed two years. During the period of unpaid parental leave, employees may continue to participate in their original social insurance program.

### TTY 2020 No. Applied for UPL

	Male	Female	Total
(a) The no. of employees who qualified for application in year 2020	30	16	46
(b) The no. of employees who applied for application in year 2020	0	3	3
(c) The no. of reinstatement estimates in year 2020	1	1	2
(d) The no. of employees reinstated in year 2020	1	1	2
(e) The no. of employees who applied in year 2019 then reinstated	1	0	1
(f) The no. of employees lasting at least 1 year after reinstatement	1	0	1
UPL Application rate b/a	0.0%	18.8%	6.5%
Reinstatement rate d/c	100.0%	100.0%	100.0%
UPL Survival rate f/e	100.0%	N/A	100.0%

Note:

(a) Based on employees that have applied for maternity or paternity leave in the past 3 years (2018-2020).

(b) UPL/UML that took place in year 2020.

(c) Expected reinstatement date in year 2020.

(d) Expected and the actual reinstatement date in year 2020.

(e) Actual reinstatement date in year 2019.

(f) Reinstatement date in year 2019 and lasting at least 1 year (remained at work in year 2020).

## Employment Protection Rights

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's labor laws and regulations. No significant operational alterations that severely affected employee rights or large numbers of labor contract terminations were noted during the reporting period. In the new-employee satisfaction survey, every new recruit will be sent a notice by the system after 3 months of employment, and all of these surveys need to be completed within 6 months. In year 2020, a total of 49 newcomers fulfilled the surveys and the level of newcomers' satisfaction was 91.075%.

In compliance of Article 16, *Labor Standards Act*, and the *Act for Worker Protection of Mass Redundancy* require notice prior to redundancy when upcoming major operational alterations or changes in labor conditions can cause the damage or potential damage to the rights and interests of workers. At least a 10-days notice is needed if a person is employed between 3 months and 1 year; 20 days notice if employed between 1 and 3 years; and 30 days notice if employed for 3 years or more. After receiving the notice, a worker may ask for a leave of absence during hours of work for the purpose of finding a new job. Such a leave of absence may not exceed two workdays per week and wages shall be paid during such a leave of absence. For each terminated employee, TTY shall submit a report with the arrangement for career guidance or vocational training needs. Severance pay issuance will be made according to Art. 11 of the *Labor Standards Act*.

## Safeguarding Labor Rights

To provide a fair and safe workplace, our operation is in compliance with the internationally recognized human rights standards, inclusive of the *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*. The stipulation of the TTY human rights policy follows local labor regulations to treat and respect every stakeholder equally. On January 3<sup>rd</sup>, 2020, one feedback was received from an employee. Though the investigation was completed on the 21st of the same month by the TTY Complaint Review Board, it urged the Company on the dissemination of human rights to ensure that no such case occurs again in the future.

- In compliance with international human rights standards and local laws and regulations, the Company strives to protect the basic human rights of employees and to recognize and comply with these international human rights conventions.

# 91.075%

New Employee Satisfaction Survey

# 1 0

Employee complaint

No coercion of employees and no child labor

The Company must not violate human rights and must protect the legitimate rights and interests of its employees.

- Ensure equal job opportunities by eliminate discrimination, implement workplace diversity, and ensure that employees are not subject to any discrimination or unfair treatment based on gender, race, age, marriage, religion, or political position, etc.
- Ensure a safe and healthy working environment under the guidance of relevant laws and regulations; solid occupational safety, and health education and training to ensure workplace 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. This reduces the risks of occupational disasters, ensures the physical and mental health of employees, as well the observation of mutual rights.
- Forced labor or child labor that does not meet the minimum legal age is prohibited. No forced, compulsory labor or child labor is allowed within the Company in year 2020.
- Through the "Supplier Sustainability Management Assessment" that reviews suppliers' performance on cycle time, quality, customer complaints, supportiveness and sustainability, in year 2020 it was verified that no forced or compulsory labor, or other material risks which committed by suppliers.
- The employee health examination that prevents potential health risks and employee diversified activities were arranged to assist colleagues with their physical and mental health and a work-life balance. There was extensive interaction among co-workers through club participation, as well as child-care services within the Company to assist parents with childcare.
- It is critical to safeguard the privacy of our employees and stakeholders. For personal data protection, we have in place a complete information security management mechanism, strong info-security awareness, and follow strict management, control, and protective standards.



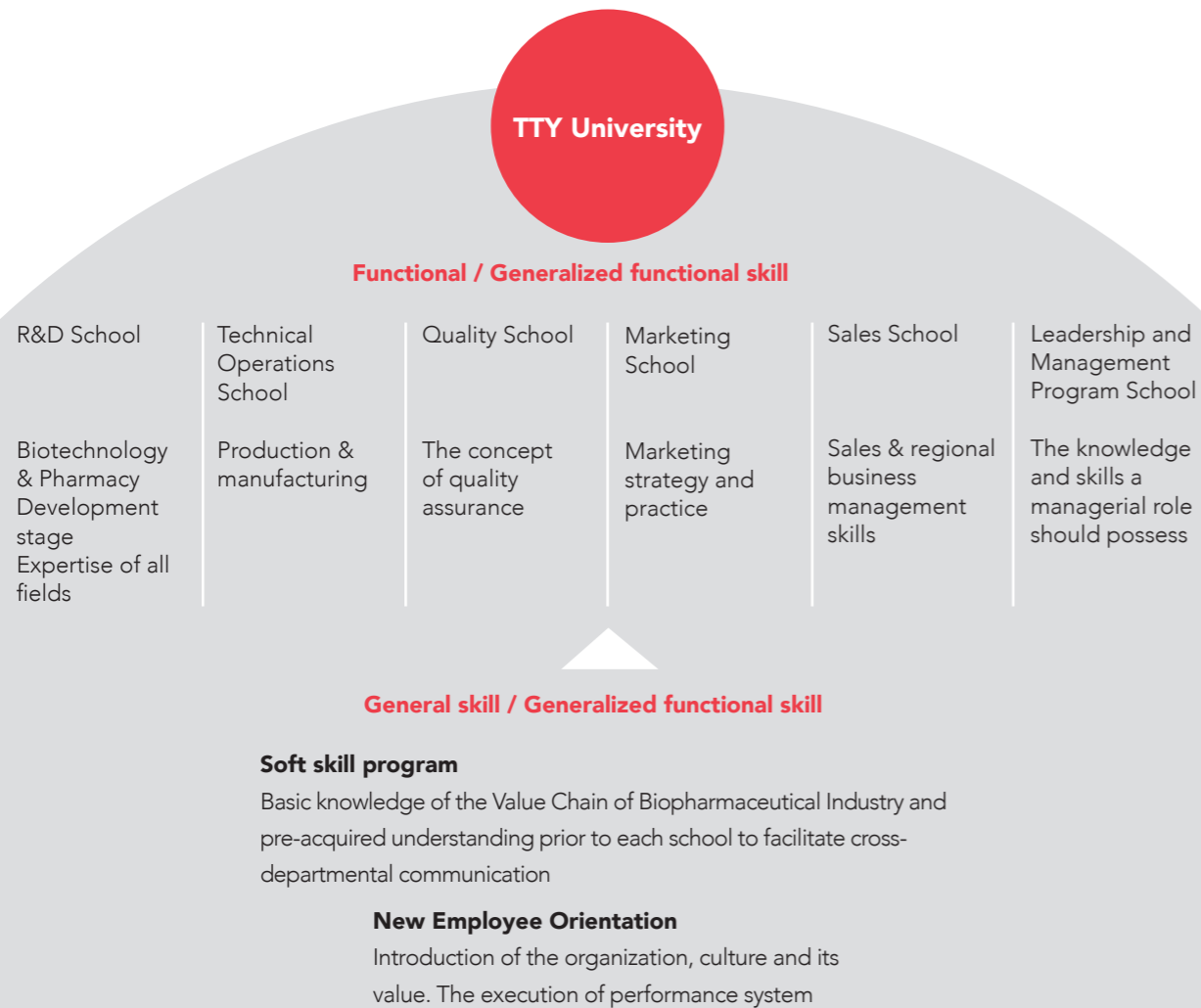
# Comprehensive Training

## TTY University

One of the key methods to build a Company's core competitiveness is the "prompt access to and dissemination of knowledge, and quick internalization to achieve common understanding and organizational capacity." Following that, TTY developed a well-organized training and development system. Since year 2012, TTY University has been operating and giving ad hoc training courses, with short, medium, and long-term learning programs and targets.

In year 2020, there were 24 courses in-person and online involving R&D, Technical Operations, Quality, Marketing, Sales, Leadership and Management, and Soft Skill programs. The learning system enhances the knowledge and skills of relevant expertise while getting in touch with each function's competencies in the industry chain. Everyone can contribute their skills, know-hows of the relevant field, and organizational and business knowledge to create a company's best performance.

We take advantage of senior employees, and through proper courses, they can become our trainers. The position is open for self-recommendation. The candidate's qualification is screened by HR before attending the trainer course. The results from the study would then undergo a strict evaluation to qualify a competent internal trainer. This is a great opportunity for our colleagues to gain immediate reacting abilities, self-positioning, and expanding their talents.



## Magnifying Employee Competence

### New Employee Training

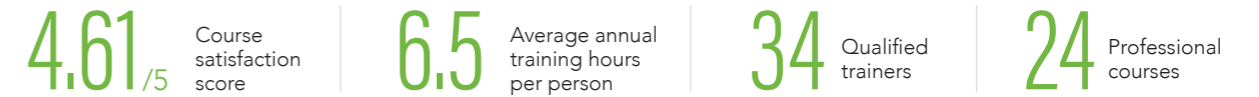
Orientations are carried out over a number of days, both via in-person and online, to familiarize with Company regulations in the shortest time, in order to mitigate the impact caused by business risks. This includes the following: Introduction to the Management Regulations for Confidentiality, Introduction to GMP Management, Introduction to Regulations Governing Pharmaceutical Patents, Introduction to TIPS (Taiwan Intellectual Property Management System), Basics of Intellectual Property, Drug Safety Supervision, Information to Security Education, Introduction to GDP Management, Introduction to Trade Secrets, and Environmental,

Safety, and Health. There were 68 attendees to participate the orientations in year 2020.

### Employee Training

Be constantly aware of business risks and retain the Company's ethical management, TTY provided online and in-person courses such as Drug Safety Supervision, Introduction to GDP Management, Information Security, Introduction to Trade Secrets, and Anti-corruption are available throughout different times and schedules. All courses in year 2020 were compulsory except the Information Security Education, and all members have completed the rest of the remaining online courses. The in-person courses of Drug Patent Protection and Introduction to GMP Management which were given to 40 participants, totaled 182 training hours.

