

**台塑企業**  
FORMOSA PLASTICS GROUP



# CSR Report 2017

NAN YA PLASTICS CORPORATION  
Corporate Social Responsibility Report

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## From the Management Team

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Nan Ya Plastics Corporation has celebrated its 60 year of founding in 2018. Since the beginning, the Company has adhered to the business philosophy of “diligence, perseverance, frugality and trustworthiness” and “to aim at the sovereign good”. Based in Taiwan, we have an international vision. Over the years, the Company has expanded and developed. We have diversified into the fields of plastic processing, chemical engineering, polyester and electronic materials. In the meantime, we are actively involved in environmental protection, circular economy and social welfare. Through promoting various activities, we strive to achieve both the goal of sustainable management and social contribution. With the collective effort of all employees, the Company was chosen as the constituent of Taiwan Index Plus in 2017 demonstrating our determination and effectiveness in fulfilling our corporate citizen's responsibilities.

In 2017, the global economic momentum has increased. With that, advanced, emerging, and developing countries have all seen progress in economic growth. Global trade has also increased. The International Monetary Fund (IMF) repeatedly revised the forecast for the global economy and trade volume growth rate. It was the year with the most significant economic growth since the financial crisis. With stable global economic growth, the Company has been striving to expand in both domestic and foreign markets. The goals included reaching full-scale production and sales, promoting differentiation, and increasing the percentage of high-value product sales. The Company has achieved remarkable results. The investment in Nanya Technology Corporation and Formosa Petrochemical Corp. increased the revenue, contributing to a 16.6% growth in the annual pre-tax profit over that of 2016. In the future, the Company will keep optimizing production process, improving production performance, and promoting circular economy with the philosophy of “inquire into the root of the matter” and “to aim at the sovereign good”. Through the improvement of recycling efficiency, production costs can be reduced to optimize economic benefits. In addition, through the collective efforts of the production and sales teams as well of technical departments, we have strengthen R&D as well as expanding potential markets to increase differentiation and the proportion of high-value product sales. We have taken advantage of diversification and vertical integration to integrate resources from domestic and overseas investment companies, making the best production, marketing arrangements, and reducing the risk caused by changes in the industry. Our goals are to enhance overall competitiveness and ensure the continuous expansion and growth of the Company.

The Company has always laid equal emphasis on industrial development and environmental protection. Besides active energy conservation, emission reduction, resource integration, waste reduction, and recycling, we have also established standard operating procedure that passed the verification and audit of ISO 14001 Environmental Management. We want to fully fulfill our duties in terms of environmental protection by ensuring pollution prevention, reduction in industrial waste, and cleaner production processes. The Company's actions and efforts in environmental protection have also been recognized by government agencies. For example, the ethylene glycol plant in Mailiao has won the Carbon Reduction Contribution Award in 2017 for its outstanding energy-saving performance. In addition, the Company's kung san site has also won the Energy Bureau Energy Conservation Award of the Ministry of Economic Affairs. Although we have achieved concrete results in promoting environmental protection, we will not stop here. Instead, we will continue to work on environmental protection and circular economy by reducing, reusing, and recycling to optimize economic benefits.



The Company has long regarded its employees as its most valuable asset. They are also the cornerstone of the Company's sustainable development. We provide the employees with excellent salary, benefits, training, and promotion channels while treating their health and work environment as our top priorities. The staff is involved in promoting work safety to strengthen occupational safety training, supervision and management, workplace wellbeing and healthcare. We are also dedicated to providing the employees with a safe work environment by making sure all plants pass the verification of OHSAS 18001 and TOSHMS occupational safety and health management systems. In 2017, the Company did not experience any major safety incidents.

In terms of social welfare, we have been upholding to the spirit of "what is taken from the society is used interests of the society" by encouraging the employees to participate in helping the communities and disadvantaged groups. We also support the activities of local art groups to spread traditional art to better integrate with the local communities. In addition, the seven foundations and charitable trusts established by the two founders have long been contributing to education, medical care, disadvantaged groups, as well as culture and sports promotion. For example, we have donated S. pneumoniae vaccines to the Ministry of Health and Welfare over the past few years. We have also helped children with developmental delays and improved the quality of service provided to institutions that take care of the disabled. Moreover, we have assisted rehabilitating drug addicts to acquire skills that would help them re-integrate in the society. It is our fondest wish to bring happiness and cheer to the society.

As an excellent corporate citizen, we have integrated sustainable development with operational strategy. This report is also a response to the United Nation's Sustainable Development Goals (SDGs). In the future, we will continue to implement the business philosophy of "diligence, perseverance, frugality and trustworthiness", "to aim at the sovereign good", "perpetual business operation" and "dedication to the society" to implement corporate governance, develop a sustainable environment, and actively engage in social welfare activities. We will listen and respond to what the environment and society need, and use the feedback to redirect our effort. Through positive interaction and continuous improvement, the Company can make more contributions to the environment and society. Social responsibility will become part of the business philosophy while we strive for sustainable development. We hope to protect our planet along with our stakeholders by caring for the environment and society to create a favorable world order.

Nan Ya Plastics Corporation

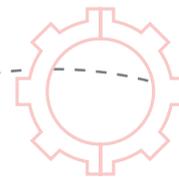
Chairman

**Chia-Chau Wu**

2018



## About This Report



This is the fourth Corporate Social Responsibility (CSR) report of Nan Ya Plastics Corporation (hereafter referred to as “Nan Ya Plastics,” the Company). It provides a detailed description of the efforts made for environmental protection, company governance, and social welfare in 2017 (2017/01/01 to 2017/12/12) 31). In the future, the Company will publish CSR reports on an annual basis.

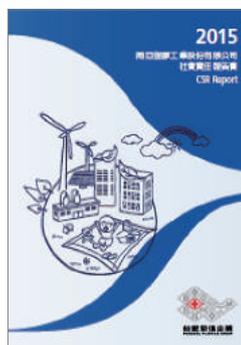
### Publication Overview

Publication date of the first edition: December 2015

Publication date of the last edition: June 2017

Publication date of the current edition: June 2018

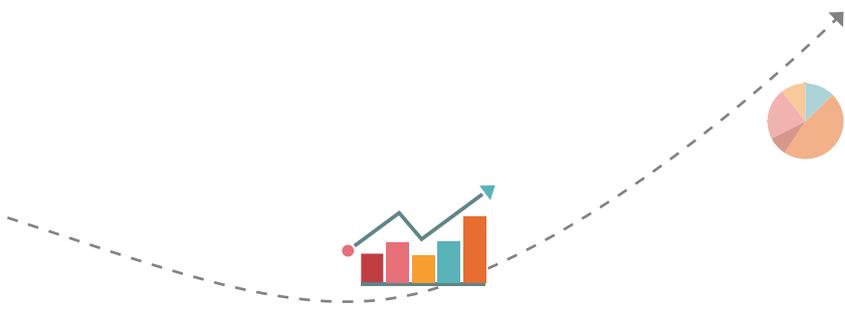
Publication date of the next edition: June 2019



### Compilation Policy

Nan Ya Plastics has prepared this report in accordance with the “Procedures for the Corporate Social Responsibility Report of Listed Companies” developed by the Taiwan Stock Exchange. The structure of the report is based on GRI Standards (GRI Sustainability Reporting Standards) and core guidelines. It elaborates on the Company's main sustainability topics, strategies, goals, and measures.

- ✔ GRI Standards (GRI Sustainability Reporting Guidelines)
- ✔ Materiality, Inclusiveness and Responsiveness of AA1000 Accountability Principles Standard (2018 version)
- ✔ Corporate Social Responsibility Best Practice Principles for TWSE/GTSM Listed Companies
- ✔ ISO 26000 Social Responsibility Guidance
- ✔ United Nations Global Compact Cross Reference List



## Data Range and Source

The information in the report is mainly centered on Nan Ya Plastics. It does not include domestic and overseas investment subsidiaries. However, some chapters covering investment companies will separately state the relevant information. (For example, some of the data in Chapter 1 which refers to the information in the consolidated financial statements includes the information of the invested company disclosed in the consolidated financial statements.). Sources of financial data are published after verification by accountants. Other statistical data is public information quoted from government agencies and websites. It is presented as text and numerical description. Any exception will be noted in the report. The reference to other data sources and the boundaries of the report are no different from the 2016 edition.

## Third-Party Verification

In order to ensure the transparency and credibility of the report, the disclosed information is independently verified by the British Standard Institute (BSI), a third-party international certification authority, in accordance with the principles of AA1000 and the core options of GRI Standards. Verification, and BSI's independent assurance statement are also included in this report.

## Contact Information:

If you have any questions or suggestions about this report, you are welcome to give your precious feedback. The contact information is as follows:

### Nan Ya Plastics Corporation

Contact: Business Analysis Section, President's Office

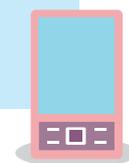
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Website: <https://www.npc.com.tw/>





1

**Ongoing  
Sustainability  
Governance  
Strategy**



## Governance

### Visions & Goals

With the spirit of "diligence, perseverance, frugality and trustworthiness" and "to aim at the sovereign good", Nan Ya Plastics operates with integrity to continuously strengthen corporate governance. To explore new niches, we focus on stably producing differentiated and high-value products. In addition, the Company has long promoted corporate social responsibility. We pursue sustainable development by implementing corporate governance, environmental protection, and giving back to the society in order to create a win-win situation for the maximum benefit of the society and stakeholders.

### Material Issues

1. Ethical Management
2. Economic Performance

### Management Flow

While pursuing growth, Nan Ya Plastics expects to create a win-win situation in which the interests of society and stakeholders are maximized. Different management strategies have been adopted to achieve better integrity and economic performance. The main strategies are as follows:

1. Internal audit: The Company has computerized the management of various operations to reduce human intervention and judgment errors. In addition, each department is required to conduct autonomous inspections on a regular basis. The independent auditing department also conducts follow-up inspections from time to time to strengthen autonomous management and corporate governance.
2. Board of Directors: The board of directors is the highest governance body. The board of directors is appointed for a term of three years, and it convenes at least once per quarter to provide strategic guidance for future development.
3. Corporate Social Responsibility: The CSR promotion team and the safety, environmental protection unit are responsible for promoting corporate social responsibility. The process and performance are reported to the deputy general convener, the general convener and the board of directors every year for review.

### Relevant Policies and Actions

1. Continuous Strengthening of the Corporate Governance System
2. Internal Control System Implementation
3. The board of directors participates in the formulation of corporate social responsibility strategy and performance review
4. Participating in external associations to facilitate industrial exchanges
5. Product value increase and diversified operation

### Communication Channels

1. Quarterly Board Meeting
2. Annual publication of "Annual Report" and "Corporate Social Responsibility Report"
3. Provides internal and external channels for reporting illegal activities in accordance with the "Employee Grievance Procedure" and "Internal and External Reporting of Unlawful and Unethical Behaviors"

# 1.1 About Nan Ya Plastics

## 1.1.1 Company Introduction

Nan Ya Plastics was established in 1958. Initially, the Company focused on secondary processing products such as PVC pipes, PVC leather, and PVC sheeting. After working hard for nearly 60 years, the Company gradually expanded to the fields of chemical engineering products, polyester, electronic materials, and electromechanical engineering. Since 1979, the business has been expanded overseas to the United States, China and so on. It is now a diversified international business. (For the Company's development history, please refer to the official website <https://www.npc.com.tw/j2npc/zhtw/about/history>).

▶ Company Name  
**NAN YA PLASTICS CORPORATION**

▶ Date of established August 22nd, 1958

▶ Capital NT\$ 79,308,215,890

▶ Number of employees (2017) 33,415 employees (for the purpose of the report, only 11,951 employees are taken into consideration. The number does not include domestic and overseas subsidiaries listed in the consolidated financial statements)

▶ 2017 Turnover NT\$ 306.13995 billion

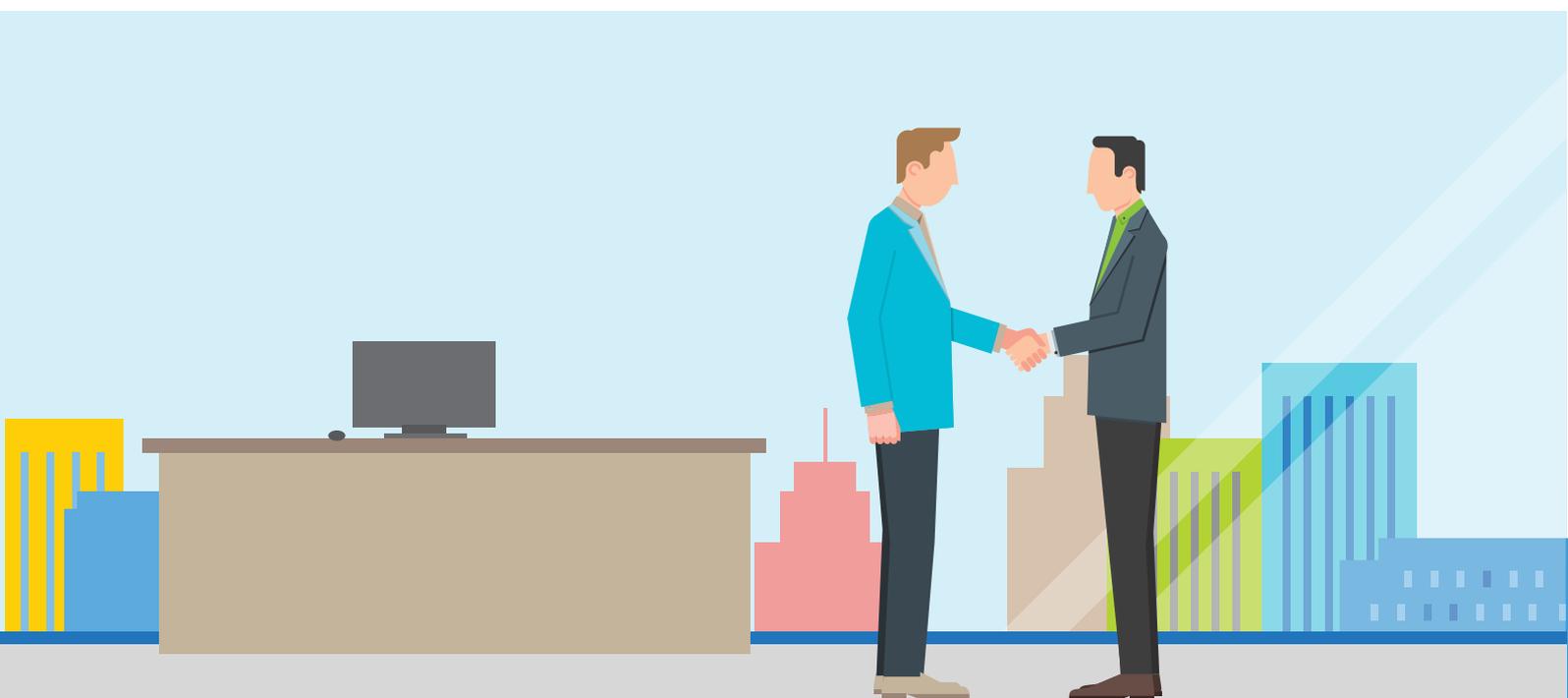
▶ Global Locations Taiwan, China, the United States (6 of the subsidiaries listed in the consolidated financial statements are from Taiwan, and 25 are based overseas)

▶ Locations Registration address: 101, Shuiguan Road, Renwu Dist., Kaohsiung City 814, Taiwan  
Taipei Branch: 3F, 201, Tung Hwa North Road, Taipei 105, Taiwan

Main Operations Plastic processing, chemical engineering products, polyester fiber, electronic materials, electromechanical engineering

Note 1: The source of employee number comes from the 2017 Annual Report (as of December 31st, 2017, including the subsidiaries in the consolidated financial statements)

Note 2: The turnover, global locations, and number of subsidiaries come from the 2017 consolidated financial statements.





## Major Global Locations

### China

Hong Kong  
 Nan Ya Plastics (Hong Kong) Co., Ltd.  
 PFG Fiber Glass (Hong Kong) Co., Ltd.  
 Nan Ya Printed Circuit Board (Hong Kong) Co., Ltd.

Kunshan  
 Nan Ya Electronic Materials (Kunshan) Co., Ltd.  
 Nan Ya Draw-Textured Yarn (Kunshan) Co., Ltd.  
 PFG Fiber Glass (Kunshan) Co., Ltd.  
 Nan Ya Printed Circuit Board (Kunshan) Co., Ltd.

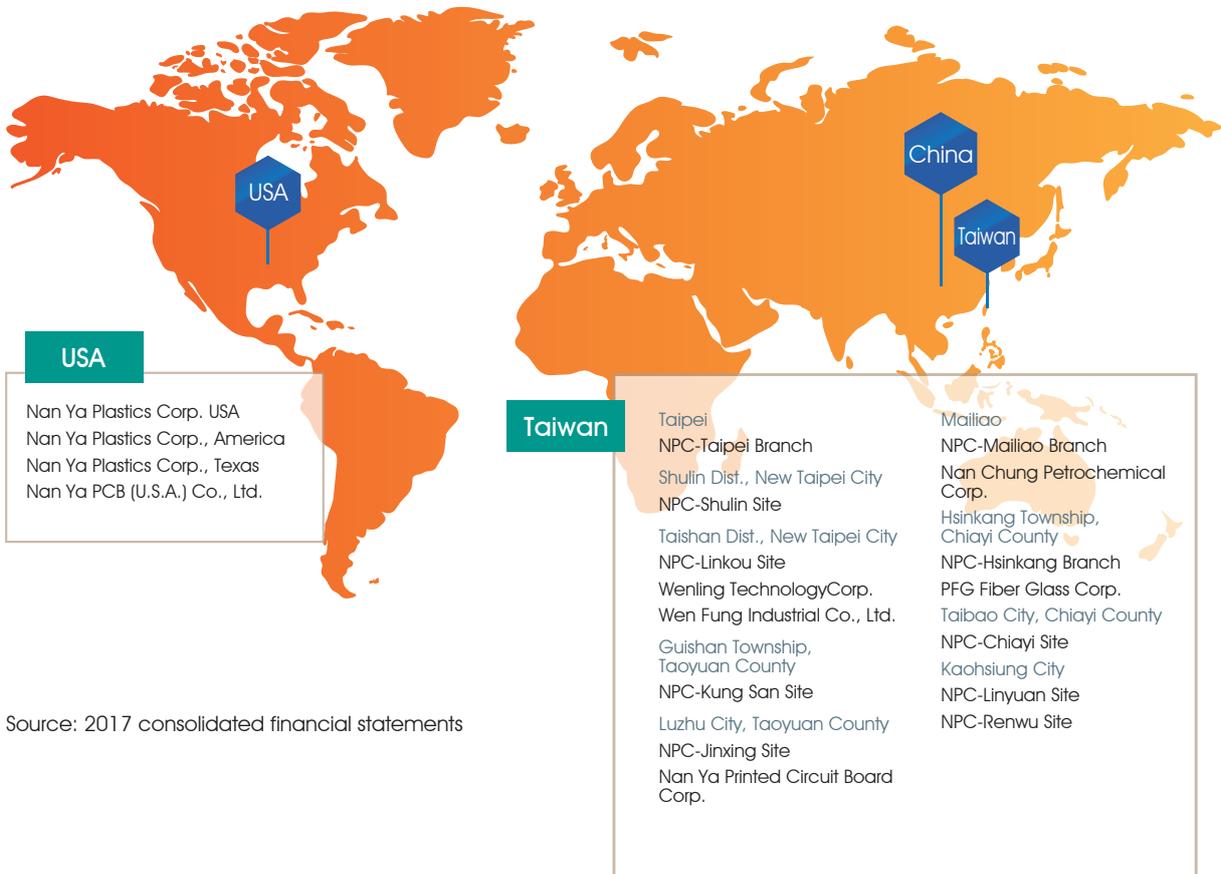
Nantong  
 Nan Ya Plastics (Nantong) Co., Ltd.  
 Nan Ya Plastics Film (Nantong) Co., Ltd.  
 China Nantong Huafeng Co., Ltd.  
 Nantong Huafu Plastics Co., Ltd.  
 Nan Ya Electric (Nantong) Co., Ltd.

Ningbo  
 Nan Ya Plastics (Ningbo) Co., Ltd.

Huizhou  
 Nan Ya Plastics (Huizhou) Co., Ltd.  
 Nan Ya Plastics Film (Huizhou) Co., Ltd.  
 Nan Ya Electronic Materials (Huizhou) Co., Ltd.  
 Nan Ya Trading (Huizhou) Co., Ltd.

Guangzhou  
 Nan Ya Plastics (Guangzhou) Co., Ltd.

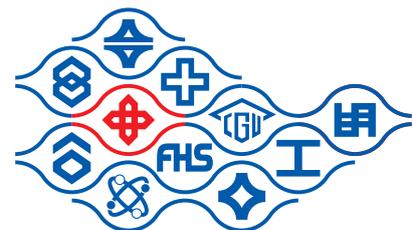
Xiamen  
 Nan Ya Plastics (Xiamen) Co., Ltd.



Source: 2017 consolidated financial statements

### 1.1.2 Enterprise Identification System

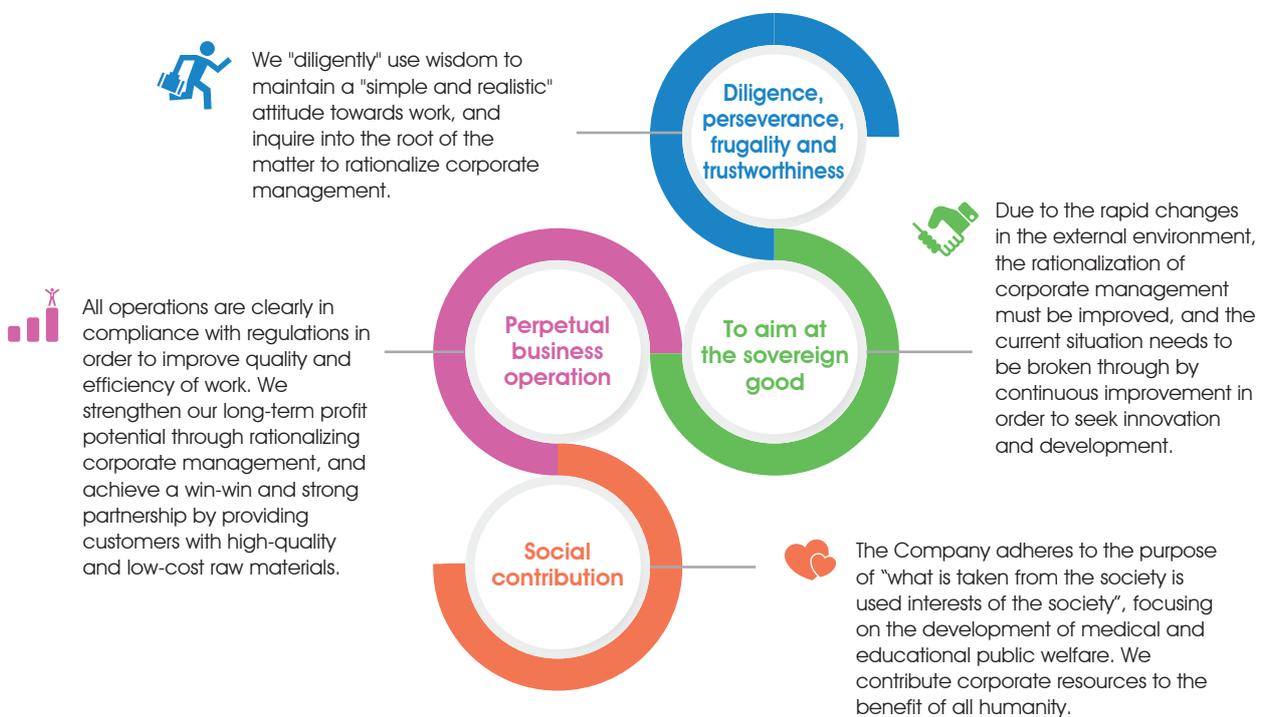
The Formosa Plastics Corporation's identification system uses the chain logo as a common symbol, indicating the vertical and horizontal links, mutual assistance and cooperation, and harmony among the companies. It also symbolizes the consistency, continuity, and development of the Formosa Plastics Corporation. Each company's logo is taken from concept of Chinese characters. The Company's name, Nan Ya, means South Asia. Therefore, the word "Asia (Ya)" is used in the Company logo. Aside from promoting Chinese culture, it also stands out on the international stage and promotes trust.



### 1.1.3 Business Philosophy

The Company's business philosophy is to pursue the rationalization of all things with the attitude of "diligence, perseverance, frugality and trustworthiness" in a practical and realistic way. To aim at the sovereign good is our final goal. As the environment continues to advance, "sovereign good" is actually an ideal. We must continuously strive for it. Through this never-ending pursuit of improvement, we seek to advance the overall business structure and performance, in order to achieve sustainable management. In the process of pursuing "perpetual business operation", we also strive to contribute to the society by becoming the leadership model for employee happiness, investor trust, and social contribution.

#### Nan Ya Plastics Corporation's Business Philosophy



### 1.1.4 External Association Participation

In order to improve the operational status of Taiwanese industries, the Company is actively involved in various industrial associations. Important functions such as associations' board of directors, directors and representatives are also served by staff members. In addition to sharing their own operating experience through the association and co-organizing seminars and international conferences, we also share the latest market trends, changes in supply and demand, and technical information with the industry. Moreover, we participate in various international trade negotiations and consultation in order to contribute to the overall industry. Advice is also provided to the government on issues of international industries and economics.