### 2020 Employee Training Program Results



### TTY 2020 Average Training Hours per Year per Employee by Gender and Category

Position	Formula	Male	Female	Subtotal	
Management and Administration	The actual number of people during the reporting period	A1	25	50	75
	Training hours during the reporting period	B1	153.5	396	549.5
	The average number of training hours during the reporting period	C1=B1/A1	6.14	7.92	7.33
Sales and Marketing	The actual number of people during the reporting period	A2	57	73	130
	Training hours during the reporting period	B2	336	492	828
	The average number of training hours during the reporting period	C2=B2/A2	5.89	6.74	6.37
R&D	The actual number of people during the reporting period	A3	50	45	95
	Training hours during the reporting period	B3	297.5	388	685.5
	The average number of training hours during the reporting period	C3=B3/A3	5.95	8.62	7.22
Factory	The actual number of people during the reporting period	A4	113	125	238
	Training hours during the reporting period	B4	984	479.5	1463.5
	The average number of training hours during the reporting period	C4=B4/A4	8.71	3.84	6.15
Total	Hours	Q	1771	1755.5	3526.5
Total number of employees at the end of the reporting period	Number of people	R	245	293	538
The average number of training hours per employee	Hours	S=Q/R	7.23	5.99	6.55

## Successor Project

In TTY, we have an environment of constant learning and inspiration and this is what motivates our workforce. In real terms, employees seek their career advancement through management programs, internal and cross-subsidiary/affiliates job rotations. In year 2020, 97.03% of our employees underwent the regular performance reviews, of which were 241 employees were male (44.80%), and 281 female (53.23%). The remaining 2.97% were new employees in their probation period. Prior to the end of the new hiring period, the corresponding supervisors would provide evaluations based on their performance by filling out the "New Employee Probation Performance".

Gender	Male			Female			Subtotal		
	Total employees at the end of the reporting period	No. of employees who received regular performance & career development reviews	%	Total employees at the end of the reporting period	No. of employees who received regular performance & career development reviews	%	Total employees at the end of the reporting period	No. of employees who received regular performance & career development reviews	%
Formula	A	B	C=B/A	D	E	F=E/D	G	H	I=H/G
Managerial	245	23	9.39%	293	47	16.04%	538	70	13.01%
Sales & Marketing		56	22.86%		70	23.89%		126	23.42%
R&D		49	20%		41	13.99%		90	16.73%
Factory		113	46.12%		123	41.98%		236	43.87%
Subtotal		241	98.37%		281	95.90%		522	97.03%

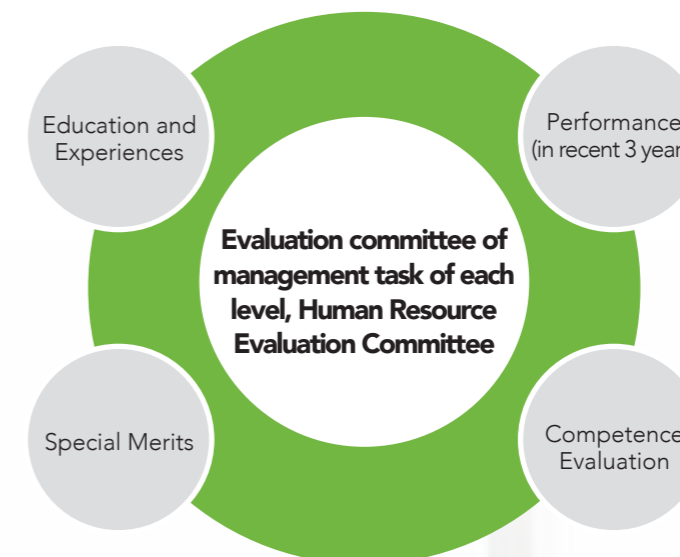
Apart from various sorts, such as software and hardware training programs and resources, further learning and development plans suitable for each level and task were developed under the "Successor Project" in year 2019. In the year 2020, the following progress was made:

- The successor project/manpower inventory and development workshop was held in two sessions in February to give training and explains the standards and procedure for successor evaluation to managerial levels and above.
- 4 manpower inventory meetings were held in July for employee successor evaluation by corresponding supervisors.
- Planned development and succession timing for key positions and key persons based on the decisions made in the manpower inventory meetings.
- Year-end review of the project, learning results, and the implementation of the development activities to ensure the right persons are ready for each critical position in the scheduled timetable.

## Key Managerial Level Successor Planning and Operation

Level <b>Manager (Department)</b>	Level <b>Associate Manager (Division)</b>	Level <b>Deputy GM (BU*)</b>	Level <b>General Manager</b>
Appraisal assessment	Appraisal assessment	Appraisal assessment	Appraisal assessment
BU Deputy GM	General Manager	Chairman Independent	Chairman Independent
Associate Manager	BU Deputy GM	Director/ Director	Director/ Director
Departmental Associate Manager	Associate Manager	General Manager	Independent Expert
HR Head	HR Head	HR Head	HR Head

Note: Business Unit or Center



We regard it as necessary that the characteristics and skills of an executive possesses should follow a certain standard. It is critical, amongst other attributes, to act according to their own words. To achieve such a goal requires constant and consistent cultivation, as well as a training plan. A target-focused system has been in process for the key managerial positions to be familiar with the Board affairs and act as proper mid-high executives in TTY affiliates. Increasing involvement in each operational unit of the Group, job rotations, and management experiences in overseas markets also account for part of the incubation. On June 29<sup>th</sup>, 2020, following the result made by the TTY Human Resource Evaluation Committee and Board resolution, Shih Chun-Liang, the former Deputy General Manager of Oncology Business Unit, became the General Manager to continue the tasks that Hsiao Ying-Jun had on hand.

In light of the necessity of the advancement and growth of the TTY Group, the recruitment for qualified executives considers not only the talent pool outside the Company, but also takes potential mid-high executives from our existing members and turns them into gems. This is done through an individuals' ability enhancement, cross-task training, timely job rotations, and overseas experiences. The plan is to build manpower capable of diverse fields of associated works for a more powerful, well-organized operation team with solid objectives.

Moreover, employees with leadership qualities and outstanding performance are offered the opportunity to transfer to other positions within the Company. We continue to expand the future workforce from external sources as well. To ensure the system's sustainable growth, 3 business management programs were held in year 2020, an average of 15 employees were trained each session, with a 4.47/5 satisfaction rate. For employee relocation, there were 34 in-company transfers and 6 affiliated company transfers.



# Occupational Safety and Health

## Management Principles

To ensure the safety of employees, there is coverage from labor and health insurances, group insurance, accident insurance, occupational disaster insurance, cancer insurance, travel insurance for business trips, and public accident liability insurance for each operation site. Fire protection management personnel with 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 are regularly reported to the competent authority. All these checks are to ensure the safety of all employees.

The Occupational Safety and Health Management Committee is set up in the Chungli and Lioudu factories in accordance with local laws and regulations. For PDC Neihu is excluded from the regulatory standards but formed the "Safety and

Health Management Promotion Team" to take charge of relevant affairs. The advocacy members call for regular meetings and review occupational safety issues, ensuring occupational health and safety supervision, as well as planning suggestions accordingly. At least a third of the members are accounted for by labor representatives. "Occupational Safety and Health Work Code" and "Occupational Safety and Health Management Plan" is pursuant to the Occupational Safety and Health Act and relevant laws. Additionally, each factory shall establish occupational safety and health unit, along with management staff, and first-aid personnel.

In-site nurses and physicians at TTY factories, pursuant to government regulations, provide professional medical assistance, give explanations of the Company health services, medical assistance and occupational hazard prevention during orientations. In August, October, and November of the year 2020, we organized 3 health promotions that briefed on topics about Sarcopenia, healthy diets, and mental health. The nurses serviced 3 times a month, with 3 times annually for a physician. This totaled 72 times by nurses and 6 times by physician services per year in the two factories. We have input 8 primary training for first-aid responders, and a total of 124 employees completed the training and obtained their certificates.

### 2020 The Composition of the Occupational Safety and Health Committee

Committee member	Employer	Employee	Personnel of Occupational Safety and Health
No. of Members from Chungli Factory	5	6	2
No. of Members from Lioudu Factory	5	5	2
No. of Members from PDC	3	3	1



TTY 2020 First-Aid Crew Primary Training



### TTY Statistics of Occupational Hazards by Operation Locations for Recent 5 Years

Male													
Year	Injury toll					Working days lost					Total working days	Total working hours	Lost Workday Rate (LWR)
	Total injuries	Chungli	Lioudu	PDC	HQ	Total working days lost	Chungli	Lioudu	PDC	HQ			
2016	1	0	1	0	0	60	0	60	0	0	59,060	493,998	24.29
2017	3	0	1	0	2	16	0	4	0	12	66,712	534,938	5.98
2018	1	0	1	0	0	200	0	200	0	0	66,711	546,384	73.21
2019	1	0	1	0	0	18	0	18	0	0	67,818	562,169	6.40
2020	2	0	1	0	1	13	0	4	0	9	68,320	560,826	4.64

Female													
Year	Injury toll					Working days lost					Total working days	Total working hours	Lost Workday Rate (LWR)
	Total injuries	Chungli	Lioudu	PDC	HQ	Total working days lost	Chungli	Lioudu	PDC	HQ			
2016	1	0	1	0	0	21	0	21	0	0	59,990	501,526	8.37
2017	0	0	0	0	0	0	0	0	0	0	68,870	552,058	0
2018	2	0	1	1	0	65	0	20	45	0	70,472	575,240	22.60
2019	3	0	2	0	1	9	0	6	0	3	73,330	592,928	3.04
2020	2	0	1	0	1	9	0	4	0	5	76,114	622,933	2.89

Note:

1. Injury during a commute to/off work counts as an occupational hazard
2. Occupational hazards mainly consist of commute, cuts, injured by falling objects
3. Injury rate=(No. of injury\*200000)/ total hours worked
4. Lost day rate=(LWR\*200000)/ total hours worked
5. Lost workdays: no. of days unable to work (no. of rest days)
6. Lost workdays include work injury leave, sick leave, and menstrual leave (no sick leave or menstrual leave applied in year 2020)
7. Absence rate benchmark=lost workdays/ workdays\*100%
8. The boundaries of the statistics covered HQ, Chungli Factory, Lioudu Factory, Translational Research Center, and PDC (Neihu Factory & Pharmaceutical Development)
9. 0% occupational hazard in year 2020

# Employee Safety Measures

## Disease Prevention

Standing among the leading biopharma companies in Taiwan, TTY has been educating the employees on the importance of personal hygiene and promoting the benefits of handwashing. Sanitizers are installed across our offices and free masks are available for employees. At the outset of the outbreak of COVID-19 at the end of year 2019 and the beginning of year 2020, we instantly formed a team to conduct visitor and personnel controls in enclosed spaces such as the elevators of headquarter, office areas, factory offices, restaurants, and other areas where colleagues are exposed to potential cross-infection. Furthermore, we implemented video conferences and online meetings instead of business visits, the suspension of all business trips, and the provision of homemade lunches or lunches from unified vendors to avoid group gatherings, among other measures. As for the outstanding costs due

to the cancelation of employee overseas tours, this will be repurposed after discussions with the Employee Benefit Committee.

We also demanded autonomous health monitoring, maintain social distance, and good public health habits be observed across the Company. "Anti-epidemic Care Leave" was activated following the government's disease-prevention policy. Our work-from-home (WFH) initiative to further minimize group gatherings in the same office area began in March through May when the pandemic was most severe. Through regular reviews, the initiative was adjusted according to the situation, and normal work mode resumed starting on May 11<sup>th</sup>, 2020. Outside visitors remained prohibited from physical contact and all visits to all levels of hospitals and clinics by marketing, sales, and office staff were halted unless necessary (which then required approvals from department supervisors).



- |   |   |   |
|---|---|---|
| 1 | 2 | 1. Access control at TTY HQ, factories, and offices for visitors and staff                        |
| 2 | 3 | 2. Body temperature monitors and hand sanitization for all visitors and staff during the pandemic |
| 3 | 4 | 3. Partitions installed at the TTY employee cafeteria to avoid droplet infection                  |
|   |   | 4. Disinfectant dispensers across TTY offices for employees                                       |

## Personal Protective Equipment

We value and protect the safety of each product we make. And in the area of personnel safety, PPE (personal protective equipment) is used to keep our operators from certain occupational hazards. For example, glove box effectively quarantine factory workers from the contact of chemicals, or spill kit is ready for an immediate response when chemical spillage or leakage occurs. This ensures that accidents can be contained and the disaster rate moderated.

Health checkups examine general and special categories of employees every year. The results are followed by health education and second examinations by nurses and occupational physicians. For suspected occupational hazards, work environment assessments would be arranged when necessary. Until the end of year 2020, no health checkup results were assigned to level 3 and above, nor any abnormalities found due to special operations in Lioudu, Chungli, and Neihu factories.

## Contractor Occupational Safety Management

In order to ensure the safety and health of employees and contractors, TTY shall be in accordance with Article 26 of the Occupational Safety and Health Act, when all or part of its business is delivered to the contractor, 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 regulations, environmental protection, and fire hazard-related regulations.

For major engineering contracts 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. In year 2020, TTY did not record any occupational hazards occurring with contractors in Chungli and Lioudu factories.

## Special Health Examination Results & Management Level

Health Management Degree	Special Health Examination
1 <sup>st</sup> Level	All findings normal, or part of the findings abnormal but overall deemed as normal by physicians.
2 <sup>nd</sup> Level	Part or all of the findings abnormal and overall deemed abnormal by physicians, but not work-related.
3 <sup>rd</sup> Level	Part or all of the findings abnormal and overall deemed abnormal by physicians but failed to establish the correlation between the results and the work. Further assessment by occupational physicians is required.
4 <sup>th</sup> Level	Part or all of the findings abnormal and overall deemed abnormal by physicians, and are work-related.

## 2020 TTY Statistics of Special Health Examination Items and the Number of Employees Examined

Factory	Health examination item	Number of participants
Chungli Factory	Specific chemical substance + dust	20
	Physical	16
Lioudu Factory	Specific chemical substance + dust	18
	Physical	38
PDC	Specific chemical substance + dust	9
	Physical	0



# Community Participation

## Boshiyuan With and For the World

TTY Chairman Lin Chuan 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 what we receive and to help the less privileged. "Boshiyuan" sets the starting point of the TTY public welfare value, gathers colleagues to offer care to society, and participates in activities that promote a healthy environment. These actions grow little by little into the daily lives of people and become part of TTY culture, intending to be there with and for the world.



### SDG 1 No Poverty

#### An Eco-friendly Souvenir for the Shareholders

In year 2020, Boshiyuan canceled a series of public welfare events to support the CDC disease prevention policy against COVID-19. However, TTY and the Taiwan Foundation for the Blind's partnership continued and extended with handmade soaps as a gift for the Shareholders in year 2020, an action to honor environmental sustainability and take care of less privileged groups. Online group-buying events that created sheltered employment opportunities also bound together eco-friendliness and public welfare, where shareholders were invited to actualize the good deeds of social welfare.

The Taiwan Foundation for the Blind valued every donation as well as the love they received and turned this into natural, eco-friendly handmade soaps. They even collected the trimmed-off parts and secured them in recycled plastic particle nets to sell. As for the packaging, PLA (Poly Lactic Acid), a 100% biodegradable plastic which can be broken down in much less time, was used with a tiny bookmark attached to deliver TTY and the Foundation's idea in a simple QR code. We wished to share this respect for our Earth with the shareholders.

#### Financial Aids and Scholarships for Cancer-Affected Family's Students

Taiwan's cancer population becomes younger year by year. When cancer patients are the breadwinners of the family, the illness and medical expenses become a heavy burden that affects children's lives and their studies. To help alleviate their stress, TTY has been one of the sponsors of the HOPE Foundation for Cancer Care since year 2010, with a NTD

20,000 scholarship for each of the 75 college students from 259 applications, which contributed an annual NTD 1 million donations to the Foundation as an event fundraiser to assist college students with their studies, and to ensure equality education and learning opportunities.

In supporting the HOPE Foundation for Cancer Care's project of helping cancer-affected family's students through care and companionship, and hardships that the children of cancer patients bear can be lifted. Through this life stage of self-discovery, the students can better position themselves with their strengths. By listening to and sharing in the project, helped release their stress and adjust to a better mental state for learning, while also giving them actual financial assistance.

#### Donation to Social Welfare Organizations

To return what is taken from society and help the less-privileged groups, this is the 5th year since year 2016 that TTY is supporting Anue's welfare fund-raising. The proceeds have been going to community welfare organizations that targeted mentally and physically disabled children, students in remote areas, and less-privileged elders. In year 2020 where the pandemic has struck hard, we stay strong and keep sending love and care to our young and the seniors in the hopes of motivating more to join us in social charity.

Donations gathered in the name of the year 2020 Charity project "Pandemic Prevention Won't Prevent Us from Sharing Love" went to the Red Heart Association, Federation for the Welfare of the Elderly, Angel Heart Family Social Welfare Foundation, and Family of Joy. Other donations were made to at-home care and respite care.



TFB (Taiwan Foundation for the Blind) handmade soap as souvenirs for 2020 Shareholders Meeting



### SDG 3 Good Health and Well-being

#### Organ Donation

In Taiwan, contrasting to the 9,900 patients waiting for organs, there are only 300 donors each year in practice. The Deputy Minister of Health and Welfare and the Chairman of Taiwan Organ Registry and Sharing Center encouraged the idea of organ donation to help those in need. In year 2020, the Center's first "Corporate Philanthropy Award" honored entities who support the action of greater love for our society. TTY had the privilege to be on the winning list of the event.

Triggered by the theme of "Sharing sustainability through sharing love" on the TTY family day, many of our staff chose to elevate the idea into action by signing donation agreements after learning what organ donation is about through the Taiwan Organ Registry and Sharing Center's explanation. This good deed was able to spread by bringing the idea to more people's attention. TTY was recognized by Deputy Minister Hsueh under the corporate philanthropy category of the Taiwan Organ Registry and Sharing Center's 13th awards ceremony for distinguished enterprises/personnel's contribution to organ donation.

One of the TTY missions is to elevate the health and well-being of the public. To achieve that, other than the efforts of our staff in their daily work, being part of various forms of public welfare activities is also a means by which we actualize the Company culture and corporate social responsibility. When it is an apt environment for organ donation, every human being around us can make a good impact, driving towards an open-handed, generous society.

#### Hospice Care

TTY is currently assessing a partnership with a medical center at central Taiwan on its Daytime Hospice & Care Service. It is a project for phase four inhabitants in Hospice receive palliative care at home. Professional home care nurses make home visits and perform relevant caregiving, helping the family with phase four related issues and the stresses it brings. It provides peace of mind for both the patients and their families. In the original project, the hospital splits the cost of the commute costs of visiting hospice nurses with the case family. TTY regards it as a privilege to be able to help and support the other half of this expense that is usually paid by the case family.

Apart from our business and corporate sustainability, public welfare stands with no less importance in our operational scope. The submission of the Daytime Hospice & Care Service project to our SDC at the year-end of year 2020 has earned approval and will be in action in year 2021. This caring service leads TTY as the pioneer whoever to work without an NPO on palliative home care in the industry.





## SDG 4 Quality Education

### Work-Integrated Learning

For 13 years since year 2008, the TTY Summer Internship Program (SIP) has been giving explanation seminars, group interviews, course content planning, and project management workshops for undergraduate and graduate students of Pharmacy and Bioscience-related. A professional and promising international pharmaceutical organization, TTY provides industrial experience that covered the shortage in the school system.

Inclusive of 26 interns in year 2020 from China Medical University, National Chiao Tung University, National Cheng Kung University, National Taiwan Ocean University, Kao Hsiung Medical University, National Yang-Ming University, Taipei Medical University, and National Taiwan University, etc. The total number of participants has reached 339 so far. TTY opens its gates for local and international students to join the Summer Internship Program.

### Regional Care for the Cancer-Affected

Since year 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 diets for junior high school students. This will impart to them the necessary knowledge and the importance of cancer prevention. In year 2020, cancer education initiatives with rural schools have visited 51 junior high schools in Yunlin, Chiayi, Tainan, Miaoli, Hualien, Taitung, Kinmen, and Penghu. We invited professional medical specialists from major medical

centers to promote cancer prevention across campus. We are devoted to bringing health knowledge to students and help their family members to develop an understanding of cancer prevention.

### Education Support Expanded to Remote Areas

Since year 2012, the employees of TTY Biopharma have been taking turns to voluntarily conduct anti-cancer and health promotion events at Lyudao and Gongguan Primary schools in 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. The program has been favored and supported by students, teachers, and principals of the Schools. TTY sees the importance and will continue to pass down the cancer-prevention awareness to our young teens.

### Health Education

TTY has partnered with cancer-related NPOs to host regular health education events for cancer-affected people and/or their family members, to educate families in the correct knowledge and how to fight the disease, while at the same time helping them deal with the pain from the illness and treatment. In year 2020, a total of 7 sessions were organized and attended by 507 people. In total of 6,532 cancer-affected patients have attended since the first session took place in year 2009. In addition, 33 educational lectures on osteoporosis and bone health were conducted in year 2020, with 4,160 attendees (shown in hospitals, communities, and inpatient gatherings), learning how to increase calcium and vitamin D intake and the factors that contribute to certain diseases.