External Association Name	Company Manager	Position
Taiwan Synthetic Resins Manufacturers Association	Chairman Chia-Chau Wu	Managing Director
	Chairman Chia-Chau Wu	Director
Petrochemical Industry Association of Taiwan	President Ming-Jen Tzou (Representative: Nan Chung Petrochemical Corp.)	Director
Taiwan Plastics Industry Association	Senior Vice President Fong-Chin Lin	Director
Taiwan Accreditation Foundation	Senior Vice President Fong-Chin Lin	Director
Taiwan Man-Made Fiber Industries Association	Senior Vice President Sin-Yi Huang	Managing Director
	Consultant Zo-Chun Jen	Supervisor
Taiwan Knitting Industry Association	Consultant Zo-Chun Jen	Director
Taiwan Textile Printing, Dyeing & Finishing Association	Senior Vice President Sin-Yi Huang	Director
Taiwan Printed Circuit Association	Assistant Vice President Tse-Hsiu Chiang	Director
Taiwan Association of Machinery Industry	Assistant Vice President Yong-Cai Cai	Association Representative
Fire Door Association of R.O.C	Department Manager Feng-Hsiang Wang	Director
Taiwan Fire Safety & Material Association	Department Manager Feng-Hsiang Wang	Director
Taiwan Responsible Care Association	-	-
Taiwan Electrical and Electronic Manufacturer's Association	-	-
Low Carbon Building Alliance	-	-

## 1.1.5 Awards

Awarding Association	Award	Awardee
Taiwan Stock Exchange	Top 20% in the 4th Corporate Governance Evaluation	Nan Ya Plastics Corporation
Taiwan Index Company and FTSE Russell	Selected as a constituent of the "FTSE4Good TIP Taiwan ESG index"	Nan Ya Plastics Corporation
Carbon Disclosure Project (CDP)	Graded B for both "Climate Change Project" and the "Water Project"	Nan Ya Plastics Corporation
International Trade Bureau, Ministry of Economic Affairs	Ministry of Economic Affairs "Key Emerging Markets Expansion Contribution Award" of the 2017 Golden Trade Awards	Nan Ya Plastics Corporation
Bureau of Energy, Ministry of Economic Affairs	National Energy Conservation Standard Silver Award	Kung San Site, Nan Ya Plastics Corporation
Bureau of Industry, Ministry of Economic Affairs	Carbon Reduction Contribution Award of the 2017 Outstanding Annual Industrial Greenhouse Gas Voluntary Reduction Manufacturers	Nan Ya Plastics Corporation Mailiao Ethylene Glycol Plant
Bureau of Industry, Ministry of Economic Affairs	Outstanding award for the 2017 Outstanding Annual Industrial Greenhouse Gas Voluntary Reduction Manufacturers	Nan Ya Plastics Corporation
Health Promotion Administration, Ministry of Health and Welfare	Health Management Award for the 2017 Workplace Health Award	Mailiao Plant of Nan Ya Plastics Corporation

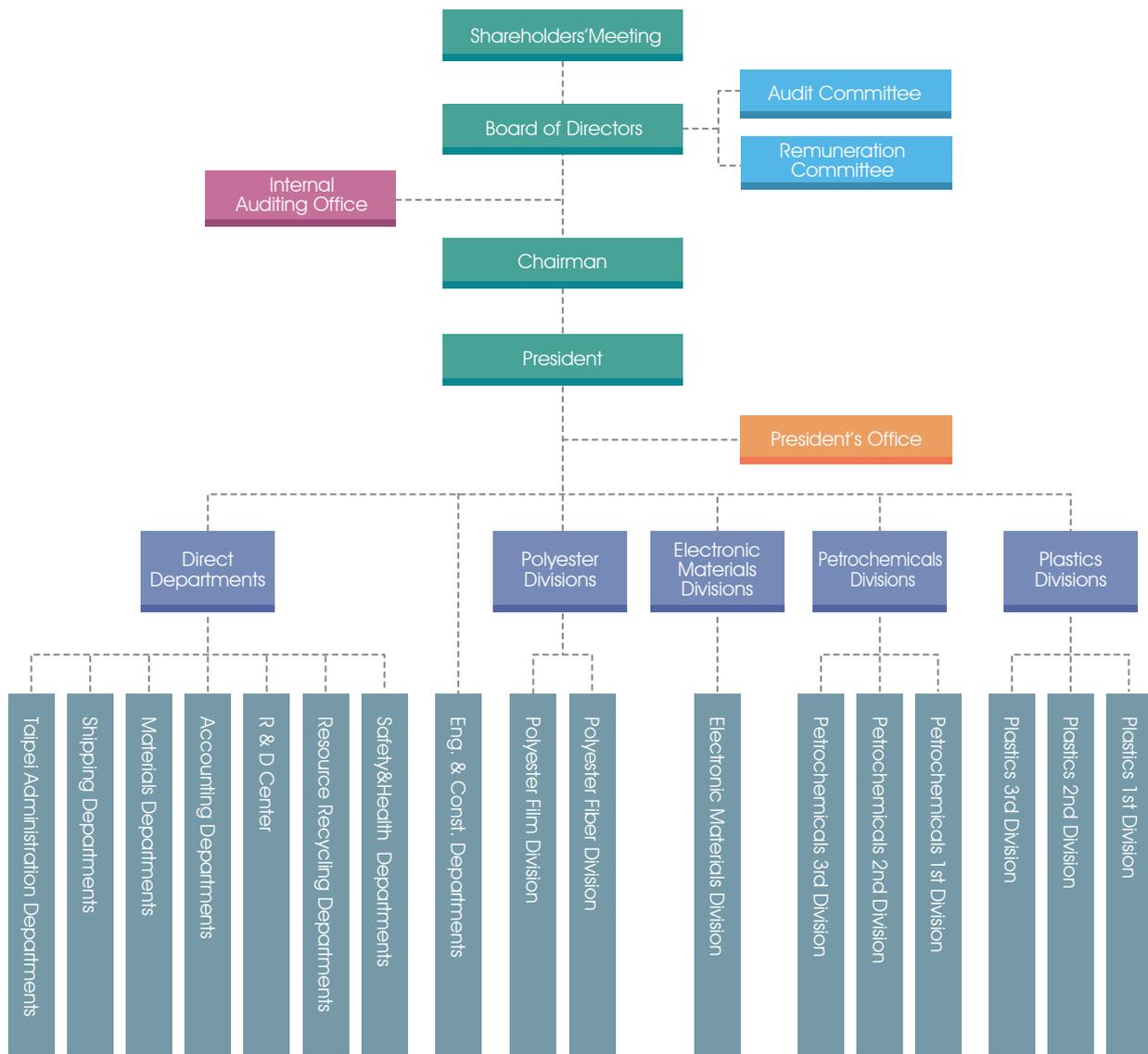




## 1.2 Corporate Governance

### 1.2.1 Organizational structure

The Company has a clear organizational structure as well as rights and responsibilities. The current chairman does not hold a managerial position to ensure the independence of the Company's operations. In addition, the Company has 10 business divisions for different product categories, as well as indirect departments based on functional attributes. All of these are governed by the president.



## 1.2.2 Board of Directors

The election of the Company's directors is based on the candidate nomination system. After the qualifications are reviewed, the list of candidates is submitted to the shareholders' meeting for selection. All those selected serve a three-year term, and they convene at least once per quarter. At present, the board of directors has a total of 15 directors, out of which 3 are independent. The members are between 55 and 85 years of age. They are all highly qualified and experienced in industrial management. In particular, many directors have worked for a long time in the petrochemical and plastics industries. With rich experience and management capabilities, the directors provide the professional strategic guidance for the future development of the Company. In order to enable the Board of Directors to adapt to the changing circumstances of the global economy, corporate operations and regulations, the Company arranges annual courses in accordance with the "Suggestions for Directors and Supervisors of Listed Companies" for the directors in order to help them develop operational strategies. For the CV and training progress of the directors, please refer to the official website of the Company (<https://www.npc.com.tw>) and the annual report for the shareholders.

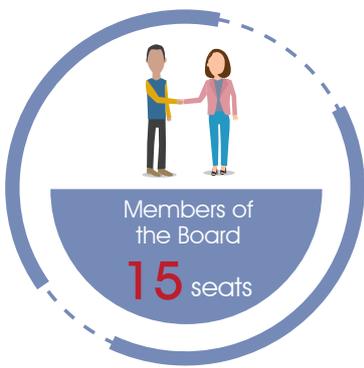
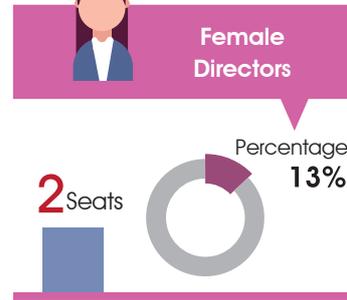
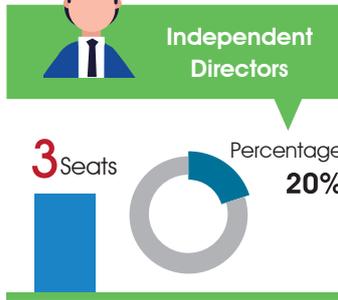
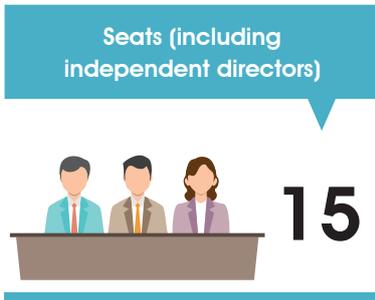
Job Title	Name	Job Title	Name
Chairman	Chia-Chau Wu	Director	Chin-Jen Wu (Formosa Plastics Corp. Representative)
Managing Director	Wen-Yuan Wong	Director	Shen-Yi Lee (Formosa Chemicals & Fibre Corp. Representative)
Managing Director	Wen-Chiao Wang (Formosa Petrochemical Corp. Representative)	Director	Fong-Chin Lin
Managing Director	Ruey-Yu Wang	Director	Zo-Chun Jen
Director	Ming-Jen Tzou	Director	Sin-Yi Huang
Director	Kuei-Yung Wang	Director	Ching-Cheng Chang (Freedom Internation Enterprise Company Representative)

Job Title	Name	Education	Positions
Managing Director (Independent Director)	Chih-Kang Wang	Ph.D. in Business Administration, Texas A&M University, USA	Chairman of CTBC Venture Capital Co., Ltd. Supreme Advisor of Taiwan External Trade Development Council Independent Director of Formosa Sumco Technology Corp.
Independent Director	Yi-Fu Lin	B.A. in Accounting and Statistics, National Chengchi University	Independent Director of Taishin Financial Holding Co., Ltd., Swissray Global Healthcare Holding Ltd. and Pan German Universal Motors Ltd.
Independent Director	Yun-Peng Chu	Ph.D. in Economics, University of Maryland, USA	Independent Director of China Petrochemical Development Corp. and Taiwan Land Development Corp. Chair Professor of College of Management, Taipei Medical University

For details of the members of the Board of Directors, please refer to the Investor Relations Zone of Nan Ya Plastics Corporation's website (<https://www.npc.com.tw/j2npc/zhtw/investor/Board%20of%20Directors>)



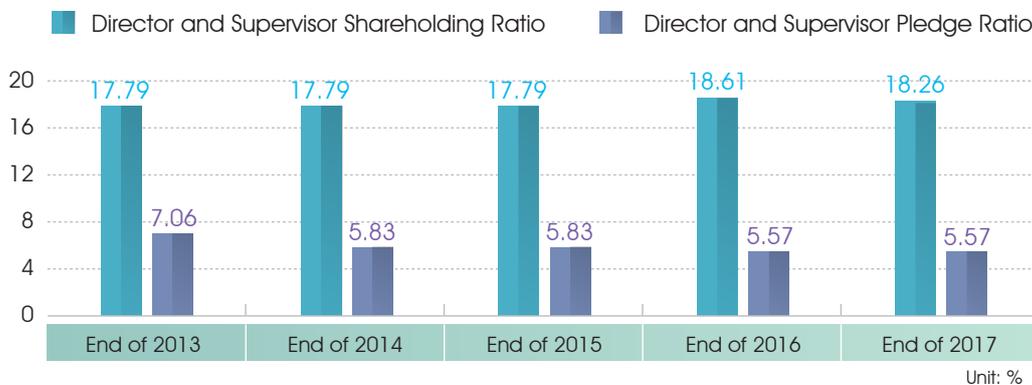
### List of Directors



### Director and Supervisor Shareholding and Pledge Ratio

The Company's director and supervisor shareholding ratio is much higher than the 2% minimum requirement for public offering companies of the same size set by the Financial Supervisory Commission. At the same time, the director and supervisor pledge ratio is very low. These ratios reflect that the interests of the board of directors and shareholders are highly correlated, showing company is worthy of shareholder trust.

### Nan Ya Plastics Corporation's Directors and Supervisor Shareholding and Pledge Ratio over Years



Note: The director and supervisor shareholding ratio is the ratio of the number of shares held by the directors to the number of outstanding shares. The director and supervisor pledge ratio of is the shares pledged by the directors to the number of shares held by the directors.

## 1.2.3 Functional Committee

In order to strengthen the supervisory function of the Board of Directors, the Company's Board of Directors has two functional committees, namely the "Audit Committee" and "Remuneration Committee".



### Operations of the Audit Committee

In order to strengthen the supervisory function of the Board of Directors, the Company set up an "Audit Committee" in June 2016 to replace the original supervisor's position. The members are composed of all independent directors, and they convene at least once per quarter. The audit committee is responsible for supervising the Company's financial statements, hiring/laying off the accountants for their qualifications, independence and performance, the effective implementation of internal controls, ensuring compliance, assessing existing and potential risks. In 2017, the audit committee held 5 meetings. The attendance of independent directors is as follows:

Job Title	Name	Actual Attendance	Delegated Presence	Attendance Rate
Managing Director (Independent Director)	Chih-Kang Wang (Convener)	5	0	100%
Independent Director	Yi-Fu Lin	5	0	100%
Independent Director	Yun-Peng Chu	5	0	100%

For matters regarding the communication between independent directors, accountants and internal audit supervisors, please refer to the Corporate Governance section of Nan Ya Plastics Corporation's website (<https://www.npc.com.tw/j2npc/zhtw/investor/Board%20of%20Directors>)



### Operations of the Remuneration Committee

In order to implement corporate governance and improve the compensation system for directors and managers of the Company, the Company set up a "Remuneration Committee" in 2011. The committee consists of three independent directors. It reviews the remuneration policy for directors, supervisors and managers of the Company as well as making recommendations to the board of directors. The main goal is preventing the remuneration policy from prompting the directors and managers to take too many risks. In 2017, two meetings of the remuneration committee were held, and the independent directors' attendance is as follows:

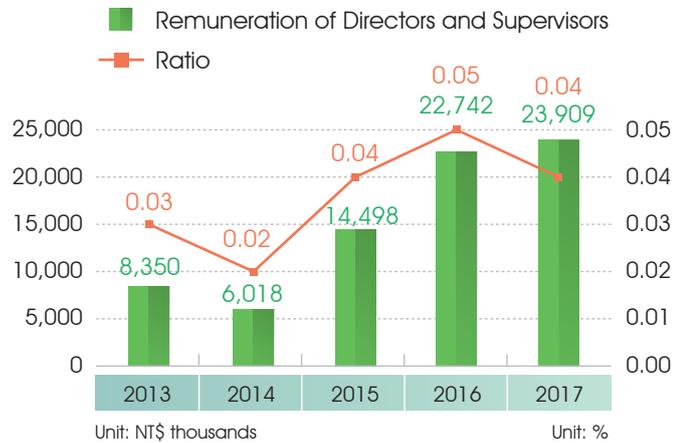
Job Title	Name	Actual Attendance	Delegated Presence	Attendance Rate
Managing Director (Independent Director)	Chih-Kang Wang (Convener)	2	0	100%
Independent Director	Yi-Fu Lin	2	0	100%
Independent Director	Yun-Peng Chu	2	0	100%



## Remuneration for the Directors and Managers

The current remuneration standards and structure for the directors and managers are evaluated and approved by the Remuneration Committee and submitted to the Board of Directors for approval. The performance evaluation of the managers is assessed by the chairman according to the overall performance of the manager's responsibilities and the individual "annual performance goals" to ensure the managers understand and achieve the Company's strategic goals. It is also an incentive system that connects the manager's performance with the Company's overall performance.

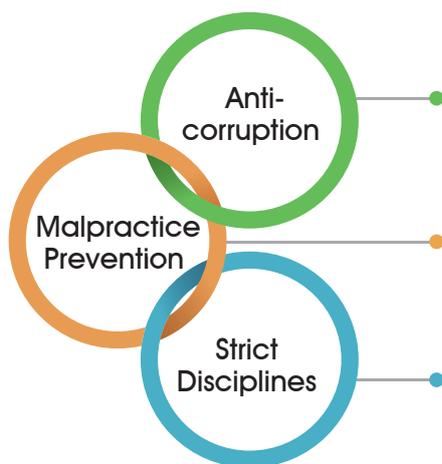
### Nan Ya Plastics Corporation's Annual Directors and Supervisors' Remuneration After-Tax Net Profit Ratio



Note: The ratio is the directors' and supervisors' remuneration to the after-tax net profit

## 1.2.4 Integrity Management Anti-Corruption

"Diligence, perseverance, frugality and trustworthiness" are the core spirit of the Company. We have formulated strict ethical standards and relevant principles in the hopes that every member of the Company, including members of the subsidiaries, will behave in a responsible manner at work and in life, maintain high ethical standards, company reputation and compliance with laws and regulations.



Internal regulations expressly stipulate that contractors' invitations and gifts must be turned down. Those who engage in malpractices, misappropriation of public funds, bribery, and commissions shall be dismissed.



All those who hold positions in business, procurement, storage, supervision, and budgeting must be regularly rotated to avoid misconduct.



Employees who have been found to violate the rules will not be given lenient treatment. Their direct supervisors will also be punished accordingly to serve as a warning.





## Avoidance of Conflicts of Interest

In order to avoid conflicts of interest between the directors and the company, the directors have to abide by a non-compete agreement. If there is a potential conflict of interest, they must first report to the shareholders according to the provisions of the Company Act and obtain the permission. In terms of the avoidance conflicts of interests among the directors, the Company also specifies the relevant provisions in the rules of the board of directors and the corporate governance code. If the interest of the directors or the legal entities they represent are potentially in conflict with the interest of the Company, they may state their opinions and participate in inquiries. However, they will not be included in the discussion and voting. They should also withdraw from the discussion and voting processes. They are not allowed to act as an agent for other directors to exercise their voting rights (the implementation of the withdrawal resolution is detailed in the 2017 Annual Report).



## Anti-corruption policy



### Professional Ethics Framework

- ✓ Anti-corruption
- ✓ Abide by the labor law
- ✓ Environmental protection
- ✓ Insider trading laws
- ✓ Intellectual property rights protection
- ✓ Personal data and privacy protection
- ✓ Gender equality



### Types of Training

- ✓ Pre-employment trainings
- ✓ Professional job trainings
- ✓ Advanced supervisor training courses
- ✓ Face-to-face courses
- ✓ Online courses



### Self-Discipline Document

- ✓ Sign a "pledge"
- ✓ Abide by the "Trade Secrets Act"
- ✓ "Working Rules" manual
- ✓ "Ethical Corporate Management Best Practice Principles"
- ✓ "Corporate Governance Practice Principles"
- ✓ "Personnel Management Rules"
- ✓ "Self-discipline convention"
- ✓ "Ethical Code of Conduct" for directors and managers

## Setting of Institution and norm

The Company has established systems and specifications for different regulatory areas. The comprehensive system and norms help implement the Company's ethical standards and compliance. The Company will not tolerate any violation of professional ethics. Instead, strict disciplinary measures are adopted against the violators, including the termination of employment or business dealings, as well as appropriate legal action.



## Self-Discipline Document Signing

All employees are required to sign a pledge stating their willingness to abide by the Trade Secret Act to ensure that there will be no infringement of the intellectual property rights of computer software. They will not accept any bribes and other inappropriate interests, and they will avoid any actions that may infringe on the business opportunities, reputation, etc. of the Company or customer. In addition, we issue a "Working Rules" manual to provide a reference for internal and external "Integrity Management Rules", "Corporate Governance Code" and "Personnel Management Rules" to clarify the ethics policy and prevent dishonesty.

In addition, positions that deal with external contractors (such as procurement and contracting personnel) are required to sign the "self-discipline pact" and adopt regular rotation to eliminate collusion bidding (quotation), black-box operation, malpractice and so on.

In addition, there are "Ethical code of conduct" for directors and managers. It is strictly forbidden to provide, promise, demand or accept any illegitimate interests directly or indirectly, or to commit other acts that violate integrity, legal compliance, or fiduciary duty. The goal is preventing the violation of good faith such as embezzlement, bribery, secret disclosure or misrepresentation.

## Educational training implementation

Education and training are both important ways for promoting internal systems and reinforcing the rule of law. The Company has always incorporated relevant operational regulations into various training courses such as new personnel orientation, professional training and supervisor training for every member of the Company to grasp the legal requirements of all operations.

In addition, since the various outsourcing and procurement operations of Formosa Plastics Corporation are carried out by the Outsourcing Center of the General Management Office and the Purchasing Department, the Company also plans anti-corruption law courses online. Through combining laws regarding corruption and confidential information protection and actual case studies, the employees learn about work ethics as well as developing the ability to discover abnormalities and risks.



## Reporting Channel

The Company provides internal channels for reporting illegal activities through an institutionalized "Employee Grievance Procedure". When an employee discovers internal illegal or improper behaviors affecting the rights of individuals or company, or any employee attempting to use his position to obtain improper benefits, he may fill out the grievance form and submit it to the relevant head of department. When the Company and the investigating agent handle the appeal, they should conduct investigation and report in a spirit of fairness and impartiality. The whistle-blower should not be retaliated, and the process should be confidential. Any procedural flaw will be addressed separately.

## 1.2.5 Internal Control Mechanism

The Company implements the internal control mechanism at all levels of the company. The Company improves its operational efficiency and reduces risks through the comprehensive mechanism. The system works in conjunction with audits to ensure that the Company can protect the rights and interests of its shareholders. The details are as follows:

### Computerization of Management Operations

In addition to importing target management and improvement project in 1968, the Company has implemented computerization of operational management in 1982 with the following four characteristics:

- One input, multiple transmissions
- Six interconnected management functions
- Data collation
- Abnormality management

The Company's management is divided into six functions including personnel, finance, business, production, materials, and engineering. The on-site users enter the basic data into the computer and transfer it to each level. The data between each function is captured and connected, and there are checkpoints in data connection. The computer automatically checks for and determines any error. Once an abnormality is found, the relevant personnel are prompted to look into the cause before handling the pending operation. Eventually, a computer database for the business analysis reports is established. Therefore, the biggest feature of the Company's internal control mechanism is the comprehensive computerized management, which can greatly reduce the mistakes caused by human intervention and judgment.

#### Computerized Management Performance: Closing account in one day



The Company completed the target of closing account in one day in May 2001. Since then, on the morning of the 1st of each month, the management can quickly obtain the information regarding the profits and losses of the previous month to make various management decisions accordingly. The instant access to data is the best example of computerized management.

### Professional independent internal audit

The Company has established an internal auditing office under the Board of Directors and appointed full-time internal auditors. Internal auditors are required to participate in training courses organized by professional institutions every year to continuously improve their professional capabilities. Internal auditors review the implementation of the management system, strengthens the computerization of each functions, as well as supervising and promoting improvement projects to ensure operational efficiency.

The scope of internal auditing includes:

- Review the reliability and integrity of financial and operational information
- Review the existing system to ensure compliance with policies, plans, procedures, contracts and regulations.
- Review methods for safeguarding assets



- Evaluate the efficiency and effectiveness of resource utilization
- Review the operations or project plans to determine whether the results are consistent with the established goals

Internal auditing is not the sole obligation of the independent auditing department. The operational and relevant departments are also required to carry out independent audits on the specific items within the specified period. The independent auditing department then implements scheduled or unscheduled inspections reviews depending on the self-auditing results from each department to ensure that internal control has been thoroughly implemented within every department.

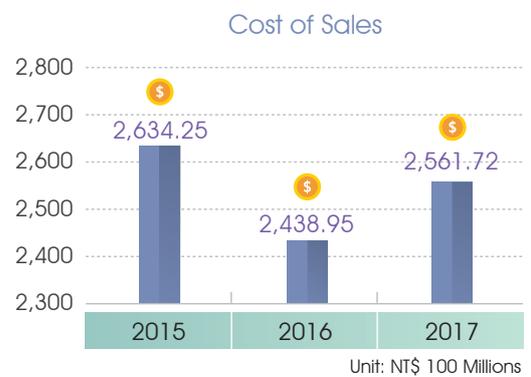
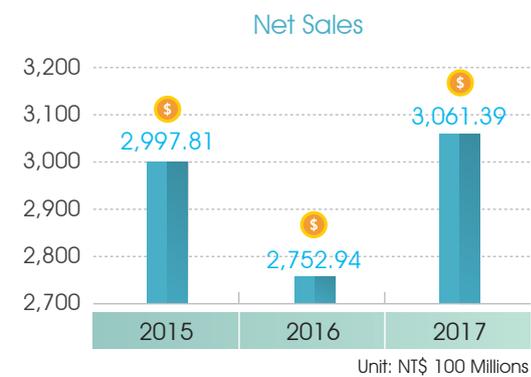
### 1.2.6 Information Transparency

The Company's concrete governance results are reflected in various external evaluations. In the 4th Corporate Governance Evaluation in 2017, the Company ranked in the top 20% of the 864 listed companies. However, the Company will continue to adhere to the spirits of "Inquire into the root of the matter and aim at the sovereign good". We will abide by the laws and regulations and keep pace with the times, as well as making an effort for the shareholders' interests and the Company's sustainable development.

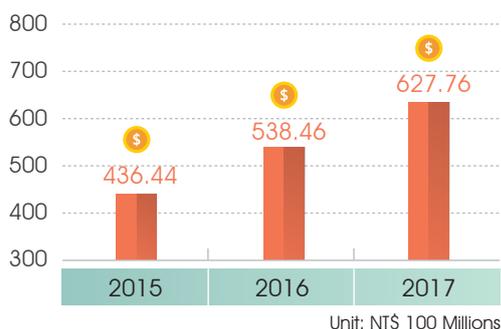
### 1.2.7 Operational Performance

The Company believes that perpetual business operation must be built on good operational performance. That way, the Company can continue to create higher economic value and give back to all stakeholders. The Company's consolidated revenue in 2017 was NT\$ 306.139 billion, representing an increase of 11.2% from 2016's NT\$275.294 billion. The consolidated net profit before tax was NT\$62.776 billion, which increased 16.6% from 2016's NT\$53.846 billion. The growth mainly benefits from the increase of crude oil price. The demand for petrochemical products rose and so did the interest differential. Moreover, the applications of electronic materials expanded rapidly. The products were in high demand, and the price went up.