## SDG 14 Life Below Water

### Commitment to the River

We have honored "Do One Thing for the Tamsui River", a water conservation initiative hosted by Commonwealth Magazine in June, and declared 5 commitments to protect our environment. This includes within-standard wastewater discharge, supervision to ensure no illegal dumping, green purchases, inspiring employee participation in the public governance of the Tamsui River System, and TTY DFC (Design for Creativity) for environmental conservation. Our devotion to

Culture and history trip organized by TTY and Tamsui Traveler

make Taiwan a sustainable environment choice for ecology is taking its course step-by-step.

On the inspiration of public governance participation, we took our staff by organized a Tamsui Traveler-guided tour around Tamsui River, by foot and on a ferry to hear the guide and role-model fishermen explain the ecology of the river, the human cultural development in the area, and how the landscape has changed throughout history. Moreover, the trip then involved a coast-cleaning walk through which the importance of environmental conservation was conveyed and imprinted on us.

Our DFC for Tamsui River environmental conservation started via an appreciation for a documentary. By showing our colleagues a river biology-related documentary in which stories of the river habitat were illustrated, it helped us realize the importance of conservation awareness of the Tamsui River and incorporating the idea of corporate sustainable development into our everyday actions.

TTY organized SIP for **13** consecutive years, a total of **339** participants benefited from the programme



TTY observes trends and the evolution of the capital market over the long term. 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 is also one of the indicators we consider for our Corporate Governance execution. Therefore, all the members of the Board at TTY Biopharm share a common belief of not only creating value for TTY Biopharm's stakeholders, but also contributing to global sustainability goals. In year 2020, our extraordinary achievements ranged from incorporated governance to intellectual property management system amelioration, ethical management, and risk management.

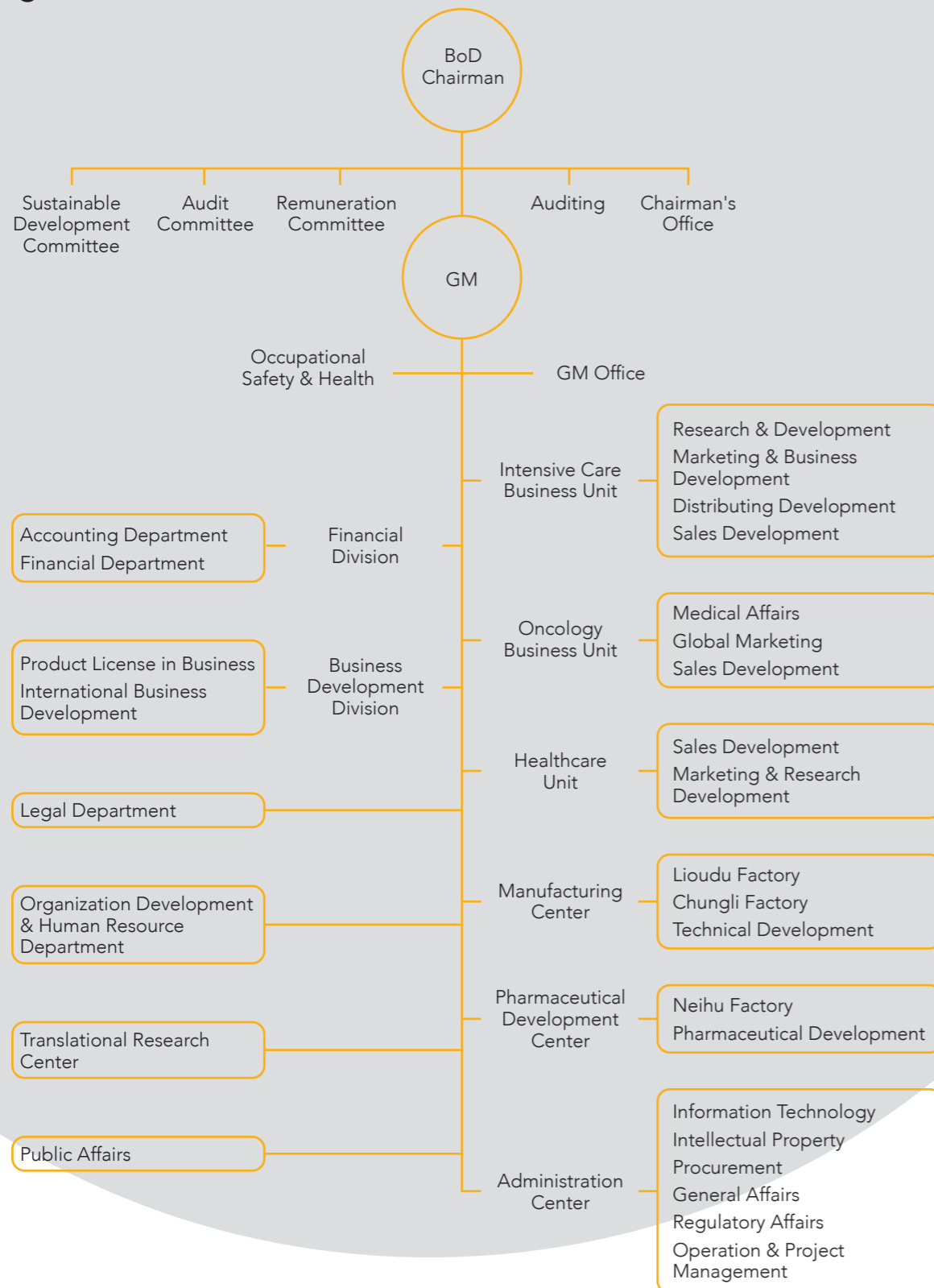
# 5 Governance

## KEY PERFORMANCE

- 5 consecutive years of top **5%** OTC listed companies by TWSE Corporate Governance Evaluation since year 2016.
- 2nd year ranked in the Top **10%** TWSE and OTC listed companies with minimum of NTD 10 billion market cap in non-financial and non-tech category.
- **100%** attendance (excluding proxy attendance) rate in a total of **7** Board meetings.
- Board members participated at average **10.44** hours on advanced training courses.
- BoD has **2** female and **3** independent directors.
- **95.83%** average attendance (excluding proxy attendance) rate in **5** Remuneration Committee meetings.
- **100%** average attendance (excluding proxy attendance) rate in **5** Audit Committee meetings.
- **Risk Management Center** was established in 2020 under SDC.

# Board of Directors

## Organization



## Gender and Expertise Diversity in BoD

Based on OECD, the corporate governance principle, the Board of Directors (BoD) serves as the highest governing authority of the Company - with all members fully assisting the Company in making profitable moves and proactively advocating for the best corporate governance practices. The establishment effectively supervises the Company to exercise relevant risk management, fraud detection and prevention, trade secret protection, and information security protection. No social or economic-related violations during the reporting period occurred. Furthermore, BoD members are specialized in various fields, including biotechnology, finance, banking, business, law, financial management, and accounting. The BoD has the capacity to develop management strategies and make material decisions in order to supervise the management team, as well as manage and mitigate risks.

The Board of Directors also emphasizes gender equality as well as taking into consideration voices from all age levels. In year 2020, 3 of the 9 Board members were in independent positions, comprising 33.33% of the Board. This was together with 2 female members and 1 director aged between 31-40 years old. The term began on November 22<sup>nd</sup>, 2018, and will finish on November 21<sup>st</sup>, 2021.

### TTY 2020 Board Members

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

## The Governance Principle and Performance of BoD

When the proposals raised in Board of Directors' meetings pose a conflict of interest for themselves or the legal entities they represent, directors and independent directors follow the withdrawal principle during discussions and voting. They also do not exercise voting rights on behalf of other directors. Furthermore, details regarding the withdrawal of directors due to conflicts of interest posed by the Board of Directors' proposals are disclosed in the shareholders' annual report. Since year 2016, the yearly self-evaluation/ evaluation of the board members have taken place regularly, and the evaluation results have being brought to the Board before during the first quarter of the following year. The 2020 Board Evaluation Results are fully disclosed and can be found on the TTY website. To monitor global risk trends and develop group knowledge about economy, 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 the operational value for all stakeholders. The average training time for the board members totaled 10.44 hours in year 2020.



## 2020 Board Members Taking Advanced Training Courses

Position	Name	Date	Host	Course	Duration	Total hours in 2020
Chairman	Lin Chuan	09/30	Taiwan Corporate Governance Association (TCGA)	The Management Power Battle Through the Form of Shareholder Activism	3	6.0
		10/21	TCGA	Ethical Management and ISO37001	3	
Director	Chang Wen-Hwa	07/22	Taiwan Academy of Banking and Finance (TABF)	Corporate Governance and Sustainable Business	3	9.0
		09/30	TCGA	The Management Power Battle Through the Form of Shareholder Activism	3	
		10/21	TCGA	Ethical Management and ISO37001	3	
		09/30	TCGA	The Management Power Battle Through the Form of Shareholder Activism	3	
Director	Carl Hsiao	09/30	TCGA	The Management Power Battle Through the Form of Shareholder Activism	3	6.0
		10/21	TCGA	Ethical Management and ISO37001	3	
Director	Yang Tze-Kaing	07/22	TCGA	Global Investment Trends and Market Practices	3	9.0
		09/22	TCGA	M&A and the Responsibilities of Responsible Persons - on Information Disclosure and Insider Trading	3	
		11/12	TCGA	Lessons from Major Frauds and Corporate Governance	3	
Director	Chang Hsiu-Chi	09/30	TCGA	The Management Power Battle Through the Form of Shareholder Activism	3	6.0
		10/21	TCGA	Ethical Management and ISO37001	3	
Director	Liao Ying-Ying	09/30	TCGA	The Management Power Battle Through the Form of Shareholder Activism	3	6.0
		10/21	TCGA	Ethical Management and ISO37001	3	
Independent Director	Tsai Duei	08/05	Securities and Futures Institute (SFI)	Intellectual Property Management From BoD Point of View	3	12.0
		09/30	TCGA	The Management Power Battle Through the Form of Shareholder Activism	3	
		10/16	TWSE	To Board Members and Supervisors: Corporate Governance and Corporate Integrity	3	
		10/21	TCGA	Ethical Management and ISO37001	3	