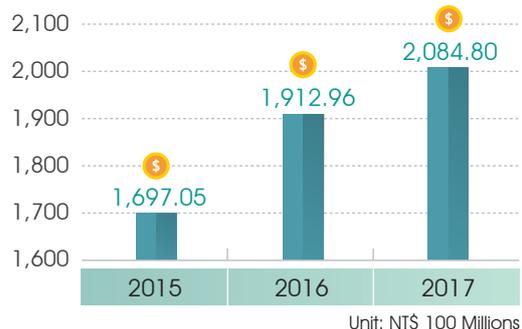
#### NPC's Operational Performance



Profit before income tax



Retained earnings



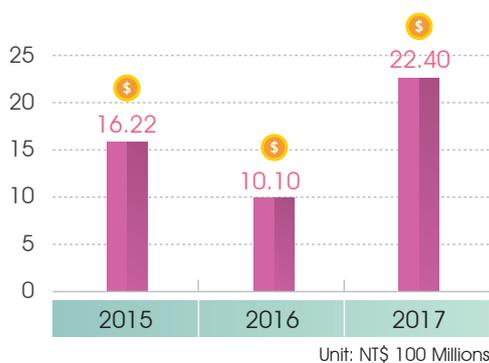
Earnings per share



Return on total equity

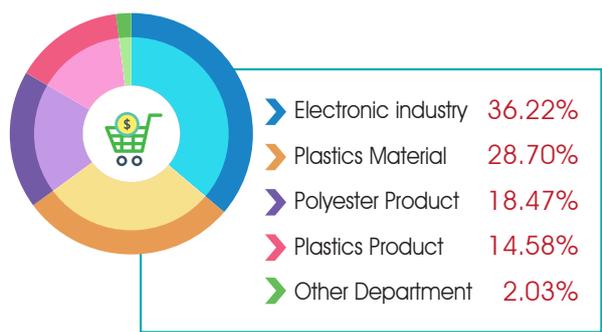


Total tax (excluding business tax)



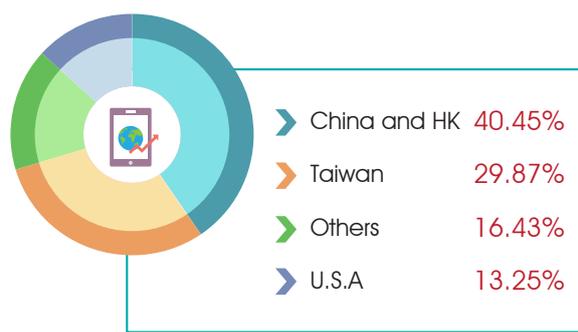
Data resources: consolidated financial report and annual report for each year

NPC's analysis of main products' sales in 2017



Data resources: 2017 consolidated financial report

NPC's analysis of domestic and export sales in 2018



Data resources: 2017 consolidated financial report



## 1.2.8 Risk Management

Various potential risks and operational assessments must be taken into consideration in the Company's perpetual business operation. The relevant departments plan and evaluate the impact of potential risks and formulate appropriate countermeasures. The Company's main risk categories and corresponding measures are as follows:

Risk Identification	Potential Risks	Corresponding Measures
 Financial Risks	Changes in Interest Rates	For the long-term liabilities of floating interest rates, the financial market situation is carefully evaluated, and swap contracts are signed with banks when interest rates are relatively low to reduce the risk of interest rate fluctuations.
	Changes in Exchange Rates	Insufficient funds for foreign exchange in daily operations are addressed by making demand purchases when the exchange rate is favorable, or forward foreign exchange. Long-term foreign currency liabilities are addressed by signing long-term forward foreign exchange contracts or exchange-for-exchange contracts with the banks when the exchange rate is relatively low to minimize the impact of exchange rates.
	Loans to other parties	In principle, the Company only issues loans to affiliated companies. The amount is in accordance with Article 15 of the Company Law and granted with the approval of the Board of Directors.
	Endorsement/ Guarantee	The Company only endorses and guarantees a parent company or an affiliated company. The endorsement is mostly for funding and import tax.
 Raw Material-Related Risk	Derivative Transactions	Derivative transactions are conducted for the purpose of avoiding market risks caused by fluctuations in exchange and interest rates, rather than for arbitrage and speculative investment
	Supply Interruption	<ol style="list-style-type: none"> <li>1. Actively connecting with qualified suppliers to increase sources.</li> <li>2. Establishing a raw material inventory control mechanism, to set the safe stock quantity, and propose the reasonable amount for purchase at the right time.</li> <li>3. Stay informed of the production and sales demand and the supply situation of the market, and prepare the materials in advance if necessary.</li> </ol>
 Market Risks	Concentration of Sales	Avoiding excessive sales concentration in one specific region (China, for example) and actively developing and expanding new markets (such as: ASEAN, Europe, Central and South America, etc.).
	Unbalanced Production and Sales	<ol style="list-style-type: none"> <li>1. When a product fails to be sold out, production utilization or schedule have to be adjusted accordingly. 2. The sales department should actively visit the customers and make timely adjustments of production specifications and output, in order to meet the needs of customers and the market.</li> <li>2. The salesperson should actively visit the customers and make timely adjustments of production specifications and output, in order to meet the needs of customers and the market.</li> </ol>

Risk Identification	Potential Risks	Corresponding Measures
 Equipment Maintenance Risk	Equipment Maintenance	<ol style="list-style-type: none"> <li>1. Establishing appropriate stocks for equipment components, and implementing maintenance equipment control through the information system.</li> <li>2. Establishing equipment maintenance S.O.P and strengthening management using information tools to maintain the normal operations.</li> </ol>
	Work Safety Incidents	<ol style="list-style-type: none"> <li>1. Conducting hazard identification and risk assessment in a timely manner as well as drills for risk reduction measures and emergency response.</li> <li>2. All business is promoted in a safe manner in order to achieve the goal of "zero work injury, zero disaster, and zero pollution."</li> </ol>
 Risk of SHE	Environmental Protection	<ol style="list-style-type: none"> <li>1. In order to reduce the emission of environmental pollutants, the waste discharge treatment technology is improved, and a water- and energy-saving team is set up.</li> <li>2. Continuously promoting circular economy through raw material reduction, water resources integration, and waste recycling. The staff is encouraged to optimize the process, reduce the use of materials, and regularly hold environmental protection seminars to promote various environmental improvement measures.</li> <li>3. Promoting pollution reduction, waste recycling, and wastewater recycling.</li> </ol>
 Climate Change Risks	Carbon Emission Management	<ol style="list-style-type: none"> <li>1. In response to climate change, the employees are encouraged to propose specific improvement plans for greenhouse gas reduction and regularly hold seminars to improve various technologies for energy conservation and carbon reduction.</li> <li>2. Investing in the development of green products, improving product weatherability and reusability, reducing carbon emission of production processes, and extending product life cycle.</li> <li>3. Conducting carbon footprint inventory to set short, medium and long-term carbon emission targets as well as developing effective carbon reduction improvement programs.</li> </ol>

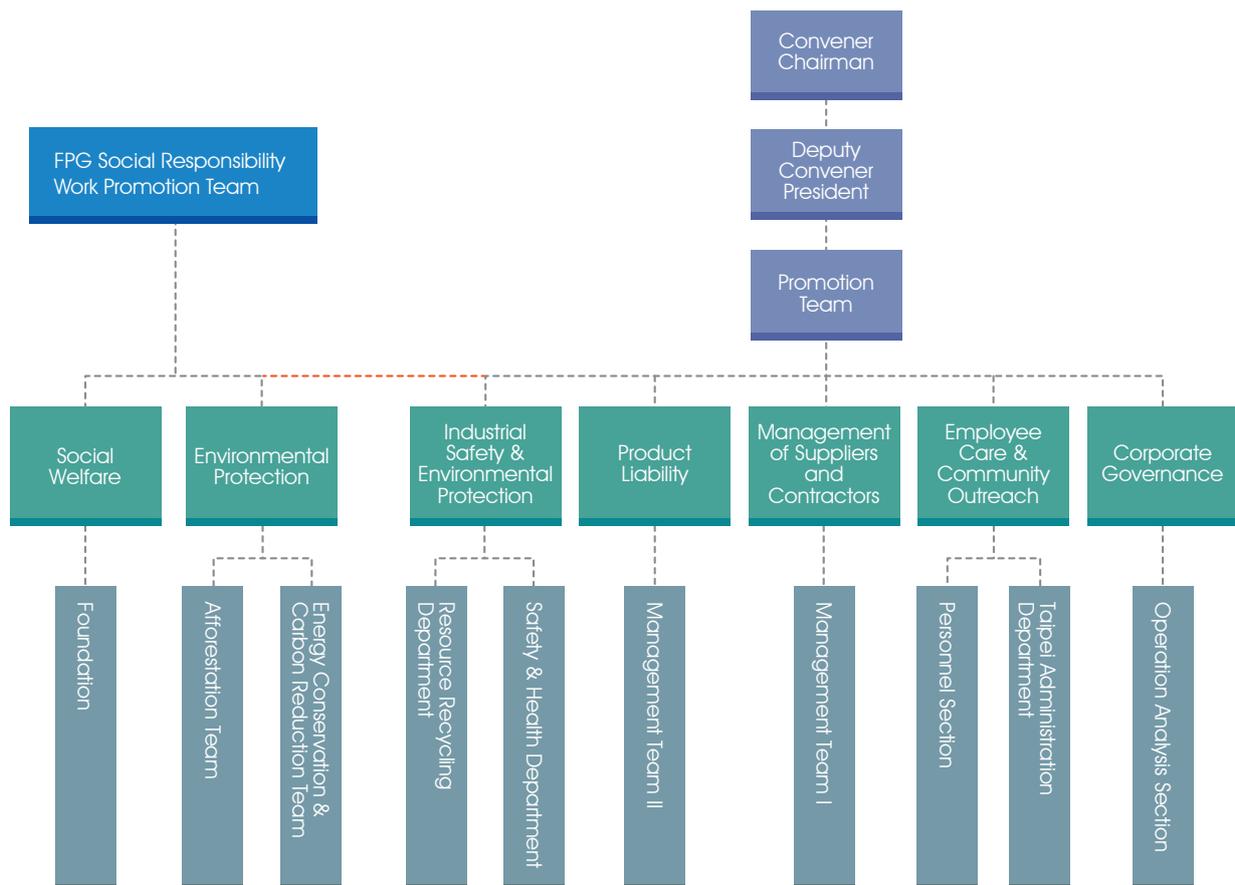


## 1.3 CSR Management

### 1.3.1 CSR Organizational Structure and Report Writing Process

In order to effectively integrate and promote the Company’s CSR, the Chairman of the Board of the Company acts as the convener, and the President as the deputy convener. They are responsible for the Company’s CSR strategy formulation and performance supervision. The President Office, Taipei Administration Department, Safety and Health Department, Resource Recycling Department and Safety, Health and Environmental Unit of various divisions actively implement and promote corporate governance, community outreach and environmental protection, etc. In addition, because the Company is a member of FPG, if local perpetual development and social welfare are common business of the FPG, the “Foundation”, “Energy Conservation and Carbon Reduction Team” and “Afforestation Team” under the “Social Responsibility Work Promotion Team” will coordinated the execution.

Organizational Chart of NPC Social Responsibility Work Promotion Team



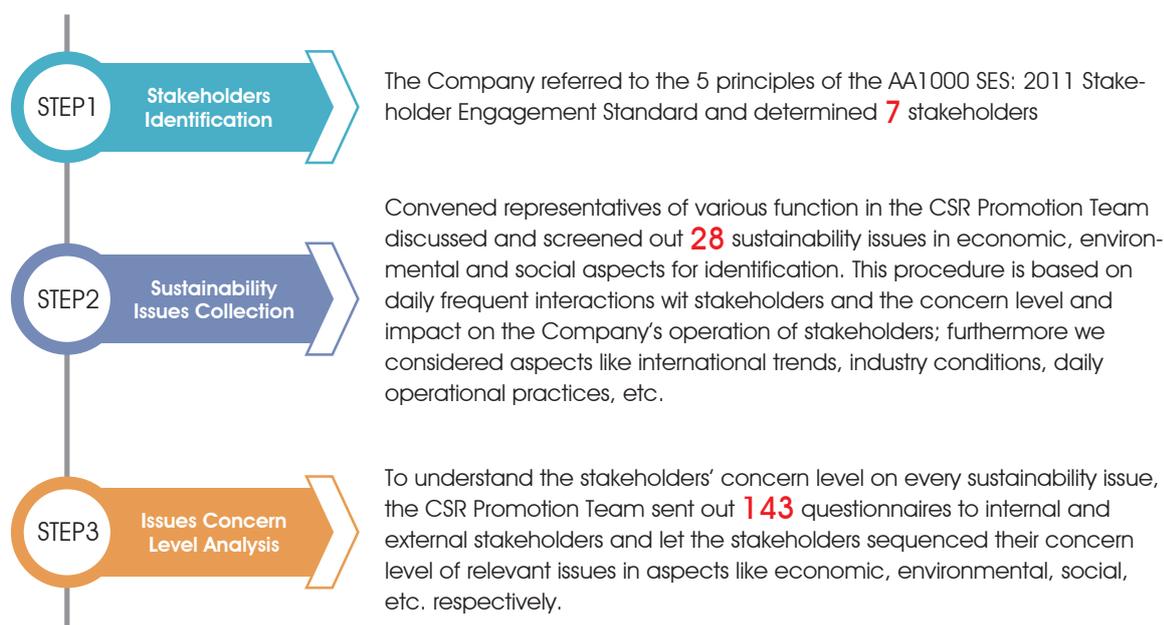
Note: FPG Social Responsibility Work Promotion Team coordinates common business of the FPG. (local perpetual development, social welfare, etc.)

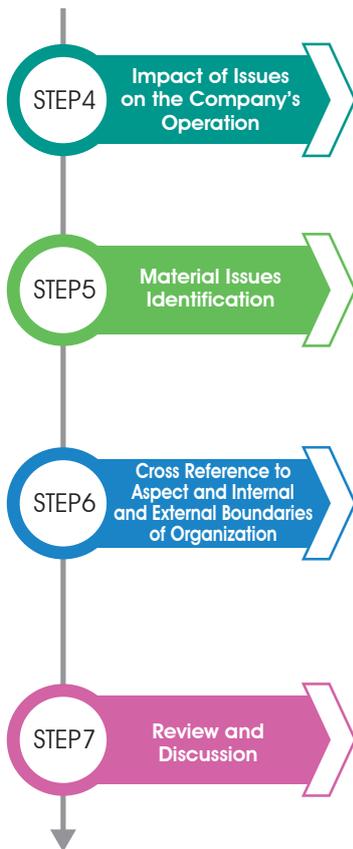
The member of Promotion Team integrated stakeholder's concerns based on their experiences and a meeting was held to decide on the subject of the Report and the editing order of material issues. Once the Report is completed, these issues are reviewed by the convener and the deputy convener to ensure their consistence with the stakeholders' needs; the Report will then be submitted to the Board of Directors for approval.



### 1.3.2 Identification of Stakeholders and Major Issues

Identification of stakeholders and material issues is the core of CSR implementation. Every year the Company convenes the member of CSR Promotion Team when editing CSR report to communicate, discuss, and gain consensus on current stakeholders and issues they concerned. This will be the important reference of the disclosed content of CSR report. The 2017 materiality analysis process of the Company is as follow:





Besides the stakeholders' concern level on sustainability issues, we took the operational impact into consideration. Therefore, we sent out questionnaires to the Company's executive managers and **20** of them sequenced the impact level of relevant issues on the Company's perpetual operation in aspects like economic, environmental, social, etc. respectively.

According to two aspects, namely "Stakeholders' Concern Level" and "Impact Level on Company's operation", the analysis of varying intensities (**high, moderate, and low**) was carried out to identify the importance of these issues and list their priority in order.

We cross reference **12** material issues with **33** specific topics of GRI standards and selected **13** material topics based on the Company's daily operations of raw material procurement, production operation, product logistic, marketing and sales and customer service. The CSR Promotion Team measure the location of every material aspect within and outside the organization and its impact on external stakeholders as a boundary for information disclosure.

In accordance with the principles of GRI Standards disclosure, the report covers and responds to material issues in detail, and serves as a basis for reviewing the Company's emphasis on non-financial information to meet the expectations of stakeholders. In the future, we will continue to review material issues and consider the feedback of stakeholders on the report to ensure transparency, rationality and balance of the content of the report.



### Identification of interested parties

The "Social Responsibility Promotion Team" combined the experience of frequent interactions with stakeholders and the understanding of their concerns and influences on the Company's operations, as well as the international trends, industry status, and the five principles of "AA 1000 Stakeholder Standards" Principles (dependency, responsibility, impact, multiple perspectives, tension) to identify the main stakeholders. These include residents in the operating areas, government agencies, experts, scholars and environmental groups, shareholders and investors, customers, suppliers and contractors, as well as employees.



### Stakeholder Communication

The Company attaches great importance to the rights and opinions of stakeholders, and has established a diversified and smooth communication channel with them. In addition to providing information on the Company's sustainable development, it also understands and responds to issues that stakeholders concern and continuously monitors and improves the company's performance in corporate social responsibility.

Stakeholders	Importance to NPC	Communication Channels/Methods	
Residents in Operating Area	Creating a prosperous vision with the community has long been a focus for Nan Ya Plastics. Residents in the vicinity of the plant and social care are taken into consideration when our annual strategic goals are set.	<ol style="list-style-type: none"> <li>1. Meeting (Village meeting, Factory Construction (Expansion) Briefing, Symposium, observation meeting, contact meeting, etc.</li> <li>2. Special visit</li> <li>3. Email / Telephone</li> </ol>	
Government Agencies	Government agencies formulate relevant policies. In addition to complying with relevant regulations, we also communicate with the government to promote the sustainable development of the industry.	<ol style="list-style-type: none"> <li>1. Meetings (public hearings, seminars, etc.)</li> <li>2. Official Document</li> <li>3. Special visit</li> <li>4. Email/ Telephone</li> </ol>	
Experts, Scholars and Environmental Groups	In addition to attaching importance to academic theories on sustainability issues, we also attach the same importance to environmental sustainability as environmental groups. We looking forward to applying the theory to jointly enhance Taiwan's industrial competitiveness and environmental sustainability efforts	<ol style="list-style-type: none"> <li>1. Meeting (New expansion project EIA review meeting and EIA conclusion implementation supervision meeting)</li> <li>2. Email / Telephone</li> </ol>	
Shareholders and Investors	Shareholders and investors are the owners of the Company, and non-financial disclosure information has gradually become a factor for investors to screen investment targets. We continue to pursue the Company's sustainable development in a responsible manner and seek long-term benefits for it	<ol style="list-style-type: none"> <li>1. Shareholders' Meetings</li> <li>2. Board of Directors' Meeting</li> <li>3. Market Observation Post System</li> <li>4. "Investor Section" of the Company's Website</li> <li>5. Earnings Conference</li> <li>6. Email / Telephone</li> </ol>	



Frequency of Communication	Main Topics of Interest	Corresponding Chapter
Irregular    Monthly Irregular	<ul style="list-style-type: none"> <li> Ethical Operation</li> <li> Regulation Compliance</li> <li> Greenhouse Gases Emission Management</li> <li> Air Pollutant Management</li> <li> Water Resources Usage and Waste Water Discharge Management</li> <li> Waste Management</li> <li> Concerned Chemical Substance Management</li> <li> Occupational Health and Safety</li> <li> Industry and Public Safety</li> </ul>	1.2 Corporate Governance 2.2 Collaborative business model 2.3 Supplier and contractor management 3 Green environmental management promotion 4 Creating a happy and safe workplace
Irregular  Irregular Irregular Irregular	<ul style="list-style-type: none"> <li> Ethical Operation</li> <li> Regulation Compliance</li> <li> Occupational Health and Safety</li> <li> Industry and Public Safety</li> <li> Greenhouse Gases Emission Management</li> <li> Air Pollutant Management</li> <li> Water Resources Usage and Waste Water Discharge Management</li> <li> Waste Management</li> <li> Concerned Chemical Substance Management</li> </ul>	1.2 Corporate Governance 2.2 Collaborative business model 2.3 Supplier and contractor management 3 Green environmental management promotion 4 Creating a happy and safe workplace
Irregular    Irregular	<ul style="list-style-type: none"> <li> Regulation Compliance</li> <li> Greenhouse Gases Emission Management</li> <li> Air Pollutant Management</li> <li> Water Resources Usage and Waste Water Discharge Management</li> <li> Waste Management</li> <li> Concerned Chemical Substance Management</li> <li> Occupational Health and Safety</li> </ul>	3 Green environmental management promotion 4 Creating a happy and safe workplace
Yearly Quarterly Irregular Irregular  Irregular Irregular	<ul style="list-style-type: none"> <li> Ethical Operation.</li> <li> Operating Financial Performance</li> <li> Regulation Compliance</li> <li> Employees' Welfare and Salary</li> <li> Occupational Health and Safety</li> <li> Industry and Public Safety</li> </ul>	1.2 Corporate Governance 2.2 Collaborative business model 4 Creating a happy and safe workplace

Stakeholders	Importance to NPC	Communication Channels/Methods
Customers	Earning the customer's support is the value of the Company and the feedback of the customer is the driving force for our progress	<ol style="list-style-type: none"> <li>1. Dealer Meeting</li> <li>2. Product exhibition</li> <li>3. Special visit</li> <li>4. Customer satisfaction survey, customer complaint form</li> <li>5. Customer complaints Channel</li> <li>6. Email/ Telephone</li> </ol>
Suppliers and Contractors	The coordination and support of our partners is one of the key factors for the Company to pursue success and sustainable development	<ol style="list-style-type: none"> <li>1. Vendor Briefing</li> <li>2. Customer Service of Formosa Technology E-market Place</li> <li>3. Complaint Channel of Suppliers/ Contractors</li> <li>4. 4. Email / Telephone</li> </ol>
Employees	Employees are the foundation of the Company to strengthen its competitiveness. Through providing sound education and training and a friendly working environment can the Company enhance the cohesiveness of employees and lay a good foundation for sustainable management	<ol style="list-style-type: none"> <li>1. Morning Meeting</li> <li>2. Physical Suggestion Box/ Online Suggestion Box(Notes, Outlook)</li> <li>3. "799" hotline</li> <li>4. FPG" Bimonthly Magazine</li> <li>5. Direct Communication between Union Representative and Senior Executive</li> <li>6. Union, Welfare Committee</li> <li>7. Employee Satisfaction Survey</li> <li>8. Management System Feedback Form</li> </ol>





Frequency of Communication	Main Topics of Interest	Corresponding Chapter
Yearly	Ethical Operation.	1.2 Corporate Governance
Irregular	Customer Relationship Management	2.2 Collaborative business model
Irregular	Occupational Health and Safety	4 Creating a happy and safe workplace
Irregular		
Irregular		
Yearly	Air Pollutant Management	2.3 Supplier and contractor management
24 hour	Occupational Health and Safety	3 Green environmental management promotion
Irregular	Industry and Public Safety	4 Creating a happy and safe workplace
Irregular		
Daily	Ethical Operation	1.2 Corporate Governance
24 hour	Regulation Compliance	2.2 Collaborative business model
	Employees' Welfare and Salary	
24 hour	Occupational Health and Safety	2.3 Supplier and contractor management
Bimonthly	Industry and Public Safety	3 Green environmental management promotion
Irregular	Air Pollutant Management	4 Creating a happy and safe workplace
	Water Resources Usage and Waste Water Discharge Management	
Irregular		
Yearly		
Irregular		

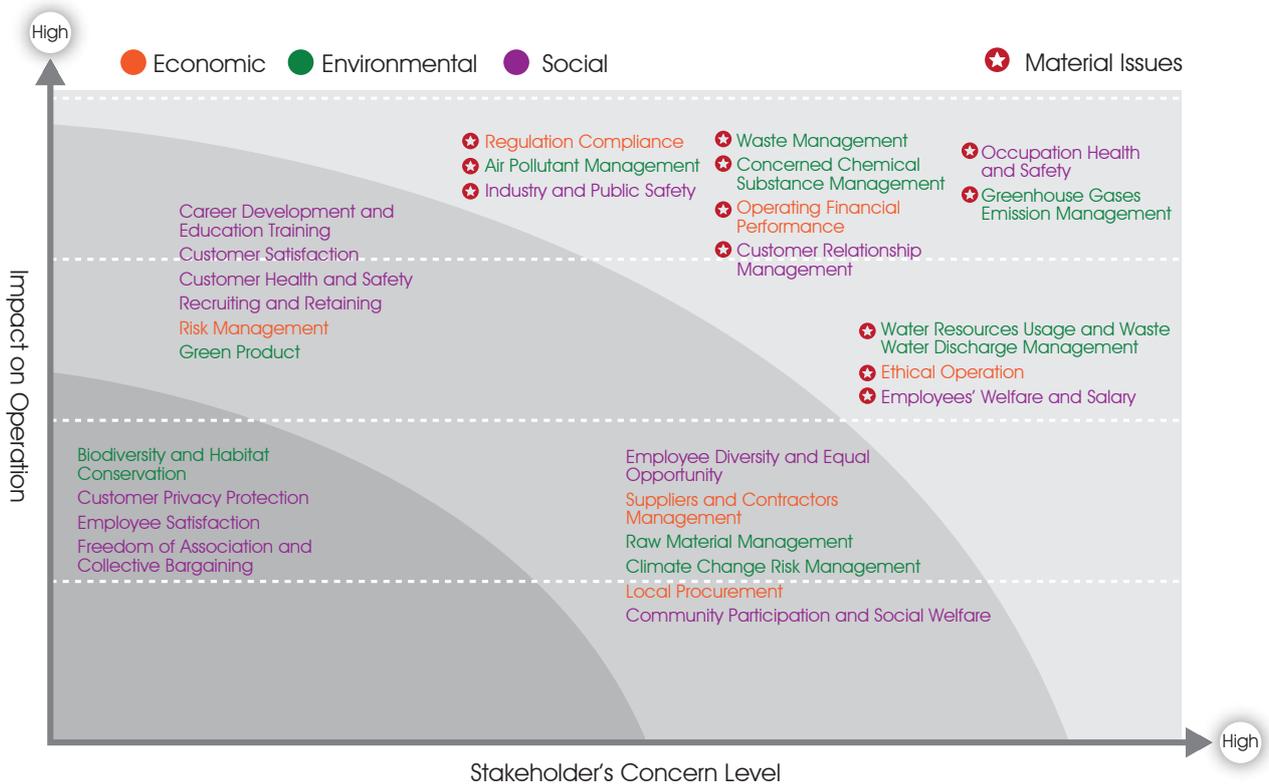




## Identification of Major Issues

The Company cross referenced “GRI Standards”, “Corporate Social Responsibility Best Practice Principles for TWSE Listed Companies”, “ISO 26000 Social Responsibility Guidance”, “10 Principles of UN Global Compact”, industry issues and news as the basis of issues identification. We also take the advice of employees and external stakeholders into consideration and held a CSR meeting for identification.

### Material Issues Matrix



Based on two aspects namely “Impact on NPC’s Operation” and “Stakeholder’s Concern Level”, we analyzed the three strengths of high, moderate and low for these issues, identified their importance and prioritized them. The issues located in upper right area are the material concern issues. We will appropriately expose the issues of concern in this report in the spirit of refinement and improvement. In the future, we will continue to communicate with stakeholders and list the shortcomings as the key points for improvement, and strive to maintain a good communication bridge and partnership with stakeholders.



List of major issues



In 2017, we re-examined and adjusted the sustainability issues, selected 28 sustainable issues, and identified 12 material issues, which is five less than in 2016, mainly combined "Corporate Governance", "Code of Ethical Conduct" and "Risk Management" into "Ethical Operation".





## The Significance of Material Issues for Nan Ya Plastics

Material Issues	Significance for NPC	Meaning in the Value Chain	Corresponding Chapter
Ethical Operation	Adhering to the spirit of "diligence, perseverance, frugality, trustworthiness and aiming at the sovereign good", all operations are carried out in compliance with laws and regulations.	Integrity is the foundation for all companies, and compliance is the minimum requirement. With a comprehensive system, the Company pursues excellent operational performance, which not only lays a solid foundation for sustainability but also drives the development of upstream and downstream industries to boost social development.	1.2 Corporate Governance 4.1 Human Resources Structure 4.2 Human Rights Protection, Employee Remuneration and Welfare
Regulation Compliance	We continue to promote process optimization as well as increasing sales of differentiated and high-value products in order to strengthen the Company.	The long-term goal is the sustainable management of Nan Ya Plastics.	2.2 Collaborative Business Model 3.5 Environmental Violations
Financial Operating Performance	Ensuring greenhouse gas emissions do not surpass the limit while promoting a number of energy-saving and carbon-reduction measures to reduce greenhouse gas emissions.	By managing greenhouse gas emissions and continuing to promote energy-saving and carbon-reduction measures, external costs due to violations as well as the environmental impact can be reduced.	1.2 Corporate Governance 4.2 Human Rights Protection, Employee Remuneration and Welfare
Greenhouse Gas Emission Management	We continuously promote air pollution prevention and improvement to reduce environmental impact, as well as fulfilling our social responsibility towards local residents to achieve a harmonious relationship with the community.	In accordance with the laws and regulations, we continue to promote air pollution prevention improvement. Management measures are put in place to reduce the costs caused by violations as well as environmental impact from operations.	3.2.3 Greenhouse Gas Emissions Management
Air Pollutant Management	To promote the circular economy, we expect to reuse all resources while reducing waste from the source for wastewater and waste that cannot be reused. Our goal is going beyond the regulations to minimize environmental impact.	We will do our best to manage water resources and treat wastewater and waste that cannot be reused properly. In addition to meeting regulatory requirements, we will minimize the environmental impact of our operations to achieve a harmonious relationship with the local community.	3.3 Waste and Air Pollution Management
Water Resource Usage and Waste Water Discharge Management	Waste Management		3.2.2 Water Resource Management
			3.3 Waste and Air Pollution Management



Material Issues	Significance for NPC	Meaning in the Value Chain	Corresponding Chapter
Concerned Chemical Substance Management	Establishing S.O.P for managing hazardous substances can reduce the risk of leakage of toxic chemicals and reduce environmental impact.	The management and treatment of hazardous substances complies with the regulations to reduce environmental impact and ensure community safety.	3.3 Waste and Air Pollution Management
Industrial and Public Safety	The Company provides comprehensive safety and health management training. Through the introduction of various international norms and technologies, the hierarchical management of process, equipment and personnel risk is implemented to reduce potential hazards at the site to achieve the goal of zero safety incident.	Perfect safety and health management training can create a safe working environment for employees and contractors, as well as a safe living environment for the community.	2.3 Supplier and contractor management 4.4 Work Environment
Occupational Health and Safety	Employees are the most precious asset of Nan Ya Plastics. In addition to providing employees with excellent benefits and remuneration, we also create a safe and friendly work environment to enhance the cohesiveness and lay the foundation for the sustainable development of the Company.	Employees are an important driving force for the company's competitive as well as value chain innovation and development. Providing a safe and secure workplace can lay the foundation for a prosperous and happy family life for employees.	2.3 Supplier and Contractor Management 4.4 Work Environment
Employee Welfare and Salary	Employees are the most precious asset of Nan Ya Plastics. In addition to providing employees with excellent benefits and remuneration, we also create a safe and friendly work environment to enhance the cohesiveness and lay the foundation for the sustainable development of the Company.	Employees are an important driving force for the company's competitive as well as value chain innovation and development. Providing a safe and secure workplace can lay the foundation for a prosperous and happy family life for employees.	4.1 Human Resources Structure 4.2 Human Rights Protection, Employee Remuneration and Welfare
Customer Relationship Management	Providing quality products and good customer relationship management are the key to improving operational performance. In line with the trend, we continue to develop environmentally friendly products. In addition to finding the niche for the Company, it also helps us fulfill the duties of corporate citizenship. .	Providing good customer relationship management as well as high-quality and diversified products make us the best source of supply for customers, thus laying the foundation for sustainable development.	2.2 Collaborative Business Model



## Material Issues Identification and Boundaries Setting

Type	Material Issues	Impact on Stakeholders	Internal Borders
Economic Aspect	Ethical Operation	Nan Ya Plastics regards compliance with laws and regulations as the most fundamental principle of operation. At the same time, we have established a sound management system and anti-corruption policies and systems. We strive to achieve the long-term goals of sustainable management and dedication to society in the spirit of "hardworking and simple, and striving for perfection"	NPC
	Regulation Compliance		NPC
	Financial Operating Performance		NPC and Subsidiaries included in Consolidated Financial Report
	Greenhouse Gas Emissions Management		NPC
	Air Pollutant Management		NPC
Environmental Aspect	Water Resource Usage and Waste Water Discharge Management	The issues of air pollution, water resources utilization, wastewater and waste management directly affect the communities around the operating locations and the environment in Taiwan. At the same time, experts, scholars and environmental groups continue to pay close attention to these issues. Therefore, we demand ourselves with the highest standards and continue to promote air pollution prevention and improvement. We also engage in energy conservation and waste reduction at the source as well as introducing circular economy to minimize environmental impact.	NPC
	Waste Management		NPC
	Concerned Chemical Substance Management		NPC
	Concerned Chemical Substance Management 		NPC



	External Borders	GRI general and specific subject comparison	Corresponding Chapter
	Government agencies, customers, shareholders/investors, Residents in the Operating Areas	GRI 102 General Disclosures (ethics and integrity, governance)	1.1.3 \ 1.2
		GRI 205 Anti-corruption	1.2
		GRI 405 Diversity and Equal Opportunity	1.2 \ 4.1 \ 4.2
	Shareholders/investors, Government agencies, experts and scholars, and environmental groups, Residents in the Operating Areas	GRI 307 Environmental Compliance	3.5
		GRI 419 Socioeconomic Compliance	2.2.3
	Shareholders/ Investors	GRI 201 Economic Performance	1.2.7 \ 4.2
	Residents in the operating area, Government agencies, experts and scholars and environmental groups	GRI 305 Emissions	3.2.4
	Residents in the operating areas, Government agencies, experts and scholars, and environmental groups, Suppliers and contractors	GRI 305 Emissions	3.3.3
	Residents in the operating areas, Government agencies, experts and scholars, and environmental groups, Suppliers and contractors	GRI 303 Water	3.2.2
	Residents in the operating areas, Government agencies, experts and scholars, and environmental groups, Suppliers and contractors	GRI 306 Effluents and Wastes	3.2.2
	Residents in the operating areas, Government agencies, experts and scholars, and environmental groups, Suppliers and contractors	GRI 306 Effluents and Wastes	3.3.1
	Residents in the operating areas, Government agencies, experts and scholars, and environmental groups, Suppliers and contractors	-	3.3

Type	Material Issues	Impact on Stakeholders	Internal Borders
Social Aspect	Occupational Health and Safety	Occupational health and safety is our commitment to our employees. Nan Ya Plastics has an occupational safety and health organization that aims at creating a totally safe work environment with hazard analysis, standard operating procedures, and disaster drills.	NPC
	Industrial and Public Safety	Nan Ya Plastics lowers potential risks by implementing safety and health management and disaster prevention training in order to achieve the goal of zero-work safety incident. Creating a safe work environment for contractors and a safe living environment for the local community.	NPC
	Employee Welfare and Salary	Employees are the cornerstone of business operations. Since benefits and salary systems affect the stability of employees' retention, we provide benefits and treatments that are superior to regulations. We hope to create a workplace that is safe and worth long-term investment for employees.	NPC NPC NPC
	Customer Relationship Management	Customers are an important business partner of Nan Ya Plastics. Therefore, we have a customer feedback and processing pipeline. We also regularly conduct customer satisfaction surveys to strengthen customer relationship management and long-term cooperation.	NPC NPC

Note1: " ⚙️ " represents the material issue is unable to respond to the GRI Standard, but is the issue that the Company concerns.

## Corporate Social Responsibility Goals

Sustainable Management	Material Issues	Sustainable Commitment	Medium and long-term goal (2019-2023)
Implementation of Corporate Governance Practices	<ul style="list-style-type: none"> <li> Ethical Operation</li> <li> Financial Operating Performance</li> <li> Regulation Compliance</li> </ul>	<ul style="list-style-type: none"> <li> Complying with legal and business ethics and establishing a sound system to maintain good corporate governance</li> <li> Connecting with the international market and actively enhancing competitiveness to boost shareholder benefits</li> <li> Regularly promoting education and training of directors and employees, and clearly defining the system of promotion, assessment, training, rewards and punishments for the employees</li> </ul>	<ul style="list-style-type: none"> <li> Increase of production equipment for high-value local products such as PP synthetic paper, polyester film, release film, the expansion of new copper foil factory, high value-added synthetic leather production in Nantong, China, increase of aluminum plastic film production equipment, and the polyethylene glycol factory expansion in Texas, USA</li> <li> Disclosing relevant information in English to connect with the world</li> <li> Continuously improving the internal control system to comply with legal and practical needs</li> <li> No major violations (with penalties exceeding NT\$ 1 million)</li> </ul>



	External Borders	GRI general and specific subject comparison	Corresponding Chapter
	Residents in the operating areas, Government agencies, experts and scholars, and environmental groups, Shareholders/ investors, customers, Suppliers and contractors	GRI 403 Occupational Health and Safety	2.3 ∨ 4.4
	Residents in the operating area, shareholders/investors, Government agencies, Suppliers and contractors	GRI 403 Occupational Health and Safety	2.3 ∨ 4.4
		GRI 202 Market Presence	4.1
	Shareholders/ Investors	GRI 401 Employment	4.1 ∨ 4.2
		GRI 405 Diversity and Equal Opportunity	1.2 ∨ 4.1 ∨ 4.2
	Customers	GRI 417 Marketing and Labeling	2.2.3
	Customers	GRI 418 Customer Privacy	2.2.3

	Short-term Goals (2018 Goals)	2017 Progress
	<ul style="list-style-type: none"> <li>⊕ Reviewing and maintaining the internal control system to meet the requirements of laws and internal control needs in order to strengthen corporate governance</li> <li>⊕ Strengthening research and development, increasing the proportion of differentiated and high-value products</li> <li>⊕ Reducing the proportion of export to China and expanding into emerging markets</li> <li>⊕ No major violations (with penalties exceeding NT\$ 1 million)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Consolidated net profit before tax in 2017 was NT\$62.776 billion dollars, which increased 16.6% comparing to 2016.</li> <li>✓ 6 board of directors meetings with called with a 95.6% attendance rate</li> <li>✓ According to the 2017 audit plan, 48 items were implemented. Except for missing paperwork or incomplete data found in 12 cases, no major abnormalities were detected. All abnormalities have been improved in the meantime. The completion rate is 100%.</li> <li>✓ No major violations occurred in 2017</li> </ul>

Sustainable Management	Material Issues	Sustainable Commitment	Medium and long-term goal (2019-2023)
Sustainable Environment Development	<ul style="list-style-type: none"> <li> Greenhouse Gas Emissions Management</li> <li> Water Resource Usage and Waste Water Discharge Management</li> <li> Air Pollutant Management</li> <li> Waste Management</li> <li> Concerned Chemical Substance Management</li> </ul>	<ul style="list-style-type: none"> <li> Besides laying equal emphasis on industrial development and environmental protection, we are moving towards to creating eco-industrial parks, adopting the best process methods, as well as engaging in environmental protection practices such as pollution prevention, clean production, energy conservation, carbon reduction and water conservation.</li> <li> Promoting green buildings and purchasing green energy-saving raw materials and supplies in order to implement energy-saving and carbon-reduction green consumption policies that are "recyclable, low-pollution, and resource-saving"</li> <li> Developing green raw materials and environmentally friendly products that are good for health</li> </ul>	<ul style="list-style-type: none"> <li> Continuing to promote water conservation, energy conservation, carbon reduction and waste reduction as well as increasing rainwater storage and utilization</li> <li> Monitoring and managing the plant environment with higher standards, adding air pollution prevention equipment, reducing pollutant emissions, and avoiding environmental violations</li> <li> Promoting "circular economy"</li> </ul>
Advancing Public Welfare	<ul style="list-style-type: none"> <li> Occupational Health and Safety</li> <li> Industrial and Public Safety</li> <li> Employee Welfare and Salary</li> <li> Customer Relationship Management</li> </ul>	<ul style="list-style-type: none"> <li> Protecting employees' rights by providing comprehensive education and training, the promotion system, and a safe and healthy work environment.</li> <li> Paying attention to various social issues and actively participating in social welfare undertakings in order to show the society that we care</li> <li> Creating the most benefits and efficiency in public welfare with the spirit of "Aiming at the sovereign good"</li> </ul>	<ul style="list-style-type: none"> <li> Continue to handle new interviews and seminars, take care of employees and help solve problems to retain talents</li> <li> Continuously provide employees with complete education and training, smooth promotion channels, and create a safe working environment to provide a good workplace environment</li> <li> "Zero work injury, zero disaster, zero pollution"</li> <li> Continue to focus on customer needs, protect customer privacy, and strengthen partnerships</li> <li> Continue to promote various charities and social welfare activities</li> <li> Expand and promote traditional art</li> </ul>



Short-term Goals (2018 Goals)	2017 Progress
<ul style="list-style-type: none"> <li>  Continuing to promote energy conservation, carbon reduction and pollution prevention and control. The Company aims at reducing water consumption per unit of product by 2%, energy consumption by 3%, waste by 1%, and source wastewater discharge by 5% based on statistics from 2017 as the goal of 2018.         </li> <li>  The goal for water, steam and electricity consumption in Mailiao plant is a 5% reduction per unit compared with 2017.         </li> </ul>	<ul style="list-style-type: none"> <li>  In 2017, the total water consumption was 22,376 kilotons, which was a 4.22% increase compared with the 2016 water consumption of 21,470 kilotons. This is mainly due to the increase in production capacity. In addition, the turnover of 2017 increased by 11.94% compared with 2016, so the actual water consumption per turnover unit decreased by 6.9%.         </li> <li>  The 2017 emission of SO<sub>x</sub> decreased by 1.99%, NO<sub>x</sub> decreased by 33.71%, VOC decreased by 1.43%, and TSP decreased by 7.11% compared with 2016.         </li> <li>  The greenhouse gas emission in 2017 decreased by 7.91% compared with 2016.         </li> <li>  2017 procurement of green electricity: 1 million kWh         </li> </ul>
<ul style="list-style-type: none"> <li>  Holding interviews and seminars for new employees and helping employees in need to retain talents         </li> <li>  Organizing a voluntary cleaning team scheduling one day per week to clean the roads around the factory and maintain the community environment before work         </li> <li>  Actively promoting corporate volunteers to care for the disadvantaged         </li> <li>  In May and September, we organize performances with the Apple Theater and the Children's Troupe to promote traditional art forms as well as engaging the local communities         </li> </ul>	<ul style="list-style-type: none"> <li>  Since August 2014, the "Personnel Counselor" system has been implemented to conduct regular interviews with newly-recruited junior college management trainees. They are assisted in learning and development through counseling. In addition, the Company's website has set up a personnel counseling service network to provide a two-way communication platform for all employees that need help.         </li> <li>  No work incident resulted in death in 2017. The disabling injury frequency rate was 0.34, the disabling injury severity rate was 7, and the disabling injury index was 0.04. All work accident indicators were lower than those of our peers.         </li> <li>  2017 customer satisfaction survey indicated an overall satisfaction of 4.2 points, accounting for 84% of the total score         </li> <li>  In 2017, 47 environmental volunteering sessions were held and the number of participants was 953.         </li> <li>  Each factory organized a volunteering team to assist disadvantaged groups (orphanage, nursing home). 30 sessions were held in 2017 and the number of participants was 1,140.         </li> <li>  On May 13th and September 9th, 2017, community outreach events were held for the Kung San Site and the Linkou Site (with performances from Apple Theater and the Children's Troupe). Free cancer screening has been arranged in conjunction with the local health authorities. The numbers of participants were 1,500 and 2,500 people separately         </li> </ul>



## Nan Ya Plastics Sustainable Development Strategy (SDGs)

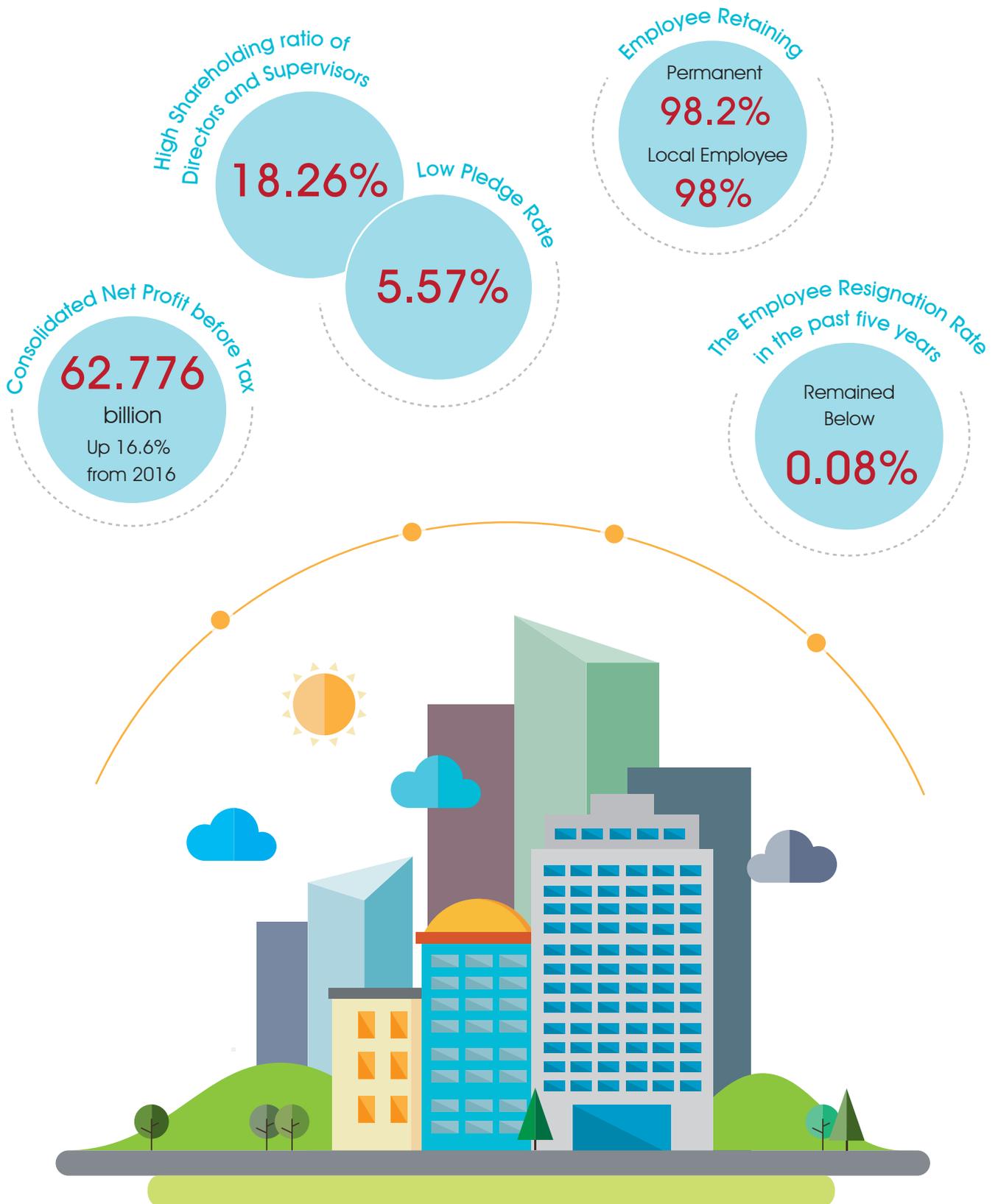
SDGs targets	Mission	Action	Corresponding Chapter
 <p>3 健康與福祉</p>	<p>Nan Ya Plastics cares for the health of its employees and strives to implement local health care to create a good foundation for sustainable growth.</p>	<ol style="list-style-type: none"> <li>1. Provides regular health checks that are superior to regulations, and continue to follow up.</li> <li>2. Provides occupational disease prevention for employees.</li> <li>3. Formosa Plastics Corporation provides free health checks for residents in the Mailiao area to improve the local medical conditions.</li> </ol>	<p>4.4 Work Environment 5.1 Local Participation 5.2 Social Contribution</p>
 <p>6 淨水與衛生</p>	<p>Water is an essential resource for industrial production and an indispensable element of survival for human beings. Nan Ya Plastics strives to improve the recycling rate of water, wastewater treatment and the protection of aquatic ecosystems.</p>	<ol style="list-style-type: none"> <li>1. Continuing to improve water conservation.</li> <li>2. In the past 2 years, the rainwater recovery rate of the Mailiao Plant has exceeded 70%.</li> <li>3. Promoting circular economy</li> </ol>	<p>3.2.2 Water Resource Management</p>
 <p>8 就業與經濟成長</p>	<p>Nan Ya Plastics continues to develop products with high added value and provides employees with excellent salary, benefits and a safe work environment.</p>	<ol style="list-style-type: none"> <li>1. Providing excellent remuneration and benefits.</li> <li>2. No child labor is employed.</li> <li>3. In the past five years, the proportion of local residents employed as supervisors has remained above 48%.</li> <li>4. The disabling injury frequency rate and the disabling injury severity rate are lower than the industry average.</li> </ol>	<p>4.1 Human Resources Structure 4.2 Human Rights Protection, Employee Remuneration and Welfare 4.4 Work Environment</p>



SDGs targets	Mission	Action	Corresponding Chapter
 <p>9 工業、創新 基礎建設</p>	<p>In addition to investing in energy conservation, Nan Ya Plastics continues to develop differentiated, high-value and environmentally friendly products to improve energy efficiency, reduce resource consumption, and create a niche for sustainable growth.</p>	<ol style="list-style-type: none"> <li>1. Improving energy efficiency.</li> <li>2. Promoting "circular economy."</li> <li>3. Developing environmentally friendly products that are in line with environmental trends.</li> </ol>	<p>2.2 Diverse product applications 3.2.3 Greenhouse gas emissions management</p>
 <p>12 責任消費 與生產</p>	<p>Nan Ya Plastics has long promoted environmental protection, using source management and process waste reduction to carry out resource integration, waste reduction and recycling. Moreover, we continuously develop circular economy and environmentally-friendly products.</p>	<ol style="list-style-type: none"> <li>1. Waste management</li> <li>2. Air pollution prevention</li> <li>3. Wastewater treatment</li> <li>4. Promoting circular economy</li> <li>5. Developing environmentally friendly products that are in line with the trends</li> </ol>	<p>2.2 Diverse product applications 3.3 Waste and air pollution management</p>
 <p>13 氣候行動</p>	<p>Climate change is a sustainable development issue for all human beings. Nan Ya Plastics reduces its impact by improving energy efficiency, management, and reducing greenhouse gas emissions.</p>	<ol style="list-style-type: none"> <li>1. Improving energy efficiency.</li> <li>2. Continuing to improve energy-saving operations.</li> <li>3. The intensity of greenhouse gas emissions in 2017 decreased from the previous year.</li> </ol>	<p>3.2.3 Greenhouse Gas Emissions Management</p>