Independent Director	Hsueh Ming-Ling	04/29	TCGA	The Sustainable Development Trend of Global Enterprises- The Thinking on SDGs Connection and Circular Economy Strategies	3	31.0			
		06/02	Taiwan Securities Association (TSA)	From the Loss of Warrant Issuers to the Risk Management Mechanism in Financial Industry	3				
		07/07	TSA	The Anti-Money Laundering Trend and Policy Development After APG Third Round Mutual Evaluation Procedure	3				
		09/01	TSA	Financial Consumer Protection Act and Principle for Financial Service Industries to Treat Clients Fairly	3				
		09/09	TCGA	Ethical Management and ISO37001	3				
		09/09	TCGA	Independent Directors' Role in Corporate Operation and Corporate Governance (1)	3				
		10/21	TCGA	Independent Directors' Role in Corporate Operation and Corporate Governance (2)	3				
		12/02	TCGA	The 16th Corporate Governance Summit - Move Forward With Corporate Governance	6				
		12/22	TCGA	Audit Committee Advanced Practice- Independent Directors' Role in Corporate Operation and Corporate Governance	3				
		12/31	TCGA	Corporate Strategies to Turn Today's Capital Market to Their Advantages	1				
		Independent Director	Lin Tien-Fu	06/02	TSA		From the Loss of Warrant Issuers to the Risk Management Mechanism in Financial Industry	3	9.0
				07/07	TSA		The Anti-Money Laundering Trend and Policy Development After APG Third Round Mutual Evaluation Procedure	3	
09/01	TSA			Financial Consumer Protection Act and Principle for Financial Service Industries to Treat Clients Fairly	3				

# Functional Committee

For the better execution of BoD affairs under TTY, the Board of Directors erected the Remuneration Committee, Audit Committee, and the Sustainable Development Committee (SDC) to deal with dedicated functions. Furthermore, the SDC oversees the Corporate Social Responsibility (CSR) Promotion Center, the Ethical Management Promotion Center, and the Risk Management Center, which were founded in year 2020 to navigate control over uncertainties that posed potential threats to the Company and business management.

## Remuneration Committee

TTY aims to promote a better remuneration system to ensure that it follows the principle of impartiality when reviewing directors' and managers' performance with regard to their economic, environmental, and social achievements. In year 2016, the membership of the Remuneration Committee, under the Board of Directors, comprised of 3 independent directors and 2 external experts. All acted with great prudence and performed their duties carefully and faithfully. Suggestions and proposals made by the Committee were being reviewed by the BoD so that its function remained independent. In year 2020, a total of 5 committee meetings took place, with a 95.83% participation rate.

When deemed necessary, the remuneration system is reviewed and adjusted accordingly. In doing this, the procedure abides by the following: the industry standards, achievement of personal goals in corporate governance and business targets, and performance of the professional positions. Furthermore, periodic suggestions for adjustments on existing payment structures, assisting the Board of Directors in assessing the connection between the compensation level of directors and managers, as well the Company's operating performance, ensure the Company standards congruent with the existing laws. The aforementioned also helps to retain the principle of impartiality. In the future, the Committee will assess the possible connections between Board members' payment and their achievement of sustainability issues. This includes eco-protection, employee care, and social welfare. A thorough practice of sustainable operation is expected under leadership of the BoD.

## Audit Committee

As constituted by the Securities and Exchange Act, an Audit Committee erected under the Board of Directors strengthens TTY's supervising and management functions. Composed of 3 independent directors, the Committee is responsible for the following:

- Reviewing financial statements
- Internal auditing and internal control
- The acquisition and disposal of major assets or derivative transactions
- Lending funds, acting endorsements, or guarantees
- Launch and issuance of securities
- Legal compliance
- Determining whether related party transactions exists
- Investigating 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)
- The appointment and dismissal of finance, accounting, and internal audit managers

Five meetings were convened by the Committee this year, with a 100% attendance rate.

## Sustainable Development Committee

To realize corporate governance, environmental sustainability, social welfare, corporate sustainability, and CSR, the Sustainable Development Committee was established under the Board of Directors on October 7<sup>th</sup>, 2019. Under the "CSR Practice Rules", the Committee is in charge of stipulating corporate sustainable development policies, goals, strategies, and action plans. The sustainable development of the corporation includes the areas of Environment, Society, and Governance. The execution and results are reviewed annually, and the amendment of related regulations are followed accordingly. This occurs before reporting to the BoD.

Under the Committee, the Corporate Social Responsibility Promotion Center, the Ethical Management Promotion Center, and the Risk Management Center are the units that facilitate and implement sustainable development strategies. The sole Executive Secretary, represented by one of the corporate governance executives, executes committee meeting affairs and other related works.



### Structure of TTY CSR Promotion Center

Board of Directors

SDC

CSR Promotion Center

Convener (GM)

#### Financial Department (Dedicated overall planner)

CSR Business operation  
Coordination  
Organization of reports

#### Corporate Governance

Ethical management  
Internal audit  
Securities regulations compliance  
Investors relation maintenance  
Freedom of information  
Economical performance presentation

#### Employee Care

Remuneration  
Training  
Labor/ management relations  
Occupational safety and health  
Human rights policy

#### Social Participation

Social welfare

#### Environmental Sustainability

Quality management  
Environmental protection  
Environmental compliance

#### Product Service

Product safety  
Pharmaceutical compliance  
Supply chain management

## CSR Promotion Center

To realize corporate governance and CSR policies, the CSR Promotion Center was erected under the SDC to enact the responsibility of proposing and executing CSR policies, systems, relevant management guidelines, and specific action plans. The Center makes regular reports to the BoD after reporting to the SDC. The General Manager acts as the convener, while the Financial Department ensures that the associated policies are promoted appropriately.

With respect to the various sectors of ESG, the CSR Promotion Center comprises 5 teams of Corporate Governance, Employee Care, Social Participation, Environmental Sustainability, and Product Service. A dedicated section for stakeholders can be found on the Sustainability section of our official website. It not only provides effective communication channel, our internal meetings will also ensure our work fulfill every reasonable expectations and requirements of our stakeholders. Each team will propose the expected results and future advanced goals of the sustainable topics in order to promote the business philosophy and fulfill our duty of social responsibility.

CSR Promotion Center formulates project proposal by the end of each year and submit to the SDC and Board of Directors to review. The 2021 project proposal has been approved by SDC on November 3rd, 2020, and executed by CSR Promotion Center afterward.



## Ethical Management Promotion Center

The Ethical Management Promotion Center was erected under the Sustainable Development Committee (SDC), with the General Manager acting as the convener to prevent any dishonest actions. This Center operates through the managerial members from the Management Center, Department of Finance, Audit, Organization Development and Human Resources Department, and Legal Department. A declaration was undersigned by the superior management team to ensure compliance with [Principles of Procedures for Ethical Management](#); with the GM and Deputy agreeing to follow ethical conduct. The Center aims to establish a company culture of ethical management practice, with Principles of Procedures for Ethical Management, [Procedures for Ethical Management and Guidelines for Conduct](#), and Operating Procedures for Handling Internal Material Information established to against corruption.

In the [Procedures for Ethical Management and Guidelines for Conduct](#), the expected code of conduct during the operation of the business, and that disciplinary and grievance policies for any violations are explicitly defined. The guidelines specify measures for preventing unethical behavior. These include the strict prohibition of directors, managers, and employees from giving and collecting bribes and engaging in any illegal conduct. Employees who engage in activities that violate these regulations will be punished, suspended, or dismissed based on the actual situation. It was confirmed that no corruption incidents were found in year 2020.

To minimize the potential for dishonest behavior, whistleblowing was provided as an option via whistleblowing channels on the corporate website and internal employee website along with reward systems. The Ethical Management Promotion Center is responsible for reported cases as well as giving quarterly reports to SDC based on the materials receiving from the report channel/inbox. To protect whistleblowers, a strict procedure and full confidentiality would be followed throughout the investigation. Whistleblowers may choose to remain anonymous, and heavy punishments will be placed on those who leak the identity of

whistleblowers and whistleblowing contents. In year 2020, a total of 245 emails were received, most of which were deemed junk mail. Consequently, no reports of dishonest activities or incidents of corruption were found.

Be aware of the Company's ethical operations and regulations, it is a requirement for all new employees to attend an ethical management policy brief on their onboard day. Furthermore, a publication of the [Procedures for Ethical Management and Guidelines for Conduct](#) is available on the employee website and via email to the entire crew. For new employees to complying the corporate policies, the prohibition of dishonesty conduct is disseminated by the Company. Orientations are carried out over a number of days, both in-person and online, to familiarize employees with Company regulations in the shortest manner. This includes the following:

- Introduction to the Management Regulations for Confidentiality
- Introduction to GMP Management
- Introduction to Regulations Governing Pharmaceutical Patents
- Introduction to TIPS (Taiwan Intellectual Property Management System)
- Basics of Intellectual Property
- Drug Safety Supervision
- Information Security Education
- Introduction to GDP Management
- Introduction to Trade Secrets
- Environmental, Safety, and Health

68 new employees attended the orientation in year 2020. Online and in-person courses are available for advanced learning, throughout different times and schedules, such as Drug Safety Supervision, Introduction to GDP Management, Information Security, Introduction to Trade Secrets, and Anti-Corruption. All courses in year 2020 were compulsory except the Information Security Education, and every employee has completed the rest of the remaining online courses. Drug Patent Protection and Introduction to GMP Management were in-person courses with 40 attendees and 182 training hours. Anti-corruption information and a brief report were provided to the Directors for reference. Meanwhile, the operational outcome and educational training reports were presented annually to SDC and BoD.

### TTY 2020 Anti-Corruption Training Factsheet



	Total number	Actual attendee numbers
Administration	75	75
Sales & Marketing	130	130
R&D	95	95
Factory	238	238

## Risk Management Center

To tackle uncertainty and risks that pose potential threats to the business, TTY Risk Management Center, founded in year 2020 under the SDC, to evaluates and provides training on the topic of commonly-found risks and the appropriate ways to respond. The goal is to create a basic awareness within employees or the group of operation-related protection and security, and minimize the risk impacts. This is to ensure that any obstacles that could harm our path towards operational sustainability are removed.