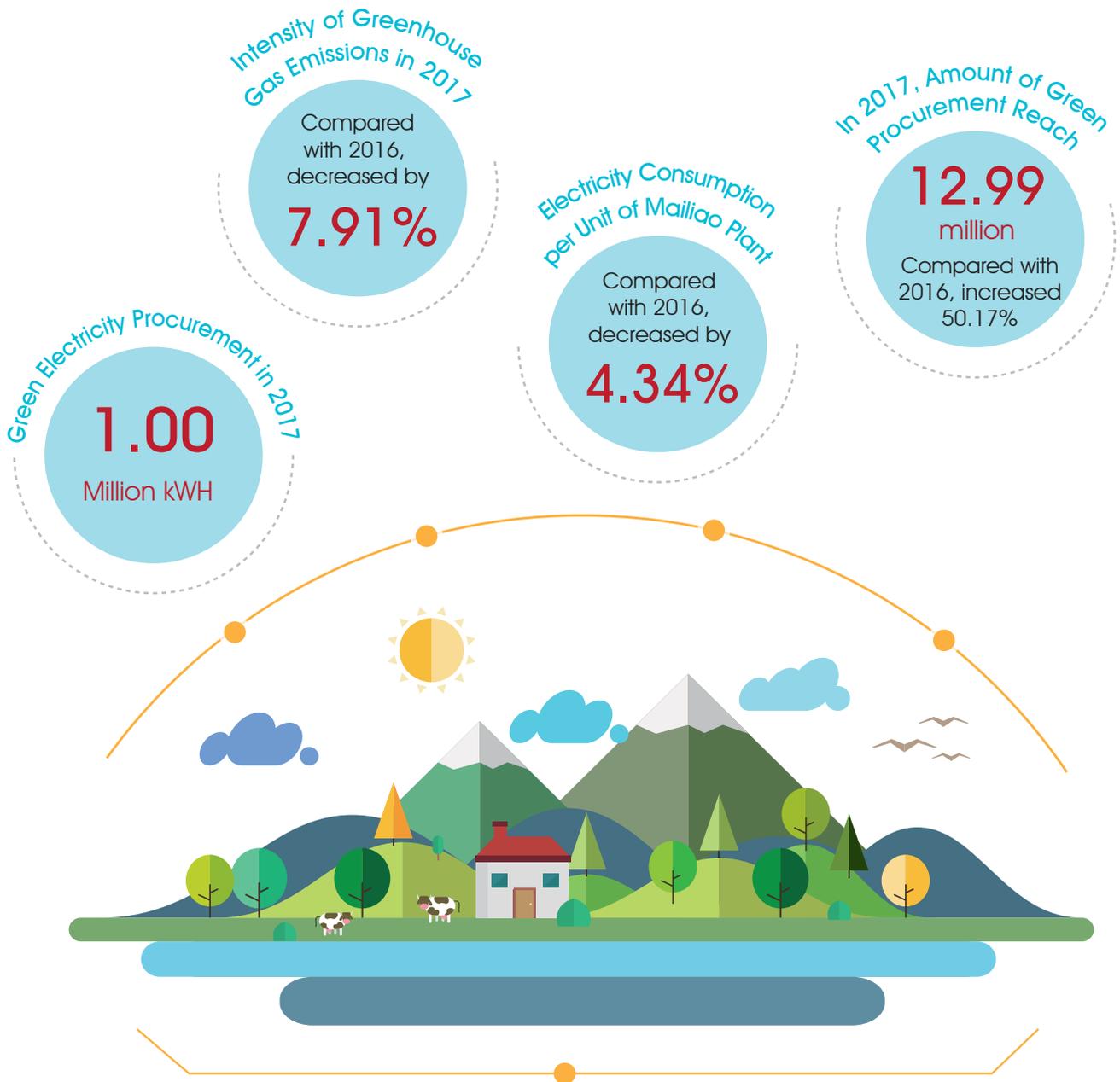
## 1.4 CSR Data Speed Reading

### 1. Corporate Governance

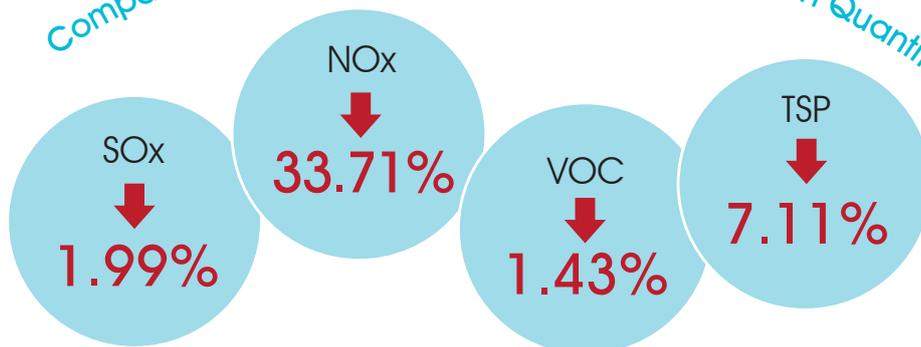




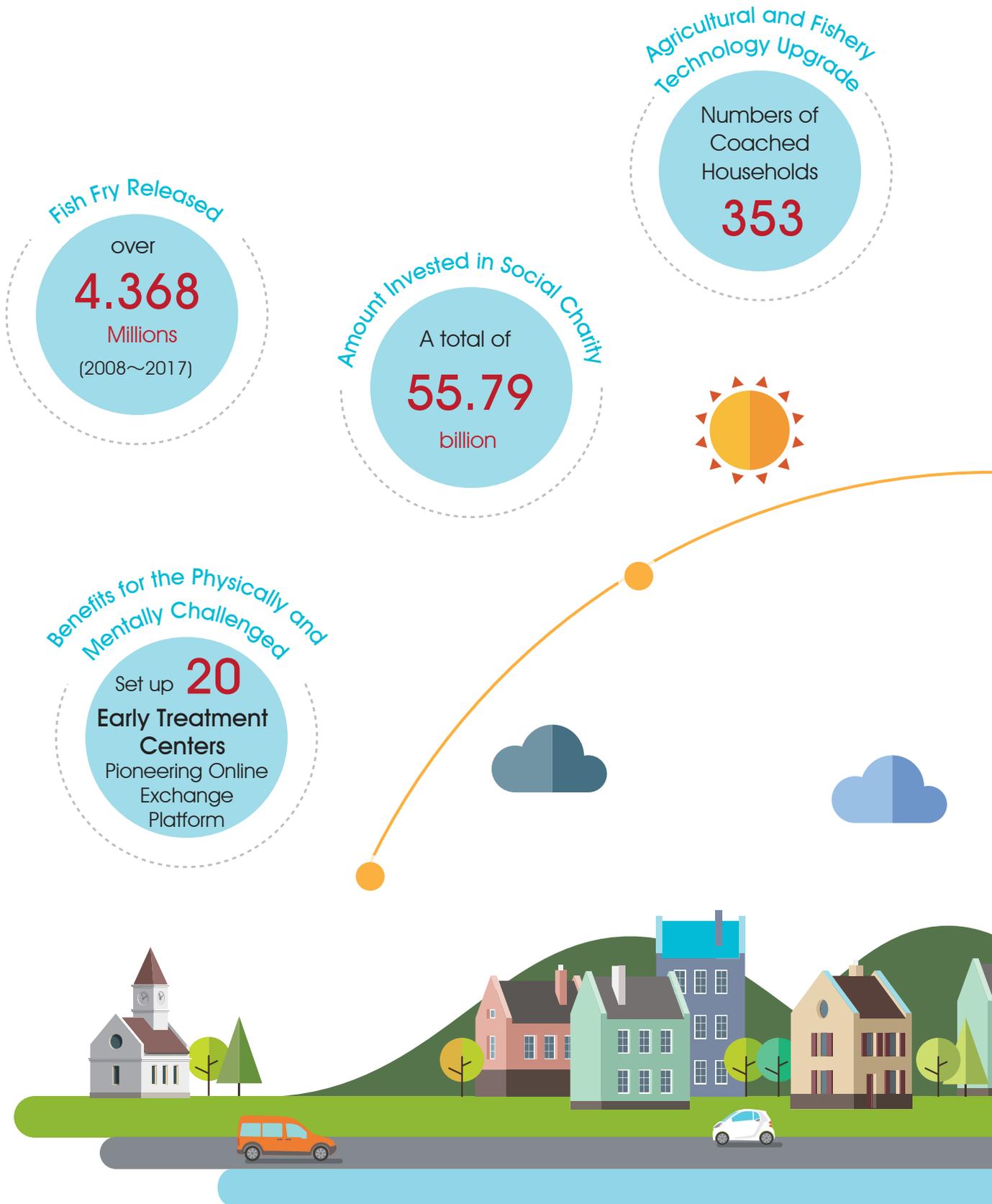
## 2. Sustainable Environment



### Comparison of 2016 and 2017 Air Pollutant Emission Quantity



### 3. Social Charity and Local Co-prosperity (FPG).





The Vaccination Program has  
saved the Government

At Least  
**12.8 billion**  
in Pneumonia  
Medical  
Expenses

Elderly Benefits

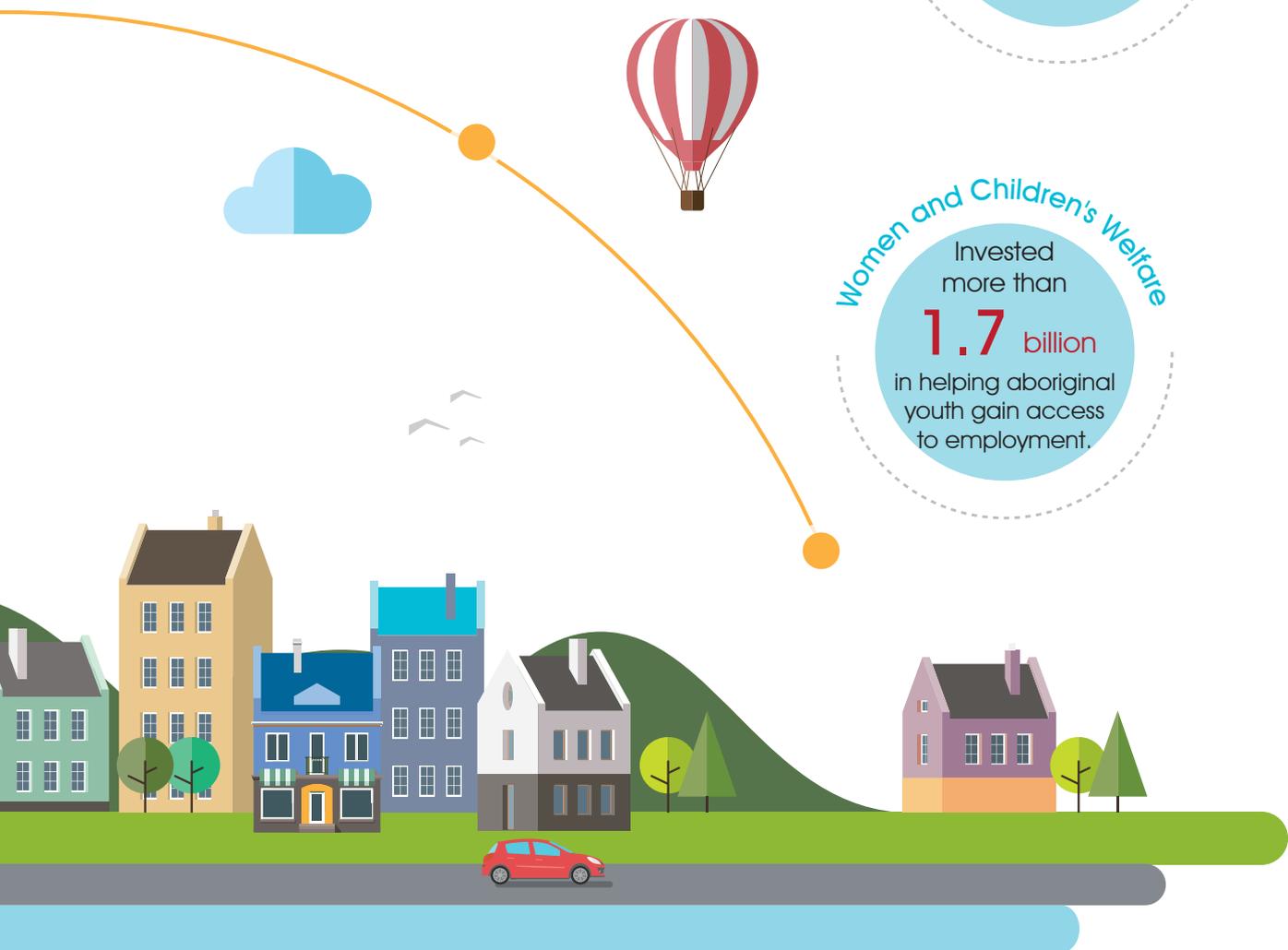
Donated  
Pneumococcal  
Vaccines  
**1.12 million**  
(2007~2017)

Sports and Cultural Promotion

Invested  
More than  
**200 million**  
Supporting the  
Cultural and  
Sports Talents

Women and Children's Welfare

Invested  
more than  
**1.7 billion**  
in helping aboriginal  
youth gain access  
to employment.



# 2

## Product Value Expansion

## Governance

### Visions & Goals

Nan Ya Plastics Corporation believes that being a stable and high-quality supplier helps the Company continue to grow. Customer is not only at the heart of what we do, but also the foundation of our business operations. We strive to create a positive cooperative relationship with our supply chain and customers. We would like to join forces with them to develop a bright future for sustainable development.

### Material Issues

1. Customer Relationship Management
2. Regulatory Compliance

### Management Flow

1. Regulatory Compliance: The management department of the Company follows the changes and trends of the regulations and adjusts the internal rules and SOPs in accordance with relevant requirements, so that the sales departments can follow and standardize. By implementing a complete system and set of standards, we can achieve integrity and compliance.
2. Customer Relationship Management: The Company provides customers with a diversified selection of products. Besides providing complete product information, we also provide feedback channels and conducts customer satisfaction survey on the Company's website at least once a year to maintain good customer relationship.
3. Supply Chain Management: The Company's procurement and contracting policies prioritize local purchases and contracting. Suppliers and contractors must pass a written evaluation before they can become our partners. If necessary, on-site evaluation will be carried out before they can be qualified and listed as our partners. If serious violations of laws and human rights are committed, they will be suspended.

### Relevant Policies and Actions

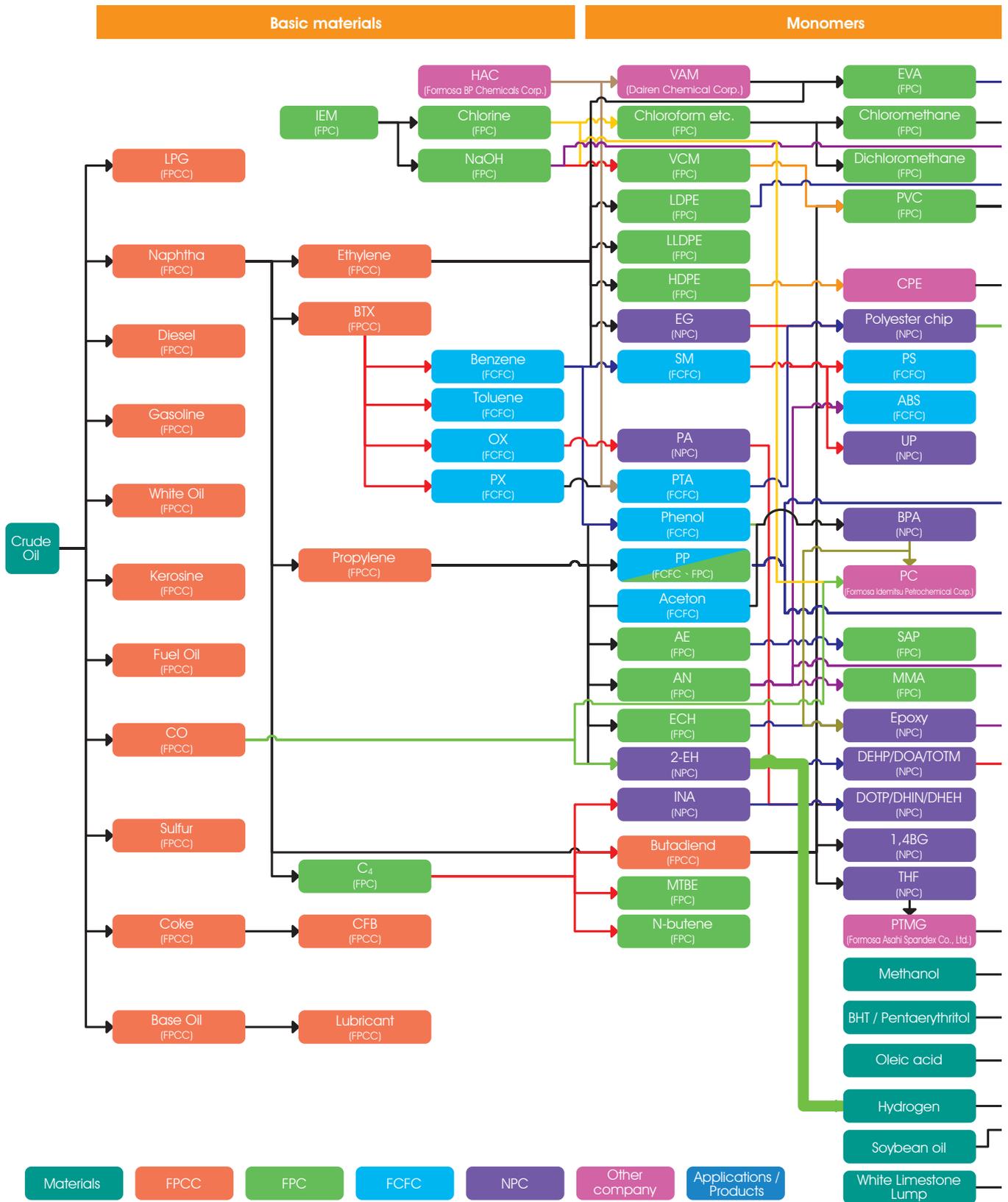
1. Establishing Customer Communication Channels
2. Establishing a Complete Company Website
3. Conducting Customer Satisfaction Survey
4. Implementing procurement and outsourcing policies to strengthen supply chain management
5. Supplier Assessment

### Communication Channels

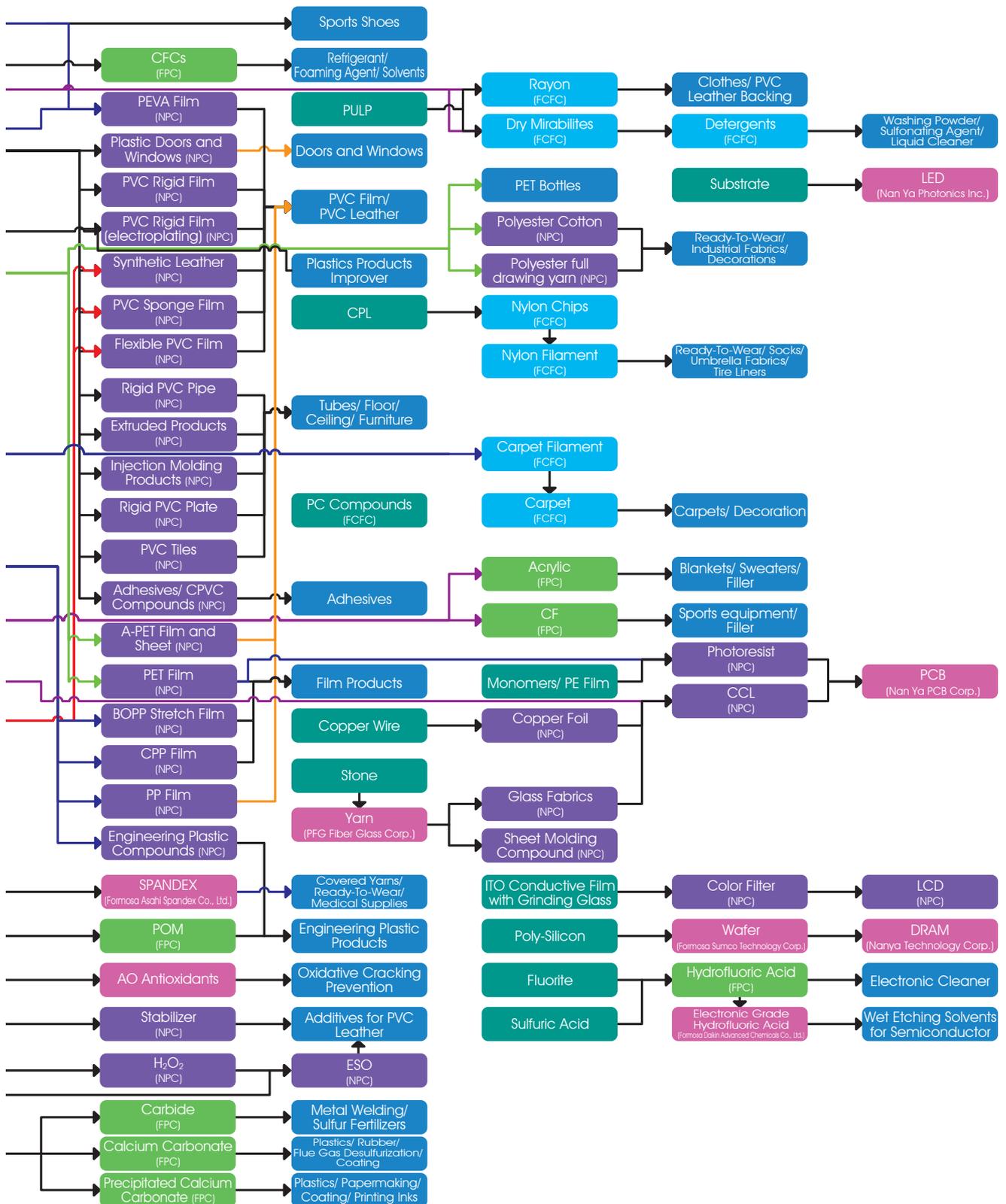
1. Annual Customer Satisfaction Survey
2. Nan Ya Plastics Corporation Website
3. Customer or supply chain feedback channel

# 2.1 Diversified Product Application

## 2.1.1 Product Association Diagram



Plastic Processing, Yarn Spinning and Electronic Materials Products



## 2.1.2 Product Introduction

The Company is a subsidiary of Formosa Plastics Group. In addition to the horizontal development in the petrochemical industry, we also actively engage in the vertical integration of upstream and downstream industries in order to reduce production costs, meet the customers' needs for raw materials, and enhance competitiveness by expanding the economic scale. Formosa Plastics Group has completed the upstream, midstream, and downstream establishment in the fields of refining, chemical engineering, plastics, fiber and electronics. The Company has benefited from the vertical integration of raw materials and mass production of a number of competitive products. The main products in each category are as follows:

- (1) Plastic processing products: The five general-purpose plastics such as PVC, PE, PP, PS and ABS supplied by Formosa Plastics Corporation and Formosa Chemicals and Fibre Corporation are used as the main raw materials for processing. The important uses of the products are as follows:

Product Name	Main Applications
Flexible PVC Sheeting	Blow molding, raincoats, tape, floor tiles, wardrobes, shower curtains, tablecloths, labels, waterbeds, table mats, etc.
Soft Rubber	Vehicles, furniture, boats, footwear, bags, fabrics, raincoats, toys, gloves, etc.
Rigid PVC	Vacuum forming, food packaging, credit card, floor tile fitting, wood veneering, printing, stationery, electroplating, photo album, fold molding, water tower plate
PP Synthetic Paper	Stationery, labels, advertising tags, cards, lithography
A-PET Film and Sheet	For food packaging, printing, stationery, folding, high frequency heat sealing
PU leather	Shoes, bags, furniture, 3C product covers, etc.
POM doors and windows	Energy-saving doors, windows and curtain wall for buildings
SMC fiberglass door	SMC room door, fire door, entrance door
PEPA Synthetic Paper	Advertisement printing, printing paper, label paper, stationery
Hard tube	Engineering, water plant, electrical, drainage and general construction pipes
BOPP Stretch Film	Tape, garment bags, food packaging, photo albums, etc.
UP Resin	Crafts, transparent shower, artificial stone, shipbuilding, furniture and building materials, etc.
Engineering plastic	Electronics, sports equipment, home appliances, automotive materials, etc.

- (2) Chemical engineering products: Propylene, ethylene and butane supplied by Formosa Petrochemical Corporation are processed and manufactured. The main applications of the products are:

Product Name	Main Applications
Propanol	Epoxy resin, PC resin
Ethylene glycol	Polyester fiber products, ester pellets for bottles, polyester film, antifreeze
Plasticizer	Wire, cable, PVC leather, PVC sheeting, building materials, medical equipment, PVC film
1,4 butanediol	PU resin, PBT resin, COPE thermoplastic elastomer, GBL, etc.
Tetrahydrofuran	PTMEG resin, medical intermediates and solvents
Maleic anhydride	Unsaturated polyester resin, lubricating oil additive, coating

- (3) Electronic materials: from glass fiber filaments to circuit board, a complete system of vertical integration is formed. The product applications are:

Product Name	Main Applications
Copper foil substrate	Printed circuit boards (PCB)
Epoxy resin	Electronic, civil, paint, composite materials
General circuit board	Desktop PCs, notebooks, workstations, servers, mobile phones, tablets, game consoles, etc.
IC Substrate	Computer central processing unit (CPU), chipsets, smartphones, RF modules for mobile phone, network communication chips, digital TV and set-top box chipsets, etc.

- (4) Polyester products: Pure terephthalic acid (PTA) from Formosa Chemicals & Fibre Corporation and self-produced ethylene glycol are used as raw materials. The main product applications are:

Product Name	Main Applications
Polyester cotton	Cloth, toy filler, snow jacket lining
Polyester pellet	Scooter windshield, zipper belt, blowing molding, brush, tire mesh belt
Polyester Fully Oriented Yarn	Umbrella, ski gear cloth, knitted fabric, stitching thread, fishing net, fishing gear
Polyester Draw Textured Yarn	Silk woven fabric, knitted fabric, tie, ribbon

- (5) Electromechanical engineering: providing mechanical equipment designs, utility consumption, production and distribution switchboards, die-cast transformers, vacuum contactors, etc. In terms of switchboard products, we mainly promote cooperation between large engineering companies and motor technicians in order to acquire state-owned enterprises and public construction orders.

(For detailed product information, please refer to: <https://www.npc.com.tw/j2npc/zhtw/prodindex>)

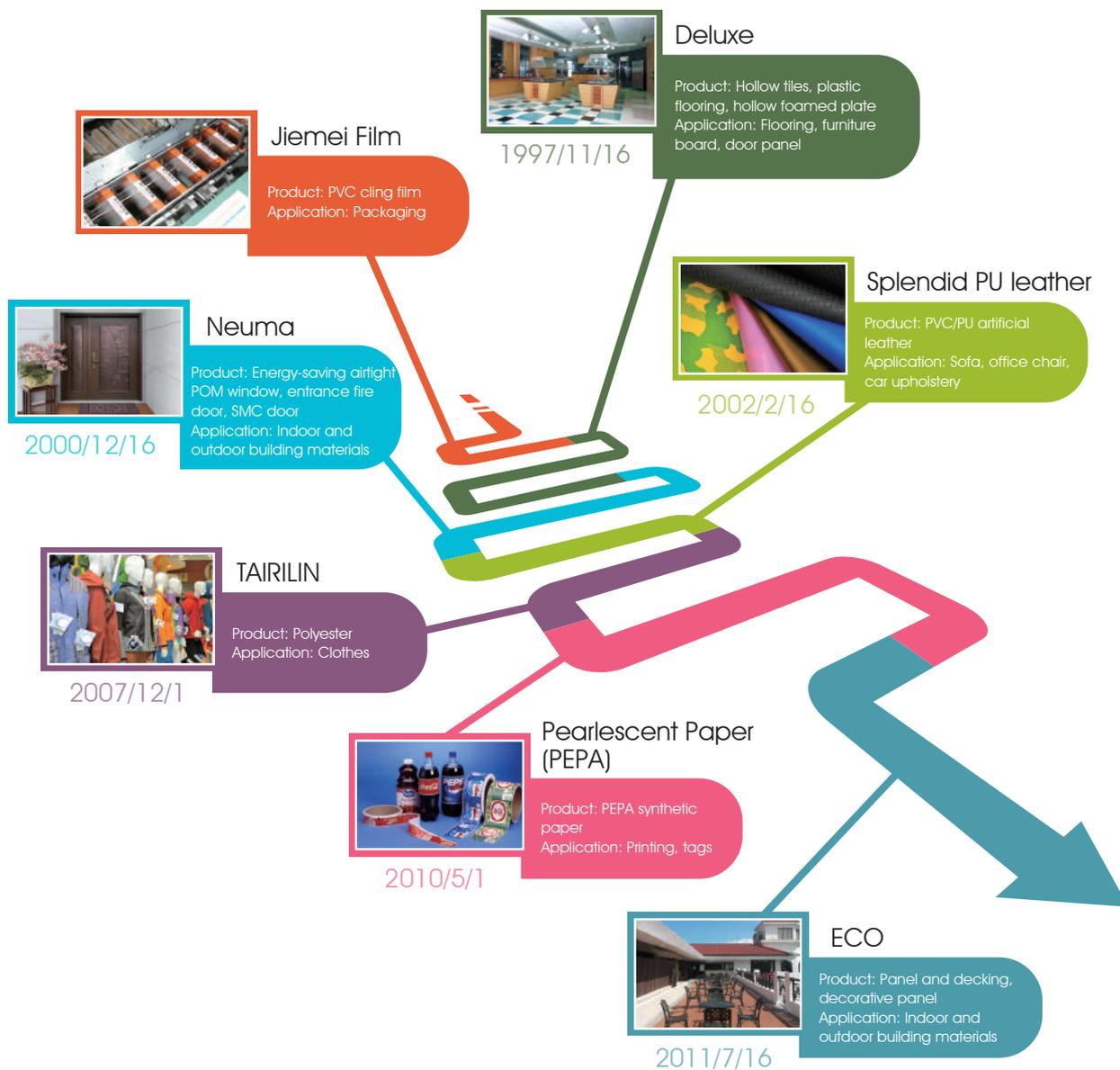


### 2.1.3 Main Brands

Most of the products are marketed globally with Nan Ya brands. After years of hard working, they have established good reputation in the industry.



After years of hard working, they have established good reputation in the industry.



### 2.1.4 Use of Raw Materials

The Company's main raw material consumption and source in 2017

Raw material type	Unit	Quantity	Major Suppliers
Plastic Powder	ton	317,459	Formosa Plastics Corporation, Formosa Industries (Ningbo) Co., Ltd., Formosa Industries Corporation
Stabilizer	ton	10,436	internal re-appropriation

Raw material type	Unit	Quantity	Major Suppliers
Plasticizer	ton	45,059	internal re-appropriation
Filler	ton	39,512	Formosa Plastics Corporation
Modifier	ton	27,695	Formosa Plastics Corporation
Solvent	ton	33,192	Formosa Chemicals & Fibre Corporation
Flat weave	thousands yard	18,823	Formosa Chemicals & Fibre Corporation
Knitted fabric	ton	5,317	Formosa Chemicals & Fibre Corporation
Epichlorohydrin	ton	168,454	Formosa Plastics Corporation
pigment	ton	14,680	internal re-appropriation
Glass fiber yarn	ton	141,179	internal re-appropriation
EG	ton	594,929	internal re-appropriation
PTA	ton	1,104,567	Formosa Chemicals & Fibre Corporation, Formosa Chemicals Industries (Ningbo) Co., Ltd.
Ethylene	ton	1,245,289	Formosa Petrochemical Corporation, Formosa Industries Corporation
Anhydride PA	ton	100,335	internal re-appropriation
Isooctanol 2EH	ton	222,703	internal re-appropriation
Isodecyl alcohol INA	ton	57,262	internal re-appropriation
Substrate	unit	5,809,876	internal re-appropriation
limestone	ton	76,536	Formosa Plastics Corporation

Note: Source of the data comes from the 2017 annual report, which is calculated according to the principle of consolidated financial statements.

## 2.1.5 Product Development and Innovation

The Company is one of the main members of Formosa Plastics Group. In addition to long-term pursuit of product innovation in the fields of plastics, chemicals, electronics, fiber, etc., it also understands customer needs and develops necessary technology in the vertically integrated structure of Formosa Plastics Group. The employees are prompted to accumulate a wealth of professional capabilities and development experience in raw materials, product manufacturing, processing applications and quality characteristics. Through cross-departmental cooperation and R&D management, we fully integrate R&D resources, continue to invest in innovative ideas, and develop products that meet market demands.



Nan Ya Plastics Corporation's  
Three Major Directions of Innovation



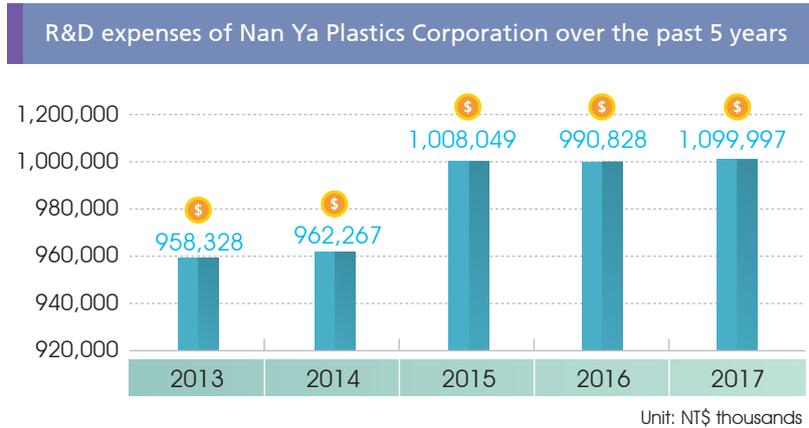
## Establishing a "professional technical service" R&D culture

In order to enhance the research and development atmosphere and product value, the Company has established a "technical service"-oriented R&D culture. Each technology R&D colleagues can recognize the direction of high-value materials, refined products and optimized processes. It's all helps to extend the life of end products, improve material processing performance, ensure industrial safety, consumer safety and environmental safety. For general-purpose and low-cost materials, through continuous improvement and expansion of material functions, they are then manufactured by the most advanced and environmentally friendly production system to provide downstream customers with products which have different shapes and functions. To facilitate manufacturers and consumers to confirm the quality of the Company's research and development products, all the research and development results are sent to the third notary unit for product certification to ensure that the products are in line with international standards and quality standards.