## TTY 2020 Identification For Critical Risks and Responsive Measures

Risk Type	Description	Management Policy
Industrial and Market Changes	Change of price of NHI drugs affects the sale price and the sales of partial products; this then impacts the international sales price, eventually resulting in less revenue and profit.	<ul style="list-style-type: none"> <li>Comprehensive sales networks across Taiwan to expand sales coverage;</li> <li>Enhance company resource utilization;</li> <li>Amplified strategic partnerships regarding drugs with proper market scale and value, including working with clinical doctors and nurses to improve institutes and doctors' trust in and appropriate administration of new drugs;</li> <li>Introduction of drugs at late-phase clinical trials through authorization for targeted treatment areas;</li> <li>Reduce local licensing time by following the licensing pace in advanced countries;</li> <li>Collaboration with marketing teams and with mutual resources to achieve the most suitable revenue, and protect profitability from drug price adjustments.</li> </ul>
Product Safety	AD causes negative impacts on company operation and reputation.	<ul style="list-style-type: none"> <li>DMF (Drug Master File) management</li> <li>All categories in compliance with PIC/S GMP</li> <li>Annual "Drug Safety Monitor" training for all employees</li> </ul>
Supply Chain	Material quality, sources of supply, supplier environment, and labor rights risks	<ul style="list-style-type: none"> <li>Keep a close relationship with current vendors while exploring new suppliers to ensure secondary or even tertiary sources.</li> <li>Annual or irregular review according to "Supplier Sustainability Assessment Mechanism" to verify qualified supplier inventory with classified management.</li> </ul>
Occupational Safety	Injuries, death, loss, and damage of property due to workplace accidents	<ul style="list-style-type: none"> <li>Public liability insurance in all workplaces.</li> <li>In compliance with Occupational Safety and Health Acts, and relevant laws.</li> </ul>
Information Security	Loss caused by individual information leakage, malware, viruses, and hacking	<ul style="list-style-type: none"> <li>Regulatory system: Information security management system established to meet the TTY operation and as a principle for operational conduct.</li> <li>Utilization of technology: Information security management facility for the execution of information security measures.</li> <li>Training: Information security training for complete awareness and understanding of the concept among our workforce.</li> </ul>
Intellectual Property (IP)	Loss caused by the theft, embezzlement, and infringement of patents, trademarks, and trade secrets	<ul style="list-style-type: none"> <li>Management of patents and trademarks:                             <ul style="list-style-type: none"> <li>» IP management system to govern patent cases and trademark cases with control flow;</li> <li>» Annual inventory of the number and status of company patents and trademarks;</li> <li>» Uniformity of product and trademark names in the markets to ensure proper trademark protection of company products.</li> </ul> </li> <li>Trade secret management:                             <ul style="list-style-type: none"> <li>» Security measures for company secrets;</li> <li>» Annual internal audits on the execution of the measures;</li> <li>» Annual training on trade secrets and security management to all staff to elevate awareness;</li> <li>» The non-disclosure and non-compete agreement included in the employment contract restricts staff from the disclosure of company secrets during employment and after departure.</li> </ul> </li> </ul>
Exchange-rate Fluctuations	Volatility to cause loss of asset value	<ul style="list-style-type: none"> <li>Natural hedging to steer away from loss caused by volatility.</li> </ul>
Climate Change	Extreme climate to cause direct asset loss from climate incidents, and indirect loss due to disruption of global supply chain and the deficiency of resources	<ul style="list-style-type: none"> <li>Upgraded resilience to disasters.</li> <li>Explore new suppliers to ensure secondary or even tertiary sources. Execution of Supplier Sustainability Management.</li> <li>Environmental sustainability mechanism setup.</li> </ul>
Major Infectious Diseases	Operational impact resulting from pandemic	<ul style="list-style-type: none"> <li>A plan for sustainable operation management concerning major infectious diseases outbreaks that covers:                             <ul style="list-style-type: none"> <li>» Monitor employees health status and care management;</li> <li>» Supply-chain risk management;</li> <li>» Client management and communication;</li> <li>» Enhanced infrastructure such as remote backup, emergency offices, video conferences, and manpower management to facilitate remote working and WFH needs.</li> </ul> </li> </ul>

Note. See Annual Report at [Website](#) for more risk management information.

## The Correlation Between Risk Management and Climate Change

In an environment beset by global warming and extreme climatic conditions, it moves us to take action on carbon emissions, better personal hygiene, and wildlife conservation. Specifically, TTY has completed the identification of obligations that follows laws and regulations, and the physical threats and reputation risks that come with climate change. Water development and management, reaction and adaptation plan to disasters, and strengthen city and value chain alliances are some strategies and responses to the issues identified.

The potential major impacts that TTY faces are energy, environment, safety, health, and external constraints from government policies and regulations. The quest for and the

use of energy and electricity that produce less carbon and a smaller carbon footprint offset, has surfaced and grown as part of our business scope. In response, corporate structure adjustments and corporate response strategies are among some actions taken. Moreover, collaborations between local and overseas pharmaceutical industries, green energy industries, TTY suppliers, and academic and research institutes serve to narrow the operational risks by navigating the Company toward a better business environment.

Other than central policies and measures on GHG reduction, TTY has also been aware of potential risks outlined from other relevant fields. Thus, TTY has taken steps accordingly to actualize carbon reduction and energy-saving goals. For instance, our dedicated team assessed by switching to equipment with lower carbon emissions and higher performance, and retiring the equipment with regressed performance.

## TTY 2020 Identification of Risks Associated with Climate Change and Action Plans

Type	Impact	Action Plan
Policies and Laws	Tightened restriction on GHG Reduction and Management Act, and the potential control over total emission in the future will be followed by extra operational expenses on carbon tax.	Carbon reduction continued with a green energy-saving plan or additional energy-saving facilities. Manufacturing process improvement, a reduction from the original, and enhanced terminal preventative facilities to alleviate the impact on our environment.
Transition Risks	Assets upgrade to generate better energy output. Increased upgrade frequency drives up corporate expenses.	A comprehensive evaluation of the impact to the Company by climate change related policies and operational plans in the short, and medium term. Elastic investment choices to achieve immediate energy-saving results.
Products and Services	Buyers turn to products and services with low carbon factors to mitigate the impact from climate change, resulting in a shift in product needs, revenue loss, and even corporate reputation.	For better eco-friendliness, TTY's products and services are based on the concept of recycling and reuse of waste and resources, as well as activities for sustainability. We are devoted to expand corporate green culture. Investing for green energy development to lower our products' carbon footprint while enhancing our adaptation to climate change risks.
Markets	In response to climate change and carbon emission control, a new business pattern and the need for adaptation forms in the market that demands corporates' carbon asset management.	With environmental sustainability as the core value of our governance policy, TTY's eco-protection and carbon emission control elevate our capacity for climate change risks, while introducing opportunities for new income and markets expansion.
Physical Risk	Long-term Risk The growth of the average temperature may lead to a deficiency of water, electricity, and forms of fuel and energy, which consequently disrupts factories, delays cycle times, and eventually higher operation costs.	To find consistent sources of materials and energy, we are in a constant quest for new suppliers based on our operation continuation plan, and enhance resilience to disasters of TTY. Production during non-peak electricity times at each manufacturing area according to the evaluation of the use of energy and resources of all relevant sites.





## Minimizing Launching Risk

### TIPS for Patent Infringement Risk Management

TTY is one of Taiwan's few one-stop manufacturers that provide services from development, to manufacture, to marketing. As a pharmaceutical company, TTY tops Taiwan's industrial development capacity, with investment in R&D in the recent 5 years of more than NTD 1.5 billion. 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. The following year, related departments (R&D, Intellectual Property, Legal, IT, and ODHR) passed the first validation. And in year 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. An internal audit was reviewed, and eventually the PDCA management completed. As a positive result, in year 2018, TTY acquired the 2016 TIPS LEVEL A Certificate with a successful external audit. Finally in year 2020, TTY passed the new edition of TIPS 2016 audit and retained the validation through to December 31<sup>st</sup>, 2022.

### 58 Internal Auditors to Perfect Intellectual Property Management

To increase TTY competence, a complete intellectual property management validation system was established. As for our workforce, to ensure all individuals have accurate intellectual property management principles and realize the importance of confidentiality and development innovation, in addition to TIPS education during orientation, relevant training continues throughout HQ and all factories. To accommodate the new version of TIPS 2016, TTY reviewed and revised accordingly, with 58 trained and qualified internal auditors to ensure the execution and internal audits of new TIPS in the Company. For R&D management, the "Patent History Lookup" is established and applied prior to any development of a new product or technology to prevent wasting resources. In year 2020, a trade secret management system was introduced as a project with related data into a database so that the confidentiality, integrity, and availability of TTY confidential information is well-kept. By the end of year 2020, TTY has been granted 10 patents and 1 pending; 185 trademarks approved and 9 pending.

## Information Security

### Information Security & Risk Management Framework

One supervisor and several professional members of Information Technology are in charge of the overall information security and the safe management of information assets. This scope ranges from information security policies and procedures established, to information security operation and policy implementation, to the Company information security governance overview reporting to the BoD. The auditing manager and dedicated auditor in Auditing supervise and conduct audits of information security affairs. Immediate requests for improvement and action plans will be made if any shortcomings are found. Corrections are regularly followed to mitigate internal information risks. In year 2020, it was verified that no complaint was made to TTY of client privacy invasion or the loss of client data.

### Internal & External Security Audits

Internal and external security audits regularly take place to tighten the management of confidential data. Conducted by Auditing, the internal security audit inspects daily information operation control, with annual audits of information security implementation based on the "Regulations Governing the Establishment of Internal Control Systems by Public Companies". TTY conducts annual intellectual property management audits pursuant to TIPS regulations. This particularly focuses on self-audits of classified documents, annual cross-departmental mutual audits, regular meetings to review management, and the review of management deficiencies, as well follow-up measures for improvement.

The Institute for Information Industry (III) conducts audits of TTY on intellectual property management standards every other year to ensure its procedures are consistent with TIPS standards. The audit was completed and certified on December 31<sup>st</sup>, 2020. Inventory of trade secrets and optimization of internal management systems by Wanhung Information Consultant Company also ensures that TTY's information security management is consistent with industry standards.

### Information Security Measures

In year 2020, information security was upgraded and backups were established, along with the rearrangement of internet frameworks for better internet quality and enhanced online access control. Information security systems such as the security of endpoints and firewalls were installed through partnerships with Sophos, IP Guard, Quest, and CyberArk.

Major Information Security Management Plans for Information Technology included "Privileged Access Management" and "File Server Access Management Monitoring Systems". The privileged identities and account behaviors on the system are logged, high-risk operations and any abnormalities are detected, and management personnel notified to minimize the risks from the improper use of accounts.

Website Vulnerability Check helps the Company website and product websites complete vulnerability checks and repair high, medium, and low risks in order to minimize the chances of hackers entering the system through vulnerable spots. Every year, local and remote backup recovery drills focus on auto-backup and backup systems for computers' systematic environment and their data, to ensure the backing up systems can be restore when accidents occur during operation. Quarterly information security training and tests will be given to new employees. All trainees passed the tests in year 2020.



# Appendix

## TTY 2020 Sustainability Report Accredited by BSI

The extraordinary achievement included in the TTY Sustainability Report is accredited by BSI, the worldwide independent British Standards Institution (BSI Taiwan Subsidiary). The content of which has been compiled according to AA1000 Standards. The BSI Independent Assurance Opinion Statement confirmed that the Report is consistent with GRI core options, and it confirmed the accuracy of the information of the 2020 performance on the economy, society, and environment.