## Implementing "Industrial Vertical Integration" in R&D Management

In order to actively develop high-quality, environmentally-friendly and diversified products to the public, the Company actively participates in seminars organized by government, schools and other research institutions to enrich its professional skills and conduct cross-company and cross-industry research within Formosa Plastics Group. In terms of coordinating with the "Industry Development Group"

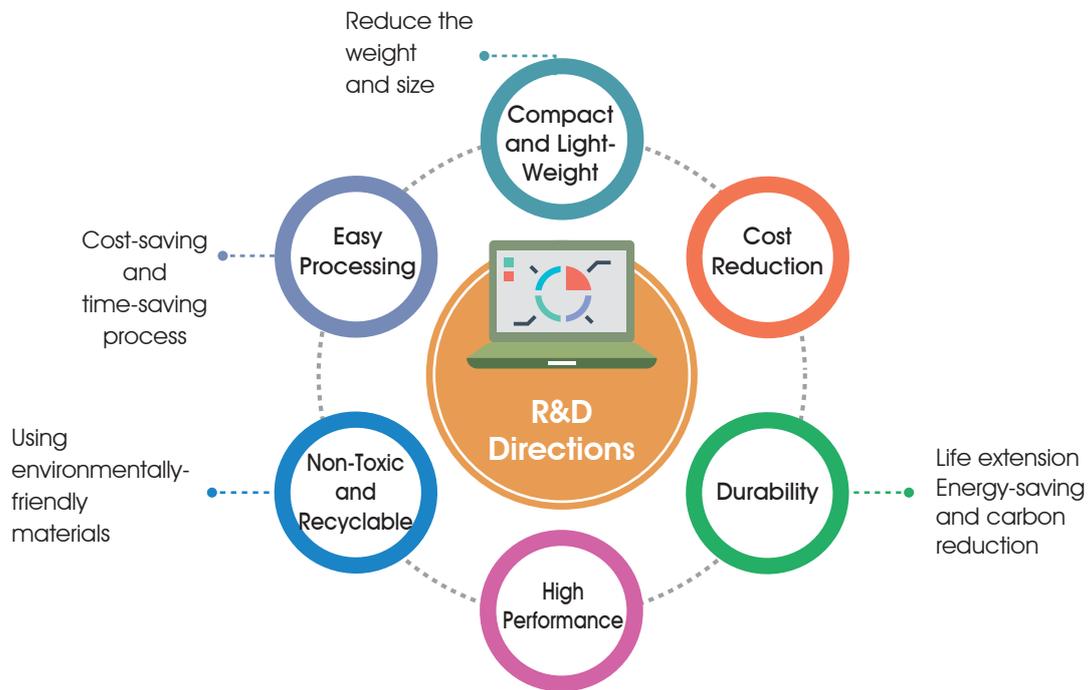


Source: Historical financial statements of the Company

of Group Administration, we regularly discuss product technology, industry analysis and conduct peer comparison. In addition to deepening the advantages of vertical integration, we expect that each product can also develop horizontally and completely.

The Company actively researches and develops in related fields, sets up independent R&D centers to conduct high-end product's research and development, and integrate cross-sector resources to assist relevant departments to break through technical bottlenecks and expand new niche markets. After long-term efforts, the Company has completed the development of a number of environmentally-friendly and energy-saving products, as well as investment evaluation of new products and new businesses. In the future, we will continue to develop R&D projects in the direction of high performance, easy processing, durability, non-toxic and recyclable, cost reduction, light weight and shortness, and strengthen the overall R&D performance, so that the Company's business will continue to grow sustainably.

Nan Ya Plastics Corporation's Product Development and Innovation Guidelines



 Encourage "Innovative R&D" to recognize outstanding teams

In order to boost R&D, Formosa Plastics Group has set up various R&D incentives to reward patent proposals, certifications, and key products or patents that derive major benefits. All departments regularly convene for FPG Technological Application Seminar to select innovative works to publish the results and participate in research and development competitions. The departments with excellent research results are publicly praised and awarded bonuses so that ideas can be exchanged within Formosa Plastics Group to further stimulate research and innovation.

The 15th FPG Technological Application Seminar



R&D papers and poster competition (corporation group)-Winner



Creative product research and development competition (corporation group)-Good

## 2.1.6 Product Safety and Health Responsibility

From raw material procurement to the product sales, the Company attaches great importance to the health and safety of our customers. Therefore, the production process is continuously improved (such as reducing harmful formulas, energy saving, carbon reduction, and green product development). To follow market trends and meet customer needs, we have shifted our focus to producing non-toxic and environmental-friendly products with improved production processes as well as green energy products. More details are as followed:

- (1) Non-toxic products: As early as before the implementation of the European Union's Waste Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances Directive (RoHS), the Company has already started working towards achieving product non-toxicity. To prevent the production of dioxin after halogen combustion, halogen-free, phosphorus-free carrier plates were developed. We also developed arsenic-free copper foil, which does not contain environmentally harmful arsenic, to enable a new generation of circuit boards to be used in green appliances and other fields. Epoxy resin that is free of volatile organic compounds was also developed to be used in environmentally friendly industrial coatings to continuously reduce environmental impact.
- (2) Environmental-friendly products: continuous equipment replacement as well as the development and use of high-efficiency catalysts are implemented to improve energy efficiency. We also expand ethylene recovery equipment for waste gas to reduce ethylene use and energy consumption during the production of ethylene glycol products. Rainwater recycling is promoted by adding rainwater storage to improve recovery efficiency. This improves the use of water resources and reduce overall environmental impact.
- (3) Water-saving and energy-saving improvement: the butanediol plant serves as an example. In recent years, it has actively invested in improving the production process to save water and energy. A permanent magnet inverter was added to the cooling tower fan to save electricity. In terms of circular economics, the steam condensate produced during the production process is pumped to other plants to make boiler feed water in order to save water. In terms of process improvement, the real time production management system collects operational data for analysis along with MiniTab. The distillation tower operation process has been adjusted to save steam. A total of 11 water-saving and energy-saving cases were completed during the year, saving 672 kWh/year of electricity consumption, 34,000 tons/year of water, and 14,000 tons/year of steam.
- (4) Green energy: the dry-type high-efficiency energy-saving transformer (20kV 2500kVA) of electronics saves 96,912 dollars/year in comparison with the general wet-type transformer. The carbon dioxide emission is reduced by 18.7 metric tons/set. The "Environmental Seal"  has been awarded by the Executive Yuan's Environmental Protection Bureau, and it is estimated to reduce the annual carbon dioxide emissions by 5,610 metric tons per year.

## Main eco- and consumer-friendly products

## Non-toxic products

## Thermal insulation film

By using nanometer pigment, it can be used for automotive window film and building window film.

## Environmental-friendly products

## Aluminum plastic film

It can be used on packaging of pouch cells, which can applied to 3C products and electrical vehicles, etc.

## Water-saving and energy-saving improvements

## POM doors and windows

Replace doors and windows made of wood, aluminum and iron. Also, they can save electricity, and can be 100% recycled.

## Green Energy

## PVC tiles

It can resistant to abrasion, acid and alkali, pressure, flame, corrosion and non-conductivity, and has little environmental hazard.

## Arsenic-free copper foil

Mainly used as a circuit board material, because it does not contain arsenic which is harmful to the environment, it can be applied environmentally in the fields of green electronic products and reduce the burden on the environment.

## Water-based epoxy resin

Replacing organic solvent epoxy resin with water-based epoxy resin which produced from self-made emulsifier to reduce VOC dispersion and further environmental impact.

## Halogen-free copper clad laminate

It does not contain harmful halogens which will produce dioxin after burned. So it can apply in areas such as green appliances, and reducing environmental impact.

## Epoxy resin for wind turbine blades

With low viscosity, good operability and good mechanical strength, it can be applied to composite materials of green energy wind turbine blades.

## Eco polyester film

By using polyester pellets produced from recycled PET bottles to reduce the environmental pollution of PET bottles and the loss of CO<sub>2</sub> and energy.

## Nan Ya Q-Box

Special plastic material, which is suitable for humid climate, can overcome moisture and decay. Also, it avoids from pests, cockroaches, etc. Thus it has a long life, and does not contain formaldehyde and plasticizers.

## Phosphorus-based epoxy resin

By reducing the traditional bromine-based circuit board to be disposed by landfills, it could greatly reduce the impact on the environment.

## Polyester and bottle-use pellets from biomass

Replacing traditional methods of petroleum refining by converting sugar cane molasses can reduce the use of petrochemical raw materials.

## Polyester from post-consumer recycled PET bottles

The materials recycled from the waste PET bottles are melted and made into fibers. In addition to reducing the environmental pollution of the PET bottle waste, it also reduces the use of petrochemical raw materials, reduces the loss of CO<sub>2</sub> and energy, and contributes to slowing global warming.

## Cast resin transformer

There are no doubts about the poisons such as cadmium, lead, hexavalent chromium and mercury compounds in the production and materials of this product. Compared with the average transformer, each transformer can reduce 18.7 metric tons of carbon dioxide emissions per year and has been obtained "Environmental Mark" issued by the Ministry of the Interior.

## Carbon nanofibers

By recycling waste coffee grounds or coconut shells, carbonizing and grinding them into nano-sized powders, and then adding them to polyester fibers, they can have multiple functions such as keeping warm, deodorizing, far infrared rays and negative ions

## Industrial-grade glass fiber cloth

It is resistant to fire and corrosion. It is substituted for plastic and wood to apply to building materials such as curtains, floor tiles and ceilings. It not only reduces environmental loading but also provides consumers with a safer living environment.

The Company's products which has obtained environmental protection marks



Environmental Mark (Green Mark)

- Environmental Mark:
  - Plastic pallet
  - PE pipe
  - Recycled polyester cotton
  - Polyester Partial Orientation Yarn (POY)
  - Polyester Draw Texturing Yarn (DTY)
  - Polyester Full Drawing Yarn (FDY)
- Executive Yuan Environmental Protection Administration's first class environmental protection transformer specifications:
  - Resin type dry-type or distribution voltage regulator with single-phase and three-phase AC voltage levels below 36kV



Green building materials

- Health:
  - PU waterproof material
- High performance (sound insulation):
  - POM window-W9S horizontal sliding window, W9K push out window, W9F fixed window
- Regeneration:
  - 100% environmentally friendly recycled PVC plastic
  - Water-based epoxy primer, epoxy topcoat



Singapore Green Building Product, SGBP

- Deluxe Vinyl Sheet (door panel)
- Celuka (door panel)
- PVC wall panel
- Deluxe Vinyl Tile



Global Recycle Standard, GRS Version 3.0

- Recycled environmentally-friendly film
- Environmentally friendly fiber pellets (no heavy metals)
- Environmentally friendly recycled products (POY, DTY, FDY, cotton, pellet, film, polyester yarn)
- Environmentally friendly recycled products (Woven fabric, knitting)



POM doors and windows



PVC tiles resin



Cast resin transformer



Wind turbine - Epoxy resin for wind turbine blades resin

## 2.2 Collaborative Business Model

Customer first is our core value and the foundation of our business. Building a cooperative relationship with our customers has always been prioritized by the Company. The sales staff functions as the bridge between the customers and the Company. It is not only the business department that should improve customer service and satisfaction. Everyone should make continuous effort create a business environment that grows with our customers in their daily operations and management. In addition, the Company puts great emphasis on customer rights and feedback. When the customers' business is expanded, it is an affirmation to the Company. We hope to form a virtuous circle to grow with customers and pursue a win-win situation.

### 2.2.1 Collaborative customer relationship

#### Good interaction

The Company's development and customers are interdependent. Therefore, we are committed to becoming a business partner that customers trust and grow together. In order to strengthen customer relationships, the business department regularly visits customers, exchanges opinions on existing or new products, and establishes an interactive and timely communication channel. Through attending product exhibition, we can talk face-to-face with the customers about market information as well as incorporating customers' feedback in the Company's future operations.

#### Stakeholder communication and feedback mechanism



#### Customer feedback and handling

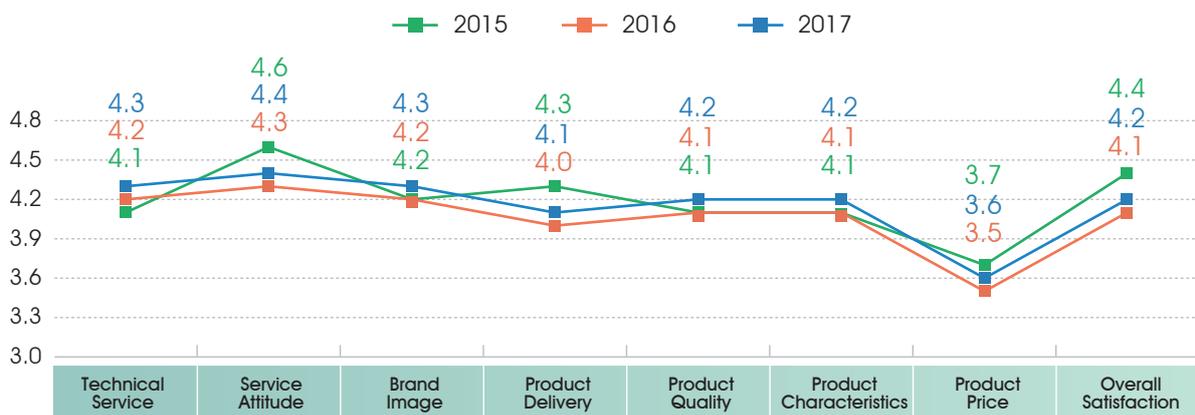
Customer relationship management is an important part of the Company's sustainable operation. In order to understand the valuable opinions of customers, the Company has clearly defined the customer complaints channel, return, refund, as well as compensation application procedures. The customers can express their opinions through the "Customer Feedback Form." The customer service agent in turn fills out the "customer complaint form." The department of manager's office then determines the ownership and improvement plan of the complaints. After the case has been presented to the authorities, returns, discounts or compensations are processed. The progress is logged in the computer system. In terms of customer feedback, the Company provides various product sales service lines and e-mail addresses on the website so that the customers can share their feedback through multiple channels. Relevant departments regularly summarize the issues or concerns for classification and analysis. The importance and timeliness are considered to prioritize the issues and ensure customer needs are addressed.

## 2.2.2 Customer Satisfaction Survey

The Company adheres to the spirit of "Diligence, perseverance, frugality and trustworthiness, to aim at the sovereign good, perpetual business operation and dedication to the society" to continuously develop in the Taiwan market while actively expanding the overseas markets. The Company is also committed to developing market-oriented products to lead the industry and create value.

To understand whether our products and services meet our customers' needs and expectations, we collect our customers' feedback and suggestions as a reference for the improvement of internal operations. At the same time, to comply with ISO 9001's commitment to quality and customer satisfaction, the Company conducts customer satisfaction surveys for domestic and foreign customers at least once a year. The survey item includes eight major themes such as product characteristics, product quality, product delivery, product price, service attitude, technical service, brand image and overall satisfaction. The survey topics are also adjusted based on the customers' engagement.

According to the results of the 2017 Customer Satisfaction Survey, the overall satisfaction reached 4.2 points, accounting for 84% of the total score. Seven performance indicators were above "satisfied." Some product price failed to meet customer expectations, mainly due to the perception that the raw material price decreased, but the product price has not been adjusted as expected. The Company will continue to pursue cost reduction to mitigate the impact of fluctuations of raw material price.



Note: 5 points means very satisfied, 4 points means satisfied, 3 points means neutral, 2 points means dissatisfied, 1 point means very dissatisfied.

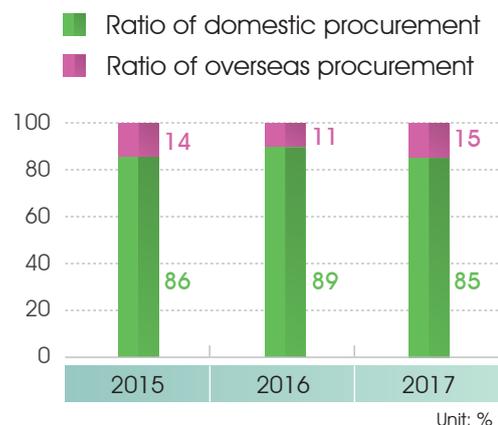
### 2.2.3 Compliance - Product Management and Customer Data Protection

The Company's production and sales operations are conducted in accordance with the laws and regulations. We continue to develop environmental-friendly products in line with EU's RoHS, REACH or product which has reached green building materials standards or green energy applications in hopes of ensuring the health and safety of customers, as well as contributing to the sustainable development of the environment. Moreover, the Company's product information is listed in accordance with the regulations. In line with the regulations of the Industrial Development Bureau of the Ministry of Economic Affairs, all packaging and product delivery list of products that are not used as food additives is marked as "Not fit for human and animal consumption." In terms of data protection, the Company has established "personal data management regulations" that are listed as a self-inspection item for all relevant departments. For business purposes, employees must first sign the "Personal Data Collection, Processing and Utilization Application Form" for compliance review. If the application is in line with relevant laws and regulations, and only when it is used in specific ways the access will be granted. In 2017, the Company did not have any violation of the above provisions.

## 2.3 Supplier and Contractor Management

The Company's procurement and contracting policies prioritize local purchases and contracting. Procurement and bidding only happens abroad when there are no local options. The domestic procurement ratio during the past three years is shown on the right.

In addition, the related operations are conducted online. The contractors with the lowest quotation, shortest delivery time and highest quality are prioritized. Establishing a good relationship between both parties helps achieve the goal of open, fair and just purchase and delivery mechanism. Moreover, through the sound management mechanism of contractors, we can replace the less satisfactory ones while cultivating long-term partners.

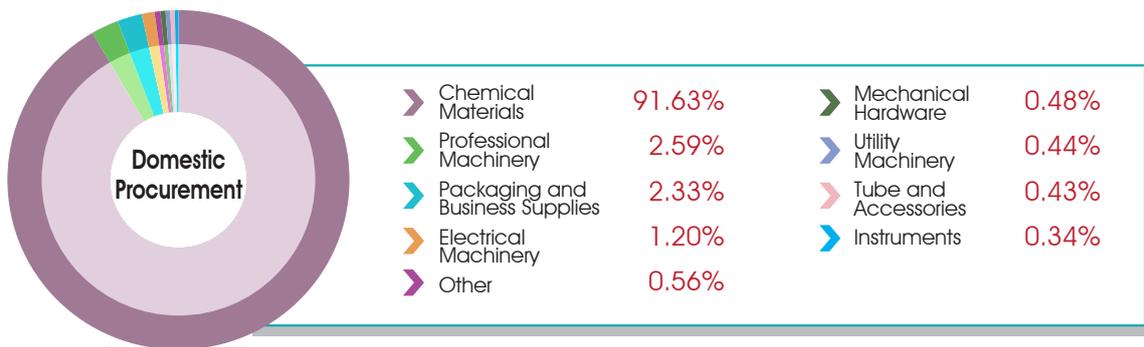
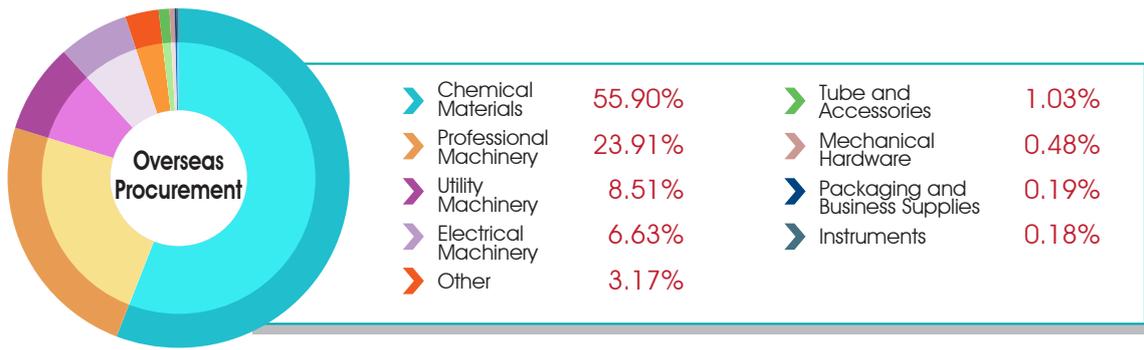


### 2.3.1 Vendor Management



#### Vendor Evaluation

Suppliers and contractors must pass a written evaluation before they can become our partners. If necessary, on-site evaluation will be carried out before they can be qualified and listed as our partners. If there are subsequent delivery (construction) overdue, poor quality, and violation of safety regulations, it will automatically go through contractor evaluation. Only high-quality partners will have long-term cooperation with the Company. According to statistics, in 2017, the distribution of supply chain includes professional machinery, chemical materials, packaging and business supplies and so on. The domestic and overseas procurement ratios are as follows:

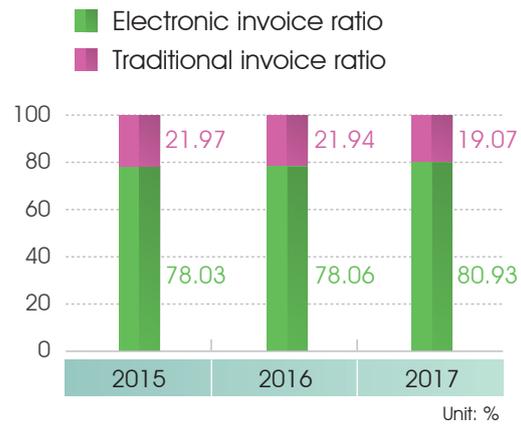


## Supplier Sustainability Issues

For each purchase, the purchase department may select the following delivery conditions according to the requirements of different materials: RoHS qualification, national regulations for workplace safety, ISO certificate, and the hazardous material declaration or icon labeled on the products. The containers and loading aids have to be properly recycled; items produced by disabled people are prioritized, as well as certificate of non-radiation pollution attached on the products. The requisitions which have selected any of the above conditions will be indicated in the RFQ and Order Notice in order to ask the suppliers to comply with the requirements. In addition, the above form also demonstrates the Company's goal of sustainable management. We adhere to the principle of fair dealing by asking our partners to meet the requirements of environmental protection, work safety and human rights. Products from partners that fail to comply with the requirements will be rejected, and the non-compliance will be recorded in the vendor evaluation as a punishment.

In addition, in order to reduce the carbon emissions of delivery vehicles, the Company has cooperated with "Kerry TJ Logistics" since January 2009 to jointly promote "Electronic-centralized delivery of suppliers and customers". Provide online consignment services in the supplier area of Formosa Technologies Corporation's website. After the implementation, the manufacturers' delivery was concentrated and the delivery vehicles decreased. According to statistics, the supplier's centralized delivery rate in 2017 has reached 97.63%.

Moreover, in order to save the cost of issuing invoices, improve the efficiency of invoice management, and lower the cost of managing traditional invoices, the Company actively replaces traditional invoices with electronic ones. Currently, 80.93% of the partners receive electronic invoices. The implementation saves time and cost on manual processing, postal fee, and cost of paper for both parties.



### Contractor Classification Management System

To reinforce safety management, control the quality of contractors, improve contractors' occupational safety standards, and prevent injuries for their employees, a classification system for contractor management has been implemented. Professional construction manufacturers are divided into Level A, B, and C according to relevant information, survey and evaluation of plants, construction machinery and equipment, site safety management capabilities and technical capabilities and performance, etc. Safety and health management fees are required to be listed in the salary budget. And the implementation of safety and health must be listed in the contract. In order to avoid budgeting mistakes, safety and health management fees are automatically added by the budgeting system. When RFQ is issued, the amount of the safety and health management fee is required not to be lower than the budget as to avoid the manufacturers compromising on safety and health management for lower bidding prices.



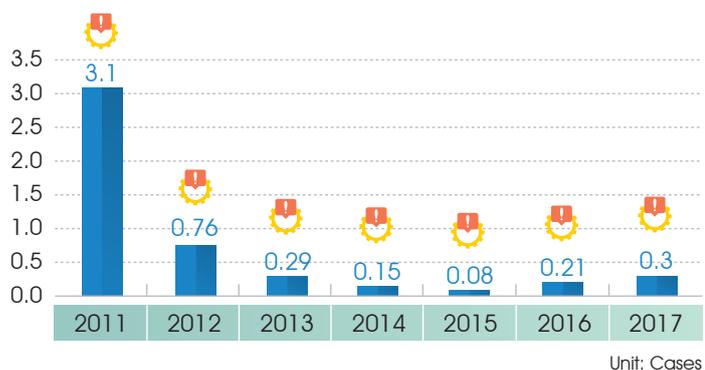
### 2.3.2 Contractor Safety Management

Contractors are not only important partners but also the Company's important stakeholders. To maintain a good relationship, contractors are required to follow the occupational safety and health laws and regulations to set up safety and health management personnel when signing the contract. They are also prompted to manage themselves. Through mutual trust and cross supervision, we hope to achieve the goal of zero incidents. In order to establish a platform for good communication and coordination, the main management methods are as follows:

Organization Coordination Meetings	Exchange information about workplace hazards and possible improvement suggestions in order to achieve work safety.
Personnel Access Management	Through access control management, the number of workers is under control. Vehicles, electrical and mechanical equipment are strictly inspected. Those who do not meet the requirements shall not be brought into the plant. In addition, it is strictly forbidden to carry cigarettes and lighters without permission into the plant to avoid any potential hazards.
Toolbox Meetings	The contractors are reminded of the potential risks and hazards that may occur during the operation every day before entering the factory. Also, the mental state of the personnel is checked to avoid work accidents.
Regular Audit	The contractors are required to abide by the safety and health regulations of the Company and the law. If abnormality is discovered during the audit, a review meeting will be held in the same afternoon to address the problem and prevent recurrence.
Contractor education and training	Contractors must receive Formosa Plastics Group's safety and health education and hazard identification training prior to the commencement of the work. In addition, abnormalities are used as training materials. Safety and health knowledge of contractors is strengthened through promotion and education to achieve operational safety.

### Mailiao Industrial Complex Occupational Safety Joint Inspection

The occupational safety joint inspected is carried out by the Safety, Health, and Environmental Center of the General Administration as well as the four major companies. A joint inspection team is organized to check the petrochemical process and the prevention of fire accidents. Through understanding the on-site implementation status, the production process safety and the contractor's safety can be improved.



Unit: Cases

Since September 2011, joint inspection of occupational safety has been promoted in the Mailiao Industrial Complex. The average number of abnormalities discovered during audits has been reduced year by year. The abnormality rate has dropped from 3.1 cases per plant in 2011 to 0.3 case per plant this year (2017). Work accidents have been effectively prevented. In addition, through promoting the contractor's self-inspection management, we have achieved the primary results of performance of work safety. Safety management of the process has been strengthened in 2016-2017. Through statistical analysis of the fire and occupational health accidents that occurred between 2013 and 2015, we strengthened the audit frequency of plants with higher incident rates and occupational accidents with higher frequency to prevent recurrence.

## Safety & Quality Assessment System (SQAS)

In order to improve transportation safety, in addition to actively promoting the Safety & Quality Assessment System (SQAS), the transportation safety of the shipments from the Company has also been included in the SQAS management since April 2011. Any contractor that has not obtained the SQAS evaluation certificate shall not take on or ship dangerous goods from the corporation. We hope to fulfill the corporate responsibility by effectively managing transportation safety.

Moreover, each transport vehicle that passed the SQAS evaluation will be equipped with GPS or dash cam. It must be equipped with necessary safety protection that passes regular inspection depending on the characteristics of dangerous goods before entering the plant.

## Training and certification of safety supervisors

In order to ensure the safety of all types of construction operations, the Company has organized safety and health staff that is superior to the regulations. The position of safety supervisor has also been set up. Through professional supervision, the contractor is reminded to ensure construction safety and standard operating procedures to enhance safety. Also, the safety supervisor conducts checkups along with the contractor before and during the operation to ensure the safety of the contractor and process.

Relevant training and certification processes have been put in place since 2012. National safety laws and regulations, various construction safety and occupational disaster cases as well as other professional knowledge are taught in class. Practical training is also given to enhance professional competence. Between 2012 and 2017, the number of personnel who received the training was 918, and a total of 901 people obtained certification.