TTY 2020 BSI Independent Assurance Opinion Statement

## TCSA Silver Award of the Year

TTY 2019 CSR Report was in the leading position in Taiwan with the topics of Environmental, Social, and Governance (ESG), which has long been practiced in advanced countries. Stakeholders get to know the sustainable business strategy of the Company and are provided a proper communication channel through the Report. In light of the above, TTY 2019 CSR Report made the TCSA Silver Award of the Year 2020.

The TTY ESG core value exists more than just a slogan but in daily practice, and even as a TTY individuals' behavioral standard. TTY expects that each one of the members is an enlightened citizen and achieve vision of "improving the quality of human life with scientific innovation".





## GRI Standards Index

Disclosure No.	Disclosure Item	Page
<b>GRI 102 : Organizational profile 2016</b>		
102-1	Name of the organization	P22 About TTY Biopharm
102-2	Activities, brands, products, and services	P22 About TTY Biopharm
102-3	Location of headquarter	P22 About TTY Biopharm
102-4	Location of operations	P6 About TTY Sustainability Report
102-5	Ownership and legal form	P22 About TTY Biopharm
102-6	Markets served	P22 About TTY Biopharm
102-7	Scale of the organization	P22 About TTY Biopharm
102-8	Information on employees and other workers	P68 More Job Opportunities
102-9	Supply chain	P22 About TTY Biopharm
102-10	Significant changes to the organization and its supply chain	P22 About TTY Biopharm
102-11	Precautionary principles or guidelines	P97 Risk Management Center
102-12	External initiatives	P6 About TTY Sustainability Report
102-13	Membership of associations	P22 About TTY Biopharm
102-14	Statement from decision-maker	P4 Letter From the Chairman
102-15	Key impacts, risks, and opportunities	P98 Risk Management Center
★ 102-16	Values, principles, standards, and norms of behavior	P91 The Governance Principle and Performance of BoD
102-18	Governance structure	P90 Board of Directors
★ 102-27	Collective knowledge of highest governance unit	P91 The Governance Principle and Performance of BoD
102-40	List of stakeholder groups	P8 Identification of Stakeholders
102-41	Group agreements	*No union. No group agreements
102-42	Identifying and selecting stakeholders	P8 Stakeholder Engagement
102-43	Guidelines on Communications with Stakeholders	P8 Communications with Stakeholders
102-44	Key topics and concerns raised	P8 Stakeholder Engagement
102-45	Entities included in the consolidated financial statements	P25 TTY Financial Operation Overview
102-46	Defining report content and topic boundaries	P6 About TTY Sustainability Report, P13 Materiality Analysis
102-47	List of material topics	P13 Materiality Analysis
102-48	Restatements of information	*No restatements of information from the previous Report
102-49	Changes in reporting	P13 Materiality Analysis
102-50	Reporting period	P6 About TTY Sustainability Report
102-51	Date of last report	P6 About TTY Sustainability Report
102-52	Reporting cycle	P6 About TTY Sustainability Report

102-53	Contact for questions regarding the report	P6 About TTY Sustainability Report
102-54	Claim of reporting in accordance with GRI Standards	P6 About TTY Sustainability Report
102-55	GRI content index	P104 GRI Standards Index
102-56	External assurance	P6 About TTY Sustainability Report
<b>GRI 103 : Management approach 2016</b>		
103-1	Explanation of the material topic and its scope	P14 Materiality Analysis
103-2	The management approach and its components	P18 Materiality Analysis
103-3	Evaluation of the management approach	P18 Materiality Analysis

<b>GRI 201 : Economic performance 2016</b>		
★ 201-1	Direct economic value generated and distributed by the organization	P25 TTY Financial Operation Overview
201-3	Defined benefit plan obligations and other retirement plans	P73 Competitive Salary

<b>GRI 202 : Market presence 2016</b>		
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	P73 Competitive Salary

<b>GRI 203 : Indirect economic impacts 2016</b>		
203-1	Development and impact of infrastructure investments and services supported	P84 Community Participation

<b>★ GRI 205 : Anti-corruption 2016</b>		
205-1	Operations assessed for risks related to corruption	P96 Ethical Management Promotion Center
205-2	Communication and training with regard to anti-corruption policies and procedures	P96 Ethical Management Promotion Center
205-3	Confirmed incidents of corruption and actions taken	P96 Ethical Management Promotion Center

<b>GRI 302 : Energy 2016</b>		
302-1	Energy consumption within the organization	P58 Reduction of Energy Consumption
302-2	Energy consumption outside of the organization	P58 Reduction of Energy Consumption
302-3	Energy intensity	P58 Reduction of Energy Consumption
302-4	Reduction of energy consumption	P57 Results of Electricity Reduction

<b>GRI 303 : Water and effluents 2018</b>		
303-1	Interactions with water as a shared resource	P61 Water Management
303-2	Management of water discharge-related impact	P62 Water Management
303-3	Water withdrawal	P61 Water Management
★ 303-4	Water discharge	P62 Water Management

<b>GRI 305 : Emissions 2016</b>		
305-1	Direct (Scope 1) GHG emissions	P59 Reduction of Energy

305-2	Energy indirect (Scope 2) GHG emissions	P59 Reduction of Energy
305-4	GHG emissions intensity	P59 Reduction of Energy
305-5	Reduction of GHG emissions	P57 Results of Electricity Reduction
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	P60 Air Pollution Control

**GRI 306 : Waste 2020**

306-1	Waste generation and significant waste-related impact	P64 Waste Management
306-2	Management of significant waste-related impact	P64 Waste Management
306-3	Waste generated	P64 Waste Management
★ 306-5	Waste directed to disposal	P64 Waste Management

**GRI 307 : Environmental compliance 2016**

★ 307-1	Non-compliance with environmental laws and regulations	P68 Commitment to Sustainable Environment
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**GRI 308 : Supplier environmental assessment 2016**

308-1	New suppliers that were screened by environmental criteria	P39 Choosing New Suppliers
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**GRI 401 : Employment 2016**

401-1	New and Departed Employees	P72 More Job Opportunities
401-2	Benefits provided to full-time employees (Excluding temporary or part-time employees)	P73 Competitive Salary
401-3	Parental leave	P74 Maternal Health Protection

**GRI 402 : Labor/ management relations 2016**

402-1	Minimum notice periods regarding operational changes	P75 Employment Protection Rights
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**GRI 403 : Occupational health and safety 2018**

403-1	Occupational health and safety management system	P80 Occupational Safety and Health
403-2	Hazard identification, risk assessment, and incident investigation	P80 Occupational Safety and Health, P98 Risk Management Center
403-3	Occupational health services	P80 Occupational Safety and Health
403-4	Worker participation, consultation, and communication on occupational health and safety	P80 Occupational Safety and Health, P11 Communications with Stakeholders
403-5	Worker training on occupational health and safety	P80 Occupational Safety and Health
403-6	Promotion of worker health	P82 Employee Safety Measures
403-7	Prevention and mitigation of occupational health and safety impact directly linked to business relationships	P82 Employee Safety Measures
★ 403-9	Work-related injuries	P81 Statistics of Occupational Hazards
403-10	Occupational hazards	P81 Statistics of Occupational Hazards

**GRI 404 : Training and education 2016**

404-1	Average hours of training per year per employee	P77 Magnifying Employee Competence
404-2	Programs for upgrading employee skills and transition assistance programs	P76 TTY University, P75 Employment Protection Rights
404-3	Percentage of employees receiving regular performance and career development reviews	P78 Successor Project

**GRI 405 : Diversity and equal opportunity 2016**

405-1	Diversity of governance units and employees	P72 More Job Opportunities, P91 Gender & Expertise Diversity in BoD
405-2	Ratio of basic salary and remuneration of women to men	P73 Competitive Salary

**GRI 406 : Non-discrimination 2016**

406-1	Incidents of discrimination and the corrective actions taken	P75 Safeguarding Labor Rights, P11 Communications with Stakeholders
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**GRI 408 : Child labor 2016**

408-1	Operations and suppliers at significant risk for incidents of child labor	P75 Safeguarding Labor Rights
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**GRI 409 : Forced or compulsory labor 2016**

409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	P74 Diversity & Equality in the Workplace
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**GRI 414 : Supplier social assessment 2016**

414-1	New suppliers that were screened using social criteria	P39 Choosing New Suppliers
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**GRI 416 : Customer health and safety 2016**

★ 416-1	Assessment of the health and safety impact of product and service categories	P38 Drug Safety
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	P38 Drug Safety

**GRI 417 : Marketing and labeling 2016**

417-1	Requirements for product and service information and labeling	P38 Drug Safety
417-2	Incidents of non-compliance concerning product and service information and labeling	P38 Drug Safety
417-3	Incidents of non-compliance concerning marketing communications	P38 Drug Safety

**GRI 418 : Customer privacy 2016**

★ 418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	P101 Information Security Risk Minimization
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**GRI 419 : Socioeconomic compliance 2016**



★ 419-1	Non-compliance with laws and regulations in the social and economic area	P91 Gender & Expertise Diversity in BoD
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Note:







1. Core Options: GRI 102-1 to GRI 102-14, GRI 102-16, GRI 102-18, GRI 102-40 to GRI 102-56
2. ★ Indicates a material topic.