Keep improving the safety awareness of construction personnel!



Contractor training for labor safety and health management



Construction worker training for working in confined spaces and operating electricity equipment.



# 3

## Green Environmental Management

## Governance

### Visions & Goals

Since its founding, the Company has put equal emphasis on industrial development and environmental protection. Some concrete examples include taking climate change trends and workplace safety into consideration, actively conserving energy, applying the best control technology, as well as reducing waste at the source and during the production process. In accordance with circular economy principles, we review and recycle all resources as well as ensuring that all environmental protection operations comply with national standards through operational control and regular monitoring. We integrate process optimization management and green product development into the Company's operations in order to contribute to the economic development and social prosperity of Taiwan.

### Material Issues

1. Greenhouse gas emission management
2. Water usage and effluent discharge management
3. Air pollutant management
4. Waste management
5. Hazardous material management

### Management Flow

1. The principles of source management, process waste reduction and end control are applied to the management of water resources, air pollutants, waste, hazardous materials, soil and groundwater pollution. Through source management, resources are effectively utilized. Accelerated processing and process optimization reduce the occurrence of pollutants and the load on the treatment facility. For resources that cannot be reused, end control method is applied to select the best processing facilities and optimize operating conditions in order to ensure compliance with regulatory standards and environmental impact minimization.
2. Energy Saving, Water Saving and Environmental Protection Committee of each business division: the executives of each business division convene monthly to review the department's performance of process optimization, energy saving, water saving and environmental protection.
3. Energy Saving and Water Saving Conference of Mailiao Industrial Complex: the senior vice president reviews the energy saving and environmental protection performance each quarter in order to promote the excellent management from plants to plants.
4. The President's Office reports the annual performance results during the supervisory meeting to further develop management policy.

### Relevant Policies and Actions

1. Setting environmental protection, energy-saving and water-saving targets for the entire company as well as each business division.
2. Setting up ad hoc groups to promote the targets and learn from each other.
3. Implementing an internal reward system.
4. Employees are encouraged to learn and share the Company's excellent environmental protection measures with others.
5. Environmental indicators should be externally audited to optimize production.

### Communication Channels

1. The results of pollution prevention and energy conservation will be published from time to time.
2. The Annual Report and the Corporate Social Responsibility Report are published annually.
3. Greenhouse gas emissions, air pollutants, waste, etc. are reported annually to government agencies.

## 3.1 Commitment to Environmental Protection

The Company's safety and health environmental protection policy is based on the "Safety and Health Environmental Protection Policy" of Formosa Plastics Group. Besides pledging to protect the environment and maintain community safety, all employees are required to treat safety and environmental protection as their priority. Everyone should lead by example and regard safety, health and environmental protection as their responsibility.

### 3.1.1 Safety and Health Environmental Protection Policy

We are convinced that both environmental protection and industrial development are equally important. Ensuring the safety of products, employees, contractors, plants and communities is not only a corporate social responsibility but also a part of the Company's competitiveness.

We believe that all disasters and accidents, no matter how small, can be prevented. The Company's values and the power of the organization and system should be utilized to ensure the level of work safety can reach acceptable standards. All supervisors must understand the system in order to provide adequate training, and require complete implementation and continuous improvement of the system so the objective can be achieved.

All employees must constantly learn on the job as well as taking safety and environmental protection into consideration for any decision. They must thoroughly understand the logic and implementation of the system, face the root of the problem, and use the best practices in the industry to make continuous improvement.

"Lead by example:" it is everyone's responsibility to protect the safety of their colleagues, the community, and themselves. To achieve the goal of sustainable development, the environment and the Company's assets must be protected.

### 3.1.2 Environmental Operation Guidelines

Since its incorporation, the Company has laid equal emphasis on industrial development and environmental protection. With the two founders' philosophy of "diligence, perseverance, frugality and trustworthiness" and "inquire into the root of the matter," the Company aims at providing the best products with the least resources to improve Taiwan's economy and build a prosperous society. Over the years, while pursuing economic growth, we have actively promoted pollution prevention and environmental protection.

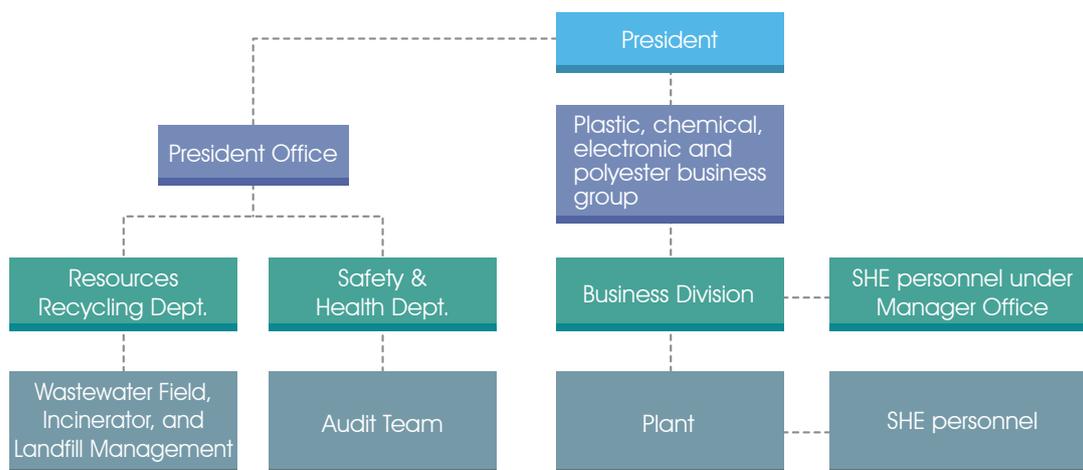
- (1) Quantity and waste reduction at the source: With the improvement of environmental standards and environmental quality management, environmental protection measures have shifted from processing emission, effluent, and waste at the end to managing the source of the process with material conservation, green procurement, process waste reduction, and pollution prevention.
- (2) Introduce Clean Production to improve production process: In order to reduce waste at the source, the Company adopts advanced modern environmental protection technology to maximize production process.
- (3) Zero pollution: Actively recycling resources waste, setting viable annual pollution and waste reduction targets, and ultimately reaching the goal of zero pollution.

- (4) Strengthening the management of environmental protection systems: In addition to the above-mentioned technologies and improvements in facilities, the Company lays more emphasis on the management of environmental protection structure, including:
- A. Deployment, training, and assessment of safety, health, and environmental management personnel.
  - B. Full employee participation; environmental regulations are incorporated into the standard operating procedures.
  - C. Implementation of the ISO-14001 International Certification for the Environmental Management System.
  - D. Implementation of environmental protection audit.

### 3.1.3 Safety, health, and environmental system structure

In order to strengthen environmental protection and safety management, the president office of the Company has set up “Safety & Health Department” and “Resource Recycling Department” to integrate the safety, health and environmental protection affairs; meanwhile, we established audit team to be in charge of plant area audit, tracking and improvement procedures. Each business division and plant also deploys SHE personnel to supervise and coordinate various environmental protection businesses.

The Company's safety, health, and environmental system structure is as follows:



### 3.1.4 Environmental Management System

#### (1) Full employee participation for a comprehensive promotion of standard operating procedures

Full employee participation is the key to success when it comes to safety, health, and environmental management. Therefore, all production plants are required to incorporate safety and environmental regulations and standards in the S.O.P. The operators must see safety, health, and environmental regulations as equally important with production efficiency and quality. With employee participation, more potential blind spots can be discovered and addressed in a timely manner in order to concretely implement the safety, health, and environmental project.

## (2) The pursuit of compliance and continuous improvement

The Company's Shulin, Linkou, Kung San, Jinxing, Mailiao, Haifeng, Hsinkang, Chiayi, Renwu and Linyuan plants have obtained the certification the ISO 14001 Environmental Management System, OHSAS 18001 Occupational Health and Safety Management System, and Taiwan Occupational Safety and Health Management System (TOSHMS). Moreover, they comply with the International Standards Organization (ISO)'s updated version of ISO 14001:2015, which was published on September 15th, 2015. The Company expects to complete all plant revisions and obtain the certificate in August 2018.



In addition to conducting regular environmental management operations in accordance with regulations, the Company frequently reviews the latest laws and regulations to ensure compliance. Moreover, any abnormalities discovered during the certification authorities' annual audits (BSMI, SGS) are listed as each plant's key improvement in order to achieve ISO's principles of compliance and continuous improvement.

## (3) Conducting frequent audits to enhance safety, health, and environmental protection

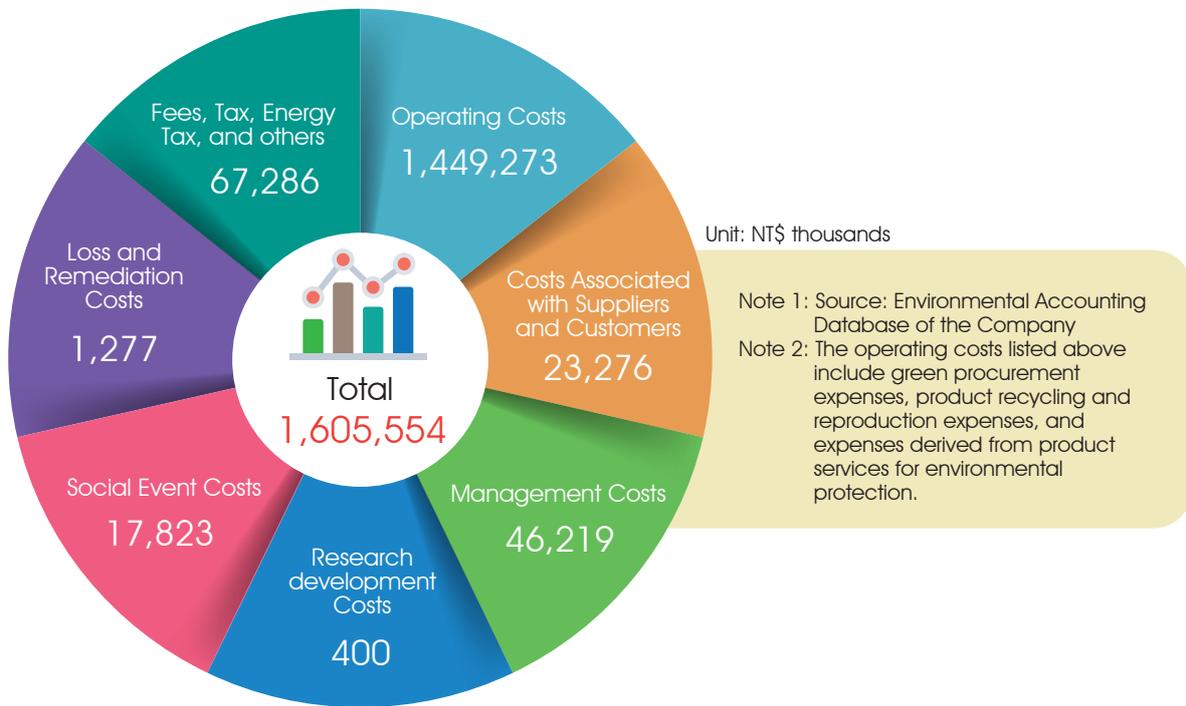
In order to improve safety, health, and environmental management, the SHE Center of Group Administration and the Company's audit team conduct thorough inquiries surveys, selected audits, and mockup EPA audits in addition to the daily checkups by respective plants. The factories are inspected at random intervals for irregularities to be discovered and addressed early. This ensures the Company complies with the laws and regulations and fully implements the work of safety, health, and environmental protection.

### 3.1.5 Environmental Accounting

The Company's computerized management has already achieved great success. To fulfill the corporate responsibility and promote environmental sustainability, it is crucial to gain insight to the environmental expense information. Therefore, computerized management has been further extended to environmental management through the environmental accounting system. The environmental costs are calculated by the environmental accounting system, and all relevant information is disclosed to stakeholders.

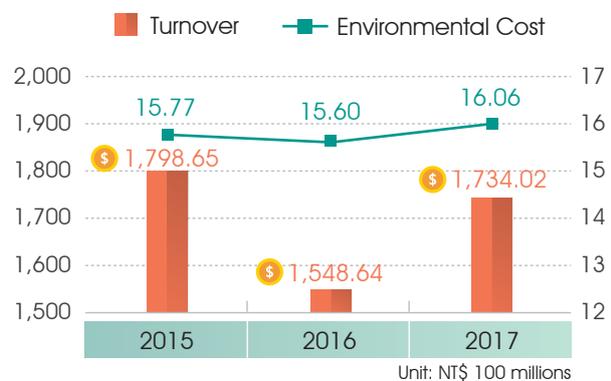
Therefore, the Company took the lead in constructing the environmental accounting system in Formosa Plastics Group in 2003 through the guidance of the Industrial Development Bureau and the National Chiao Tung University. The system was officially implemented in 2004.

Nan Ya Plastics 2017 Environmental Costs Details



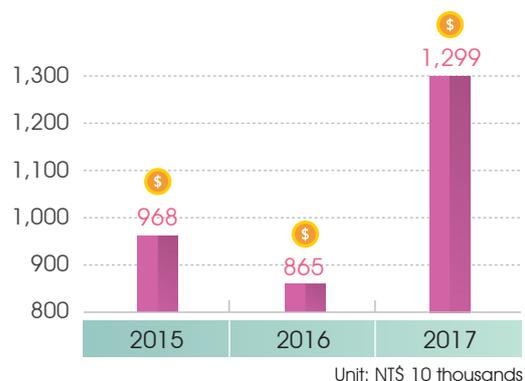
The implementation of the environmental accounting system can clearly record the financial information related to environmental activities such as investment, maintenance, research and development, and fees so that the Company can conduct operational analysis from the perspective of environmental protection, and increase the Company's competitiveness. In 2017, the Company invested 1.606 billion dollars in environmental protection. The investment went to energy saving, water saving, and 362 cases of CO<sub>2e</sub>

emission reduction improvement. Among them, the fiber business division updated the false-twisting machines and started fueling the boiler with natural gas. The second chemical business division started to use new catalyst. The DOP plant of the first chemical business division added an oil collector to recycle the raw materials as well as recycling the steam condensate. The PA plant was equipped with better heat exchangers for the gas incinerator to lower the fuel consumption. There are 368 cases in progress, which would require an estimated investment of NT \$1.375 billion dollars. The main objective is reducing fuel consumption and lowering the environmental impact through improving the process and equipment. An example would be converting boiler fuel from petrol to natural gas in order to reduce VOC and SOx emission to the target set by the Company.



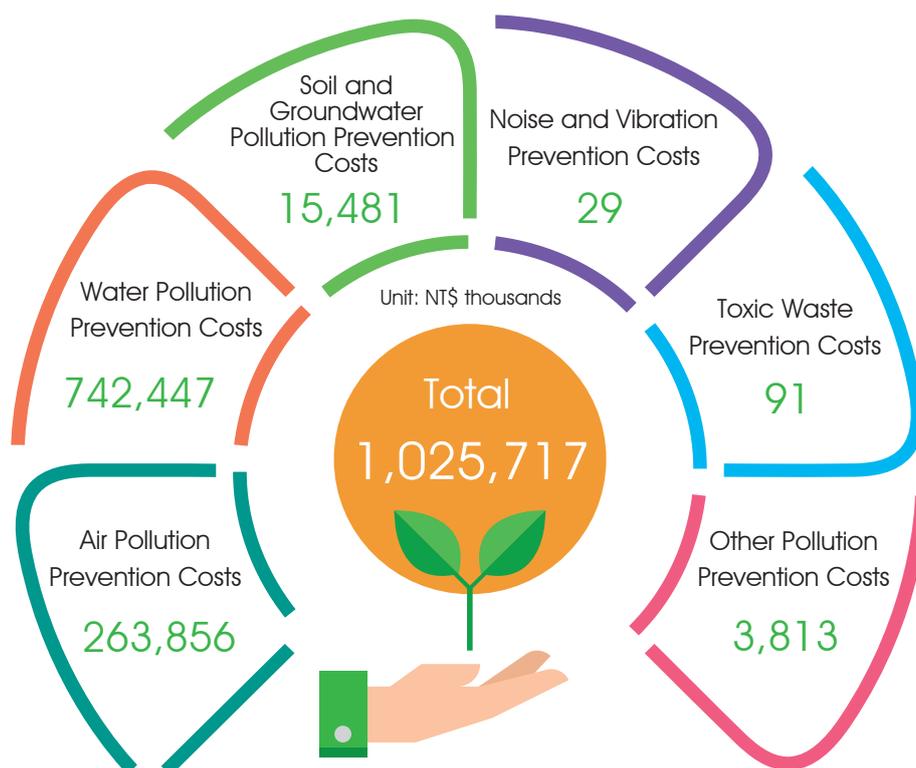
### 3.1.6 Green Procurement

Environmental-friendly products can reduce the energy consumption, pollution, and environmental impact. Therefore, the Company purchases products that are made with recycled materials, products with recyclable, low-pollution, energy-saving and Type 2 Green Mark and products which have the same efficacy that can increase social benefits and reduce social cost. For products with a similar performance (such as energy-saving, water-saving, and Energy Star labels), the Company purchases green products including detergents, toner cartridges, fluorescent lamps and so on. According to statistics, the green procurement expenses in 2017 reached NT\$12.99 million dollars. The amount of green procurement in the past three years is shown on the right.



### 3.2 Plant Environmental Protection

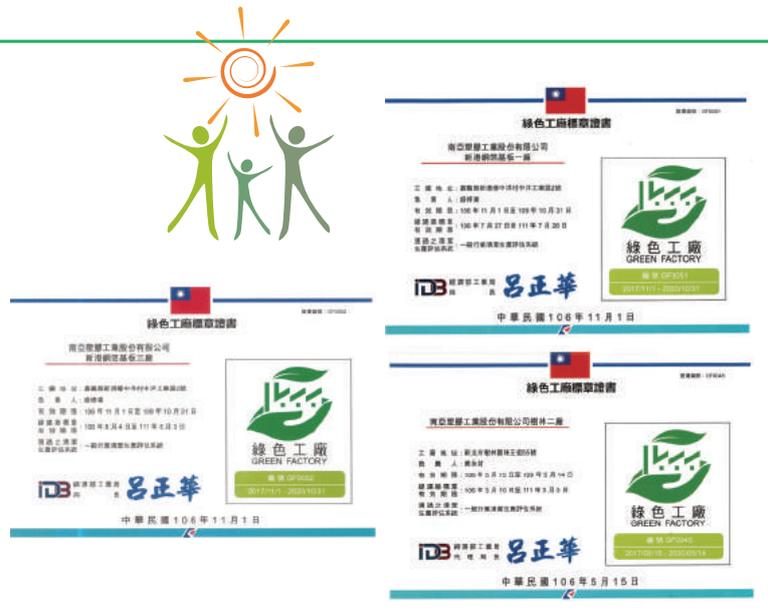
Since its founding, the Company has put equal emphasis on industrial development and environmental protection. In order to pursue environmental protection, the Company adopts the three BACT principles including adopting the best process technology, the best pollution prevention equipment, and environmental management system during the construction of the plant. The Company also continuously seeks improvement in order to achieve pollution discharge compliance with legal regulations. The total pollution prevention expenses in 2017 amounted to NT \$1.026 billion dollars. The breakdown is as follows:



Green factory badge

Nanya Plastics has long been committed to energy saving and emission reduction, green process management, product environmentally friendly design, innovative thinking and circular economy concepts, and fulfilling social responsibilities. The factories that have obtained the green factory badge are as follows:

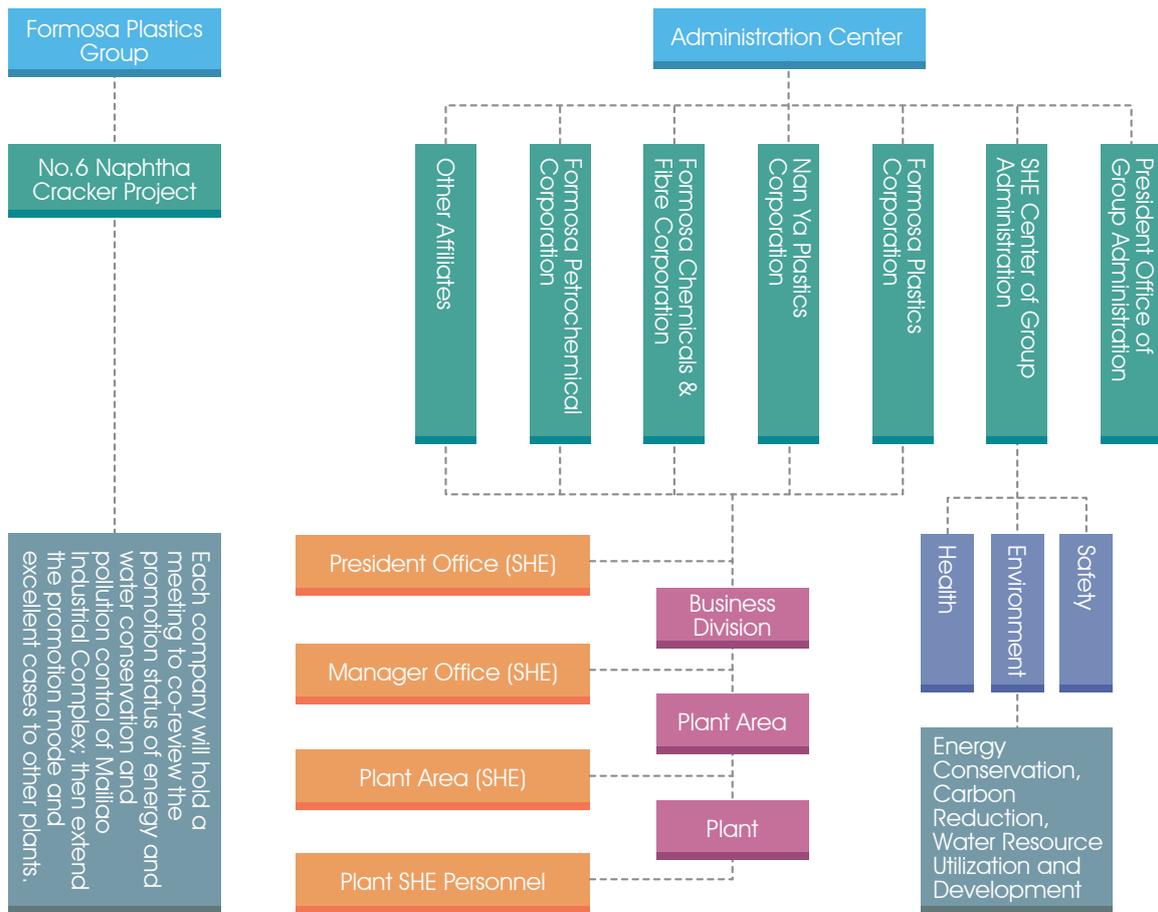
1. Plant 2 of Shulin: May 15, 2017
2. CCL Plant 1 of Hsinkang: November 1, 2017
3. CCL Plant 3 of Hsinkang: November 1, 2017



### 3.2.1 Energy Conservation, Carbon Reduction and Pollution Control Organization Chart

In addition to its efforts in maintaining the safety of the plant's operating environment and avoiding industrial safety incidents, FPG has strengthened the driving force and effectiveness of water and energy conservation related operations and established "Energy Conservation, Carbon Reduction and Pollution Control Organization" in 2006 in response to the issues of water conservation and carbon reduction. FPG integrates and promotes the work of water and energy conservation and pollution prevention and improvement and has involved illumination conservation, environmental accounting, green procurement, office environmental protection, recycling and green buildings to expand the scope of environmental protection in 2008.





### 3.2.2 Water Resource Management

#### (1) Water Consumption Statistics

The Company has 9 major plants all over the country. The total water consumption in 2017 was 22,376 kilotons/year, which increased by 906 kilotons compared with the 21,470 kilotons in 2016. This was mainly caused by the increase in production and the plant pipe cleanup. The main sources of water for each plant are surface water (including irrigation, dam, and river), tap water (from the reservoir), etc.

In order to conserve water resources, the Company continued to promote various water-saving measures in all plants, including: rainwater recovery and waste water recycling. Take Mailiao Industrial Complex as an example, it recycled 585 kilotons of water in 2017, taking up 4.83% of the plant's total water consumption. 181 kilotons of waste water were recycled, accounting for 3.42% of the Company's water consumption. According to the water recovery rate (R2) announced by the Ministry of Economic Affairs (plus the process water recovery, process circulation, and cooling water recovery), the water recovery rate of Mailiao Industrial Complex could reach 88.8%.

Plant	Source of Water	2016 Water Consumption (kiloton/year)	2017 Water Consumption (kiloton/year)
Shulin	Shimen Reservoir, Dahan River, Groundwater	2,004	1,962
Linkou	Dahan River, Groundwater	1,474	1,459
Kung San	Shimen Reservoir, Groundwater	1,498	1,826
Jinxing	Taoyuan Irrigation	2,134	2,433
Mailiao	Jiji Dam	11,925	12,112
Chiayi	Lantan Reservoir, Zengwen Reservoir, Chianan Irrigation, Groundwater	1,165	1,297
Hsinkang	Lantan Reservoir, Zengwen Reservoir, Chianan Irrigation	1,236	1,249
Renwu	Fengshan Reservoir, Groundwater	28	31
Linyuan	Fengshan Reservoir	6	7
Total		21,470	22,376

Note: Above data are internal audit statistics, the water consumption volumes of each plant is in audit.

## (2) Effluent Discharge Management and Sewage Prevention

The Company plans wastewater treatment facilities according to the characteristics of the source of effluent in each plant (including physical treatment, biological treatment, chemical treatment, etc.). Dedicated treatment departments and personnel are also set up to regularly implement education and training programs as well as conducting effluent sampling. Effluent has to meet the national discharge standards before being discharged.

In 2017, the total volume of effluent was 7,136.2 kilotons, which increased 339.9 kilotons in comparison with 2016. The water quality test results of all plants meet the national standards. A total of 9 automatic continuous effluent monitoring systems have been set up in the Shulin, Mailiao, Hsinkang and Chiayi plants. The quantity, water temperature, pH value and conductivity are monitored 24 hours a day (COD and SS are also measured for the Mailiao Industrial Complex). The real-time data is transmitted to the local competent authorities.

Plant	Water Volume for the Discharge	Discharge Volume (Metric Tons/Day)		
		2015	2016	2017
Shulin	Dahan River	2,323.9	2,267.5	2,044.8
Linkou	Tamsui River	2,940.1	3,237.3	3,778.0
Kung San	Industrial Zone	1,937.5	2,051.8	2,085.1
Jinxing	Nankan River	1,245.2	1,200.3	1,070.1
Mailiao	Taiwan Strait	8,491.2	7,548.9	8,179.4

Plant	Water Volume for the Discharge	Discharge Volume (Metric Tons/Day)		
		2015	2016	2017
Hsinkang	Niuchou River	1,582.9	1,516.8	1,379.9
Chiayi	Puzi River	817.5	729.5	946.8
Renwu	Houjin River	60.2	62.1	60.8
Linyuan	Industrial Zone	5.9	5.8	6.2
Total		19,404.4	18,620.0	19,551.1

Source: Formosa Plastics Corporation Database.

Note: The volume of effluent in the Linkou Site includes the 3,346.6 tons/day that are entrusted to Nanya Technology for treatment.

### (3) Water Saving Performance

The Company's plants mostly use ground (surface) water and tap water as water sources. Since water resource is limited, measures such as process water reduction, water saving management measures, and evaporation loss reduction are carefully monitored for effective water use and reduction. In addition, wastewater is recycled and reused. Rainwater collection is carried out in all plants through increasing collection areas and setting up storage tanks in order for rainwater to be effectively stored and reused. A total of 525 water-saving improvement projects were completed 2017 with an investment of 369 million dollars, and an annual benefit of about 216 million dollars (the water-saving results are shown in the table below). Taking Mailiao Industrial Complex as an example, the water consumption is reduced on a yearly basis. In 2017, the average water consumption was 31,581 tons/day, the water consumption per product unit was 3.50 tons/ton, the rainwater recovery rate was 74.78%, and the average rainwater recovery was 1,602 tons/day. The water consumption and rainwater recovery per product unit for Mailiao Industrial Complex are shown in the chart below.