# SDGs Index

SDGs	TTY corresponsive actions	Page
	1.4 Handmade soaps as a gift for shareholders in year 2020, to support the Taiwan Foundation for the Blind. Online group-buying events to create sheltered employment opportunities.	P84 An Eco-friendly Souvenir for the Shareholders
	1.5.1 Sponsors of the HOPE Foundation for Cancer Care with a scholarship in year 2020 to 75 college students whose families are affected by cancer. A NTD 1 million donation to the Foundation as an event fund to assist college students with their studies.	P84 Financial Aid and Scholarship for Cancer-affected Family's Students
	1.5.1 Donations gathered in the name of the year 2020 Charity project "Pandemic Prevention Won't Prevent Us from Sharing Love" went to the Red Heart Association, the Federation for the Welfare of the Elderly, Angel Heart Family Social Welfare Foundation, and Family of Joy. Donations to at-home care and respite care.	P84 Donation to Social Welfare Organizations
	3.4 Organ Donation Center invited to explain their function and encourage TTY employees to sign up and become donors. As the host of this event, TTY was honored with a Corporate Philanthropy Award.	P85 Organ Donation
	3.4 Sponsoring the "Planting a Seed of Hope" project by the HOPE Foundation for Cancer Care, which takes care of and accompanies cancer-affected family's students, and goes through difficult times. This service helped practice emotional relief, mindset adjustment, and substantial support to affected children.	P84 Financial Aids and Scholarship for Cancer-affected Family's Students
	3.4 Support and full transportation fee coverage for individual cases that require at-home hospice care.	P85 Hospice Care
	3.8 Spanish drugmaker PharmaMar's new drug Plitidepsin (Aplidin) is found to be one of the solutions for COVID-19. TTY has been the sole agent in Taiwan since year 2015 and continues to follow and communicate with PharmaMar closely, and will apply to the TFDA for new drug permission for import once the safety and efficacy of the candidate drug are validated for the health of our people.	P46 TTY's Progress in Distributing Potential COVID-19 Drug
	3.8 A total of two drug licenses were achieved in Mexico in July and December of year 2020. The adjuvant drug that contains Zoledronic for metastatic treatment. For ABC (advanced Breast Cancer) patients, a drug containing Anastrozole was shipped to the Country to provide a better life quality.	P47 Going Forward into the Global Market
	3.8 As a provider of the public-fund flu vaccine in year 2020, TTY entered the flu vaccine market with 550 thousand vials, along with another 95 thousand for self-funding dosages to expand the territory.	P48 Entering the Flu Vaccine Market
	3.9.2 Investment in R&D in the recent 5 years has exceeded NTD 1.5 billion. The TIPS (Taiwan Intellectual Property Management System) was therefore installed to improve the management system of Intellectual Property and reduce the launch risk of newly developed drugs.	P100 Minimize Launching Risk
	3.9.4 After the 2020 Chinese New Year holiday, TTY implemented strict safety measures from the first day back at work. This implementation required body temperature monitors, autonomous health monitors, and promoted social distance among colleagues. Masks and sanitizers were provided by the Company at no extra cost, and "Family Care Leave" activated following the government's policy.	P48 WFH Leader
	3.9.4 Our work-from-home initiative to further minimize group gatherings in the same office area began in March. Social distancing, taking the staircase instead of the elevator, visitor control, online meetings to replace in-person contact, masks to be worn in all office areas, and the suspension of all business trips are some of the other measures that were introduced.	P48 WFH Leader

SDGs	TTY corresponsive actions	Page
	3.9.4 Industrial-first Shuttle Service dedicated to employee to/off work; Car Pooling further minimizes the risk of infection when using mass transportation.	P49 Active Implementation of the Employee Shuttle
	3.9.4 Our superior product quality is based on a safety production system that follows strict standards. This safety practice continues onto the management of drugs, with every single product item in accordance with health and safety regulations and inspections. We have no product or service violations against any health and safety regulations.	P38 Drug Safety
	4.4 For 13 years, the TTY Summer Internship Program (SIP) has hosted explanation seminars, group interviews, course content planning, and project management workshops for university students studying Pharmacy and Bioscience-related. This included 26 interns in year 2020 from Taiwan and around the world, with a total number of 339 beneficiaries reached to date.	P86 Work-Integrated Learning
	4.5 TTY TOT Oncology Business Unit works with cancer-related non-profit organizations for a series of seminars on a cancer prevention diet for junior high school students. In year 2020, a total of 51 "Regional Care for the Cancer-Affected" seminars took place around the country.	P86 Regional Care for the Cancer-Affected
	4.5 Since year 2012, employees of TTY Biopharm took turns to voluntarily conduct anti-cancer and health promotion events at Lyudao and Gongguan Primary Schools in Taitung.	P86 Education Support Expanded to Remote Areas
	4.7.1 TTY has partnered with cancer related NPOs to host regular health education events for cancer-affected people and/or their family members, educating family with the correct knowledge and how to fight the disease. In year 2020, a total of 7 sessions were organized and joined by 507 people. In total of 6,532 cancer-affected patients have joined since the first session took place in year 2009. In addition, 33 educational lectures for osteoporosis and bone health were conducted in year 2020, with 4,160 people having attended the events.	P86 Health Education
	5.5 The Board of Directors emphasizes gender equality, and welcomes voices from all ages. Of its 9 directors in 2020, 2 are women.	P91 Gender & Expertise Diversity in BoD
	5.5 42.65% of females in the Company hold managerial roles or higher key-leadership positions, which achieves workplace gender equality.	P71 Chapter 4 Social Key Performance
	5.6.1 Equal pay for equal work is very important in TTY, and there is no gender difference in salaries for the same position. In year 2020, due to more male employees occupying managerial positions than females, the female-to-male salary ratio stood at 1:1.21.	P63 Competitive Salary
	6.3 The recycling of As Ion, co-developed by TTY Neihu Pharmaceutical Development Center and NCU, proceeds to separate the arsenic from wastewater produced during manufacturing so that the As concentration is lowered to meet discharge standards. Process enhancement and sewage treatment efficacy are expected to take place through technology.	P63 Technology to Arsenic Ion Recycling
	6.3 The water discharged by the Lioudu, Chungli, Neihu factories and Pharmaceutical Development Center falls within national effluent standards and does not contain 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. The chemical oxygen demand (COD) emissions and SS (suspended solids) in the wastewater from Lioudu and Chungli factories are much lower than local sewer connection standards.	P61 Reinforced Water Consumption Strategy
	6.4 The water conservation strategy of the Company can be put into practice with the implementation of a water management plan. Actions include a circulation system to recycle and reuse water collected from a chilling tower, improve the chilling procedure and increase heat recovery rates to lower water demand.	P61 Reinforced Water Consumption Strategy

SDGs	TTY corresponsive actions	Page
	7.3.1 Overall, the five energy-saving measures in both Lioudu and Chungli factories have conserved 85,936.5 kWh of electricity. CO <sub>2</sub> emissions volume has decreased by 47,608.8 (kgCO <sub>2</sub> e).	P56 Energy Management
	8.3 Named one of the "Best Companies to Work for in Asia" by <i>HR Asia</i> , with excellent scores in Company Culture/ Organization Leadership, Employee Recognition and Satisfaction and Organization Atmosphere, and other outstanding performances in the categories of "Company encourages constant self-enhancement and learning" and "Company encourages cross-departmental collaboration and position rotation".	P72 More Job Opportunities
	8.5 Based upon a comprehensive review and analysis of different backgrounds and employee experiences in each entry level position, the ratio of standard salaries for entry-level employees at TTY to local minimum salaries is 1.54 times more for females and 1.61 times more for males. Equal pay for equal work is very important at TTY, and there is no gender difference in salaries for the same position. In year 2020, due to more male employees occupying managerial positions than females, the female-to-male salary ratio stood at 1:1.21.	P73 Competitive Salary
	8.7 A good mechanism foundation of "Supplier Sustainability Management Assessment" is the standard when reviewing suppliers' Cycle Time, Quality, Customer Complaints, Supportiveness and Sustainability. In year 2020, no supplier committed forced or compulsory labor or other material risks.	P75 Safeguarding Labor Rights
	9.4 To establish a safe environment for using chemicals, TTY has successively trained 8 employees (6 from the Lioudu factory and 2 from the Chungli factory) and further acquired professional technical management personnel to verify toxic chemicals. Prior to the procurement of a new chemical substances, approval should be obtained from the authorized personnel. After each use of Toxic and Concerned Chemical Substances, TTY must complete usage records of such Toxic and Concerned Chemical Substances and report its monthly usage to management.	P66 Toxic Substances Management
	10.3 TTY follows internationally recognized human rights standards, which are the <i>ILO Declaration of Fundamental Principles and Rights at Work</i> , the <i>Universal Declaration of Human Rights</i> , <i>UNGC 10 Principles</i> , and <i>UN Guiding Principles on Business and Human Rights</i> . The stipulation of the TTY human rights policy based on local laws. One feedback was received in January, 2020, and the investigation was completed on the 21st of the same month by the TTY Complaint Review Board, it urged the Company on the dissemination of human rights to ensure that no such case occurs again in the future.	P75 Safeguarding Labor Rights
	10.4 When reviewing our salary system, the Remuneration Committee takes into account of each director and manager's individual goal realization and job evaluation based on corporate governance and business performance, and gives regular revision suggestions on the remuneration structure so that the system works alongside the relevant laws and principles of impartiality.	P94 Remuneration Committee
	12.6 To realize corporate governance, environmental sustainability, social welfare, and corporate sustainability, in year 2019, the Sustainable Development Committee was established under the Board of Directors. The corporate sustainable development policies and action plans for the Environment, Society, and Governance are drawn up by the Committee each year, with reviews on their annual execution and results.	P95 Sustainable Development Committee
	13.2 As a reaction to global warming, extreme climate change, protecting the environment and energy saving, regulations, physical and reputational risks and opportunities brought about by climate change are identified by TTY. Guided by these results, water management and development, disaster response and accommodation, and fortified collaboration with cities and value chains have been identified as 3 major responsive policies.	P99 The Correlation Between Risk Management and Climate Change

SDGs	TTY corresponsive actions	Page
	14.2 TTY took part in the water conservation action "Do One Thing for the Tamsui River", an initiative started by Commonwealth Magazine, and declared 5 solid promises to our environment. From a guided tour through the Tamsui River Pact to coastline cleaning, and watched a documentary film, and joined together to achieve environmental sustainability in Taiwan.	P87 Commitment to the River
	16.2 Forced labor and child laborers that do not meet the minimum legal age are prohibited. No forced, compulsory labor or child labor were made within the Company in year 2020.	P75 Safeguarding Labor Rights
	16.5 To minimize the potential for dishonest behavior, whistleblowing and reward systems were provided, and whistleblowing channels on the corporate website and internal employee website were added. For their protection, whistleblowers may choose to remain anonymous, and heavy punishments will be placed on those who leak the identity of whistleblowers and the contents of whistleblowing. In year 2020, a total of 245 emails were received, most of which were deemed junk mail and not reports on such activity. No incidents of corruption were found.	P96 Ethical Management Promotion Center
	16.6 To prevent dishonesty, the "Ethical Management Promotion Center" was established under the Sustainable Development Committee (SDC), with the General Manager acting as the convener. The function operates through members from the Management Center, Department of Finance, Audit, Organization Development and Human Resources Department, and Legal Department to create a company culture of ethical management.	P96 Ethical Management Promotion Center
	16.10.2 "Principles of Procedures for Ethical Management", "Procedures for Ethical Management and Guidelines for Conduct", and "Operating Procedures for Handling Internal Material Information" were enacted and made effective to fight against corruption. No corruption or dishonest acts were reported in year 2020.	P96 Ethical Management Promotion Center
	17.5.2 Holding two licenses in Mexico and initiating the first TTY shipment overseas. In addition to Mexico, we received letters from Columbia, Panama, Brazil, and Argentina regarding partnership inquiries. TTY's world mapping begins with positive recognition.	P47 Going Forward into the Global Market





**2020**  
**TTY**  
**Sustainability**  
**Report**



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