#### Water saving implementation status summary of the Company

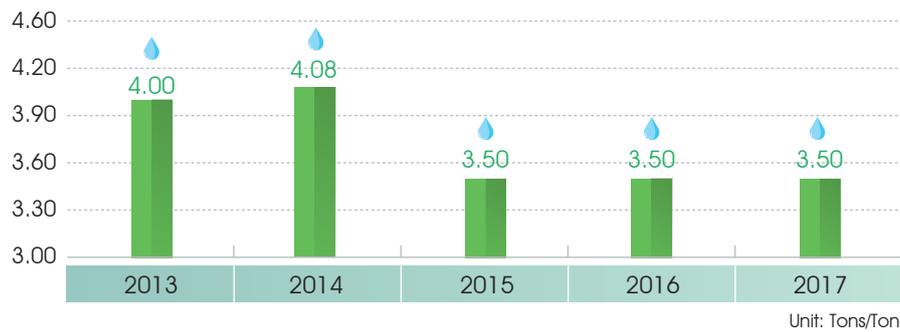
Item	Year	1999~2016 A	2017 B	Total Number of Completed Items (1999~2017) C=A+B	In Progress D	Total E=C+D
Improved Items		472	53	525	67	592
Water Saved (Tons/Day)		22,337	1,437	23,774	778	24,552
Amount Invested (NT\$ 100 million)		3.08	0.61	3.69	0.63	4.32
Improve Efficiency (NT\$100 million/Year)		1.45	0.71	2.16	0.04	2.20

Source: Formosa Plastics Corporation Water and Energy Saving Case Database

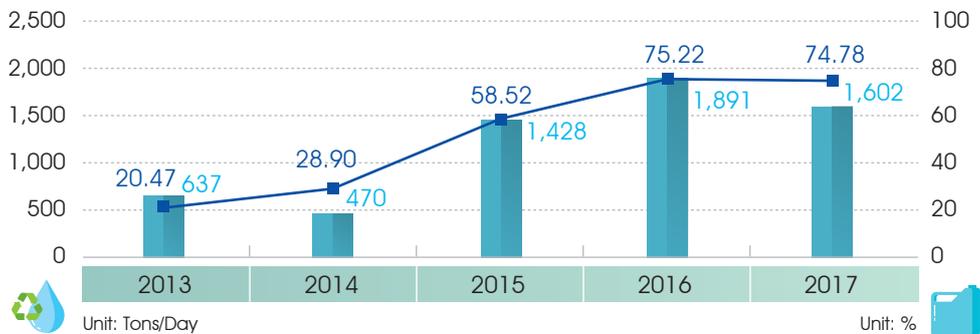
Annual water consumption statistics of per unit product of Mailiao Industrial Complex

Year	2013	2014	2015	2016	2017
Average Production (Tons/Day)	7,949	7,902	9,004	8,785	9,031
Average Water Consumption (Tons/Day)	31,805	32,222	31,556	30,781	31,581
Unit Water Consumption (Tons/Ton)	4.00	4.08	3.50	3.50	3.50

Annual water consumption trends per unit product of Mailiao Industrial Complex (2013~2017)



Annual rainwater recycling and collection rate trends per unit product of Mailiao Industrial Complex (2013~2017)



Note 1: The amount of rainwater recovered = [amount of rainwater recovered from each plant in Mailiao Industrial Complex]/ [number of days in the month]

Note 2: Collection rate = [recovered rainwater from each plant in Mailiao Industrial Complex] / [(monthly average rainfall mm/month from weather data) x (rainwater collection area of each plant) x 24hr]

(4) Soil and Groundwater Management

In order to effectively manage the quality of soil and groundwater, soil testing and groundwater monitoring operations have regularly been carried out since the construction of the plant. Change in concentration is tracked, reviewed, and managed categorically depending on the analysis. To ensure that the leakage incident can be kept under control as soon as possible, after consulting the Soil and Groundwater Remediation Process of the Industrial Bureau of the Ministry of Economic Affairs as well as US experts, the Company has set up “Soil and Groundwater Pollution Remediation and Inspection Management Plan” to manage known pollution and potential pollution.

### 3.2.3 Greenhouse Gas Emission Management

In order to effectively manage the Company's greenhouse gas emissions, greenhouse gas emissions self-audits have been conducted since 2005. Audit personnel from the British Standards Institution (BSI) and the System & Services Certification (SGS) have also been contracted to assist investigation and train internal greenhouse gas auditors. In addition, the ERP information management system and OA management system have been established to ensure the consistency and accuracy of internal greenhouse gas emissions audits.

The Company has completed the certification process and obtained the certificate of the Taiwan Accreditation Foundation (TAF) from 2005 to 2016. The greenhouse gas emissions for 2017 are also inspected and certified in 2018. The Company also participates in voluntary energy conservation and greenhouse gas emission reduction operations promoted by the Industrial Development Bureau every year. The Company's production processes are planned and put in place using BACT. Energy conservation, electricity conservation, and greenhouse gas emission reduction programs are also proposed annually.

#### (1) The Response to Greenhouse Effect

At the end of 2012, the Environmental Protection Administration issued "Regulations on the Reporting of Greenhouse Gas Emissions" and "Reporting Regulations for Fixed Sources of Greenhouse Gas Emissions at Public and Private Places." The emission sources were required to declare the emission volume from 2013 and 2014. The Company has fulfilled its corporate social responsibility since the Kyoto Protocol came into effect on February 14, 2005 by starting a greenhouse gas audit team and promoting the follow-up verification process in accordance with ISO 14064-1. In addition, in accordance with the "Greenhouse Gas Reduction and Management Act" and the "Paris Agreement", the annual control targets for energy consumption and greenhouse gas emission of unit product is set at each plant. Various measures in energy saving, water saving and greenhouse gas emission reduction are actively promoted to achieve the targets.

#### (2) Greenhouse Effect Reduction Measure

The Company's specific greenhouse gas emission reduction measures include reviewing energy consumption targets annually, setting up process improvement personnel, implementing project improvement and personal creative reward system, and setting the greenhouse gas emission standard for each product unit in order to continuously improve the use of materials and energy consumption. The measures are listed in the table below:

- 01

Energy consumption targets are set and reviewed by each plant every year

When the annual budgets are compiled by each plant, the energy consumption targets are reviewed and the implementation results are compared monthly. The improvement projects and follow-up reviews are also carried out for energy-specific issues.
- 02

Process improvement personnel is set in each plant

Continuously manage and improve the use raw materials and energy consumption.
- 03

Improvement Project Award

Promote improvement project system and NT\$ 300 to 20,000 of proposal reward will be given accordingly.
- 04

Personal Innovation Encouragement

Promote IE improvement proposal award system and NT\$ 300 to 20,000 of proposal reward will be given accordingly.
- 05

Excellent improvement cases are shared internally

Nominate excellent improvement cases to attend the corporation's annual evaluation Hold the presentation of excellent environment protection, energy-saving and water-saving cases by turns
- 06

Actively participating in the evaluation of excellent green companies organized by the government

Attend the annual corporation environmental protection award, excellent energy-saving and water-saving evaluation held by government; All plants are encouraged to participate.
- 07

Setting the greenhouse gas emission standard for each product unit

Understanding the difference between the actual and baseline emissions of greenhouse gases at each plant, and ask the plants to review and improve.

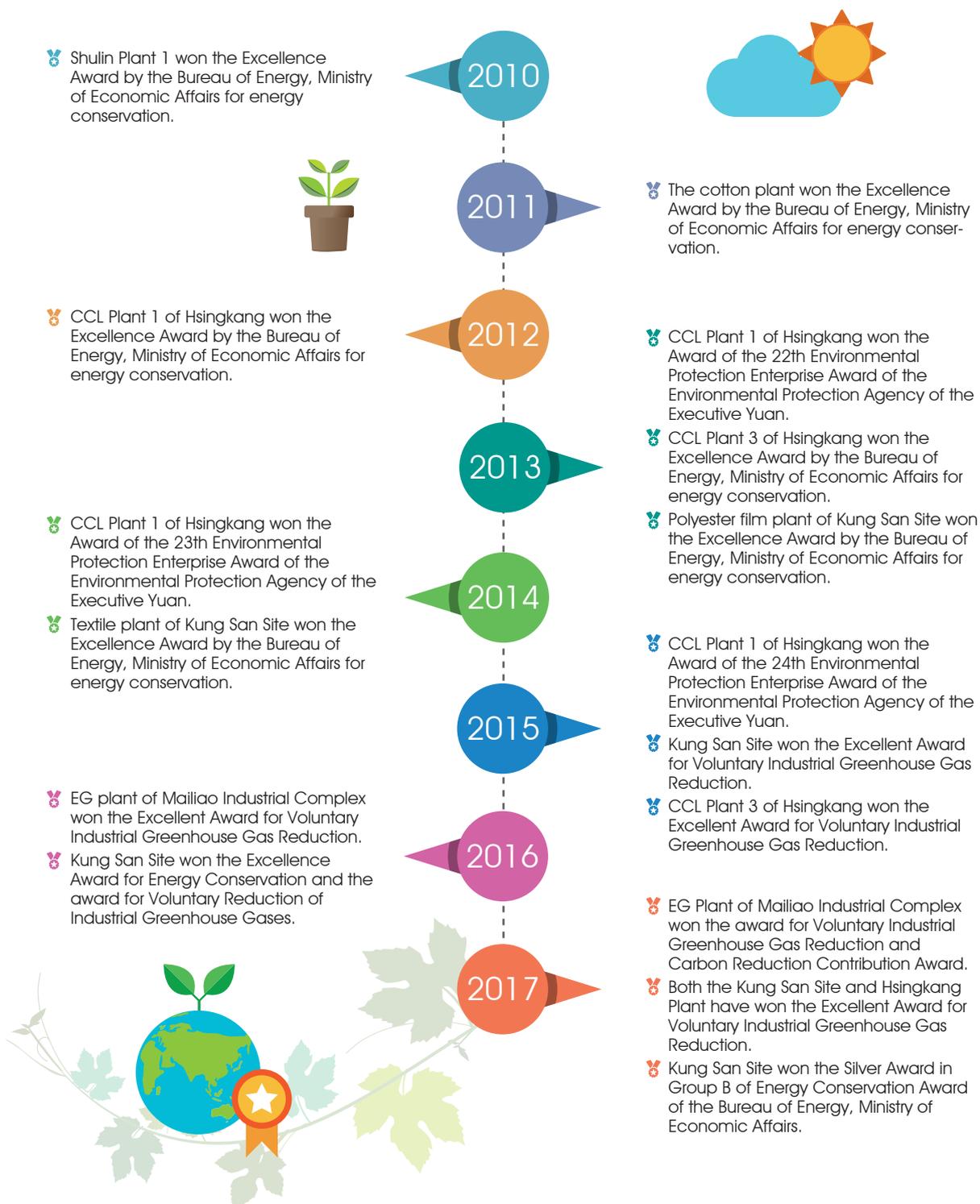
Understand the difference between the actual and baseline emissions of greenhouse gas at each plant, and ask the plants to review and improve the differences.

### (3) Commissioning Professional Institutions for Certification:

Since 2009, the Company has commissioned the British Standards Institution (BSI) and the System & Services Certification (SGS) to verify the Company's annual greenhouse gas emissions. Currently, the certification operation from 2005 to 2016 has been completed and obtained the certifications which meanwhile have met the requirements of the "Greenhouse Gas Reduction and Management Law". The 2017 annual greenhouse gas emissions are being checked and certified.

#### (4) Selection of the plants with excellent energy-saving and carbon-reducing performance:

In addition to promoting various energy-saving, water-saving and greenhouse gas emission reduction measures, the Company actively participates in the selection of companies with excellent energy-saving and carbon-reducing performance among the FPG and government agencies. Energy-saving and carbon-reduction technologies at various plants have been improved through observation and experience exchange. The table below shows the Company's participation in the selection of energy-saving and carbon-reducing companies selected by the Industrial Development Bureau, Ministry of Economic Affairs in recent years.



## (5) Active Promotion of Afforestation:

CO<sub>2</sub> absorbed by afforestation can also offset the emission of greenhouse gases. In the past few years, Formosa Plastics Group cooperated with the government to promote afforestation and carbon reduction policies. From 2011 to 2017, it has adopted 1,099.01 hectares of land in Yunlin County for afforestation, and donated 866 million dollars to Yunlin County Government for afforestation projects. In the future, the projects will continue to be promoted in exchange for emission credits. At present, nearly 2 million trees have been planted. According to the Council of Agricultural, Executive Yuan's No. 0971710266 Description published in 2008, the forest's capacity for carbon dioxide is calculated based on the recommendations of the UN Intergovernmental Panel on Climate Change. The fixed carbon capacity per hectare of forest is 7.45-14.9 metric tons. Assuming a density of 1,500 trees per hectare and the annual fixed carbon capacity of each tree is 5-10 kg. After Calculation, each tree can absorb an average of 7.5 kg of carbon dioxide per year; which means 15,000 tons of carbon dioxide can be absorbed per year.

### 3.2.4 Greenhouse Gas Emissions

According to the "N00170 Greenhouse Gas Audit and Reduction Management Measures" of Formosa Plastics Group, the Company's 2017 initial internal annual audit of greenhouse gases was about 2.85 million metric tons of CO<sub>2e</sub> in Scope 1, accounting for 45.61% of the total emissions of the Company. For Scope 2, there were 3.4 million metric tons of CO<sub>2e</sub>, accounting for 54.39% of the total emission. For Scope 3, it is difficult to collect the relevant data for calculating indirect emission. Therefore, internationally accepted methods have been adopted to only list the audit checklists and emission source of each item. According to the ISO 14064-1 specifications, afore-mentioned items are not included in the emission volume. The Company's annual greenhouse gas emission volume is as follows:

#### (1) Nan Ya Plastics greenhouse gas emission status:

Unit: tons of CO<sub>2e</sub>

Item \ Year	2013	2014	2015	2016	2017 (Note 3)
Scope 1 (Note 1)	2,837,770	2,900,221	2,999,320	2,693,827	2,853,677
Scope 2 (Note 2)	2,996,396	3,133,603	3,293,289	3,381,490	3,403,343
Total emissions	5,834,166	6,033,824	6,292,609	6,075,317	6,257,020

Note 1: Scope 1 refers to direct emissions of greenhouse gases.

Note 2: Scope 2 refers to indirect emissions of greenhouse gases.

Note 3: The 2017 emissions are still under certification. This data is the internal audit data.

Source: Formosa Plastics Corporation Database.

#### (2) Greenhouse gas emission intensity and reduction effect

According to the EPA's verification guidelines, the greenhouse gas emission intensity is defined as the ratio of the total annual emissions of a particular product to the annual production, in metric tons of CO<sub>2e</sub> per metric ton, which is the unit emission of a particular product. The emission intensity of each plant is listed in the Company's certification survey report. The calculation is as followed: greenhouse gas emissions per product unit = total annual greenhouse gas emissions (tons of CO<sub>2e</sub>) / total production (metric tons). Since the Company has large variety of products, therefore this report uses the greenhouse gas emissions of CO<sub>2e</sub> of the Company's unit turnover as the greenhouse gas emission intensity. It is also used for the analysis of the annual greenhouse gas reduction.

### Summary of the intensity of greenhouse gas emissions and reductions of Nan Ya Plastics from 2013-2017

Type	Item	2013	2014	2015	2016	2017 (In Audit)
Nan Ya Plastics	Greenhouse Gas Emissions (Kiloton CO <sub>2e</sub> )	5,834	6,033	6,293	6,075	6,257
	Turnover (NT\$ 100 million)	1,875	1,922	1,799	1,549	1,734
	Greenhouse Gas Emissions Intensity (Kiloton CO <sub>2e</sub> / NT\$ 100 million)	3.11	3.14	3.50	3.92	3.61

Source: Formosa Plastics Corporation Database. The source of turnover is from individual Financial Statement.

Note: The Company's greenhouse gas emissions increased in 2017 compared with 2016. The main reason was the increase in production capacity and the increase in turnover. The unit turnover's emission volume was actually reduced by 7.91%, which has reached the annual short-term decrease target of 5%.

### (3) Projects and Results

The Company has invested 4.503 billion dollars between 1999 and 2017 to promote 3,684 water-saving and energy-saving improvement projects. The total amount of greenhouse gas emission reduction was 1,674,700 tons of CO<sub>2e</sub> /year. In 2018, 403 water-saving and energy-saving improvement projects were kept promoting. The estimated investment is 1.401 billion dollars, which could further reduce greenhouse gas emissions by 307,800 tons of CO<sub>2e</sub> /year.

#### 3.2.5 Energy Saving Performance

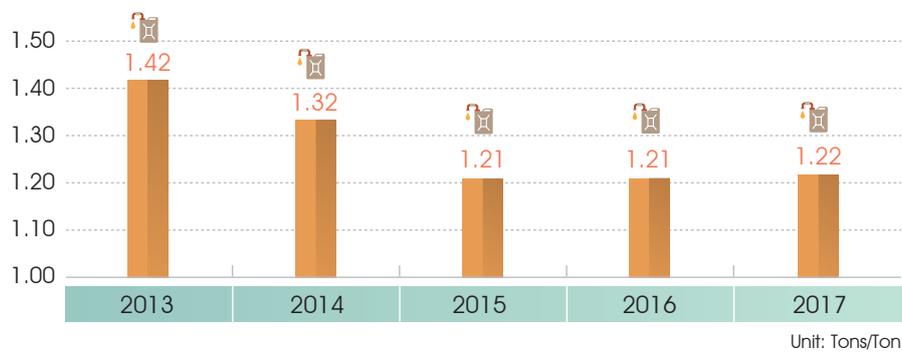
The Company's early energy-saving measures were making each plant improves the process energy reduction, energy reuse, waste heat recovery, equipment efficiency improvement and energy management respectively. The energy use rate could not be maximized due to the lack of cross-plant integration. In recent years, through continuous review and resource integration, the overall energy efficiency has been greatly improved, Waste heat recycling and carbon reduction have been achieved. The total number of energy-saving improvements in 2017 has accumulated to 3,159, with an investment of 4.134 billion dollars. The annual benefit is 4.455 billion dollars. The energy conservation performance is shown in the table below. Take the Mailiao Industrial Complex as an example. According to statistics, the average steam consumption in 2017 was 458.06 tons/hour, the average electricity consumption was 187,000 degrees/hour, the steam consumption per unit product was 1.22 tons/ton, and the electricity consumption per unit product was 496.97 degrees / ton, showing a downward trend year by year, the trend of the two units of product usage is as follows.

Energy-saving implementation status summary of the Company

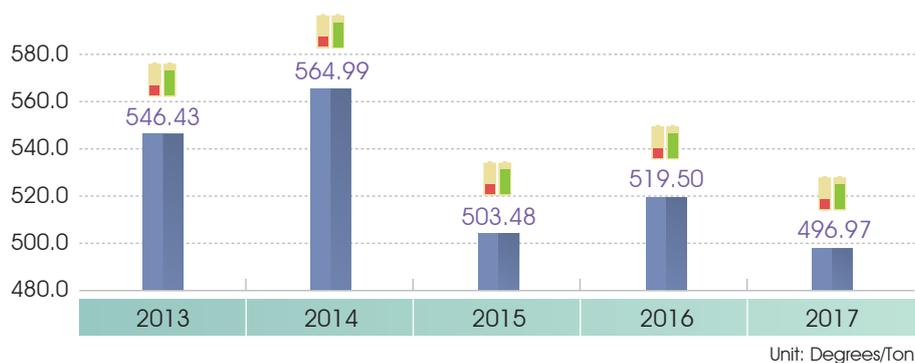
Item	Year		Total Number of Improved Items (1999~2017) C=A+B	In progress D	Total E=C+D
	1999~2016 A	2017 B			
Improved Items	2,855	304	3,159	336	3,495
Steam Saved (Ton/Hour)	437.27	39.51	476.78	105.02	581.80
Electricity Saved (Megawatt/Hour)	62.18	3.49	65.67	5.37	71.04
Fuel Saved (Ton/Hour)	4.84	1.32	6.16	0.79	6.95
Total energy saved (MCal/Hour)	493,244	47,753	540,997	93,727	634,724
CO <sub>2e</sub> Reduction (10,000 Tons/Year)	156.40	11.07	167.47	30.78	198.25
Amount Invested (NT \$100 million)	34.26	7.08	41.34	13.38	54.72
Investment Benefit (NT \$100 million/Year)	40.05	4.50	44.55	6.65	51.20

Source: Formosa Plastics Corporation Database.

Steam consumption per unit product trend of Nan Ya Plastics Mailiao Industrial Complex (2013-2017)



Electricity consumption per unit product trend of Nan Ya Plastics Mailiao Industrial Complex (2013-2017)



## 3.3 Waste and Air Pollution Management

### 3.3.1 Waste Management

In order to ensure that the waste generated by the Company can be properly disposed, the contractor must provide the relevant documents in advance for the relevant departments to be reviewed and archived. The Company also visits the processing plants from time to time to track the actual flows of the waste.

The Company adopts source classification, process waste reduction and recycling in order to reduce waste for the incineration and landfill. In 2017, the Company processed a total of 130,649.3 tons of waste. 102,194.8 tons were reused and recycled (up to 78.2%), 13,029.1 tons were incinerated, and 15,401.6 tons were buried. The waste was classified according to the hazardous characteristics and treatment methods as follows:

Item	Hazardous Waste			General Waste			
	Landfill	Incineration	Recycling	Landfill	Incineration	Recycling	Others
Handling capacity (Ton)	911.1	49.2	6,404.8	14,490.5	12,979.9	95,790.0	23.8
Subtotal	7,365.1			123,284.2			
Total	130,649.3						

### 3.3.2 Toxic Waste Management

The sites and plants that use toxic chemical substances abide by the Regulations on the Administration of Toxic Chemical Substances. The Company has not only obtained relevant documents that issued by the competent authorities, but also implemented hazard prevention and contingency drills to promote the independent management of toxic substances to lower associated risks.

In order to understand the environmental problem caused by toxic chemical substances, the Company worked with the professional organization which Formosa Plastics Group commissioned to complete "Analysis of the use of toxic chemical substances in Mailiao Industrial Complex." The analysis was conducted on 21 toxic chemical substances in category 1 to 3 used in 10 plants. The report was shared with the fire department of each plant as reference for the revision of emergency response and risk management plans.

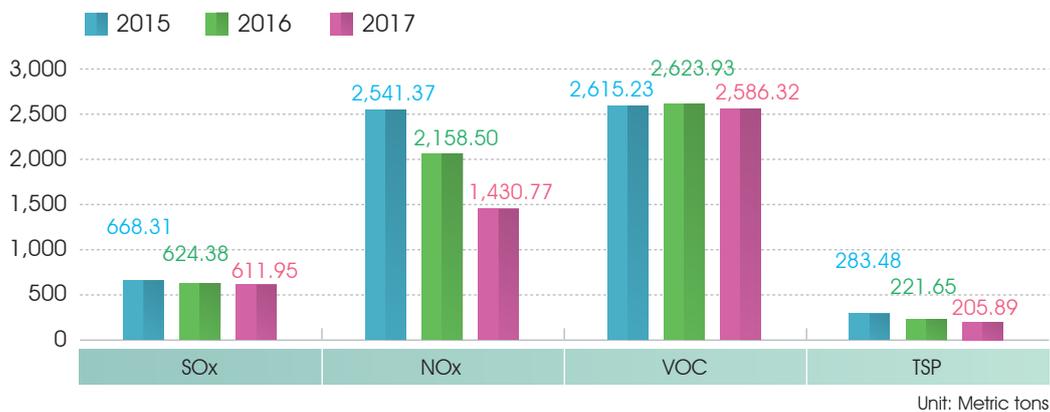
In conjunction with the EPA's "New and Existing Chemical Substances Registration Regulations", all chemical substances manufactured and imported by ourselves have obtained existing chemical substance registration codes.

### 3.3.3 Air Pollution Prevention

#### (1) Air Pollution Emission

To lower environmental impact, the Company has attached great importance to pollution prevention measures since its establishment and continued to promote improvement depending on process characteristics. The Company has set up electrostatic precipitators and bag precipitators, low-nitrogen burners and selective catalytic reduction equipment (SCR). Equipment and installation of flue gas desulfurization equipment (FGD), thermal oxidizer (TO), and activated carbon adsorption system to reduce the amount of raw materials and emission concentration. Moreover, personnel have received comprehensive training to maintain the normal operations of the system. The equipment is also regularly maintained to maximize performance. The Company's annual emission volumes in every plant for 2017 are as follows:

Annual air pollution emission volumes of the Company



2017 Air pollution emission volume of each plant in Nan Ya Plastics

Unit: Metric Tons

Plant/Item	Sulfur Oxides (SOx)	Nitrogen Oxide (NOx)	Volatile organic compounds (VOC)	Total Suspended Particles (TSP)
Shulin	118.54	236.02	421.91	8.07
Linkou	95.11	146.07	24.02	7.26
Kung San	6.01	139.88	25.32	8.95
Jinxing	220.52	335.72	20.83	16.94
Mailiao	100.32	374.44	272.49	19.36
Hsinkang	2.45	6.94	1,437.20	27.78
Chiayi	66.77	188.93	143.27	106.19
Renwu	2.23	2.77	188.96	11.34
Linyuan	-	-	52.31	-
<b>Total</b>	<b>611.95</b>	<b>1,430.77</b>	<b>2,586.31</b>	<b>205.89</b>

Source: Declared Data of Air pollution expense and emissions each Formosa Plastics Group's plant.

The annual test results of each plant have been lower than the pollutant discharge standards set by the government's environmental protection laws and regulations. The coal-fired units of cogeneration system (Shulin, Linkou, Jinxing and Chiayi plants) are tested for Dioxin emission concentration every two years. The concentration is consistently in compliance with the standards (less than 1.0 ng-TEQ/Nm<sup>3</sup>).

## (2) VOC Reduction and Odor Control:

In order to prevent VOC from escaping and reduce to the petitions of the odor from local community, the Company actively promotes various VOC reduction operations. The examples include putting lids on aeration tanks where the wastewater treatment plant is prone to releasing VOC and odor. The treatment plant is also equipped with pipelines to collect exhaust gas to be sent to the processing facility. The company also follows Formosa Plastics Group to purchase 9 sets of GasFind IR infrared leak detectors used by the United States in military applications. The detectors are deployed in various factories to help identify and address the source of the leak.



Qualified contractors are commissioned to implement discharge pipeline inspection projects of fixed pollution source



Contractors are implementing fixed pollution source detection



An air pollution control prevention equipment was added in the Shulin plant



Voluntary checkups are carried out regularly to detect the leaking source in the plant

## 3.4 Circular Economy Promotion

In her inauguration speech, President Tsai Ing-wen mentioned: "Transforming waste into renewable resources will lead Taiwan to an era of circular economy." To respond to the governmental policy and fulfill corporate social responsibility and environmental protection, the four companies have joined hands to integrate resources, set up energy conservation and carbon reduction promotion teams, and enhanced water and energy conservation to achieve the goals of effective use of resources, continuous waste reduction and recycling.

On May 11th, 2017, National Yunlin University of Science and Technology held a special conference on the implementation of the circular economy practices by Formosa Plastics Group's Mailiao Industrial Complex. The effort and experience of circular economy practices such as energy conservation, emission reduction, energy resource integration, waste recycling was shared with the community. It has won recognition and praise from the society.



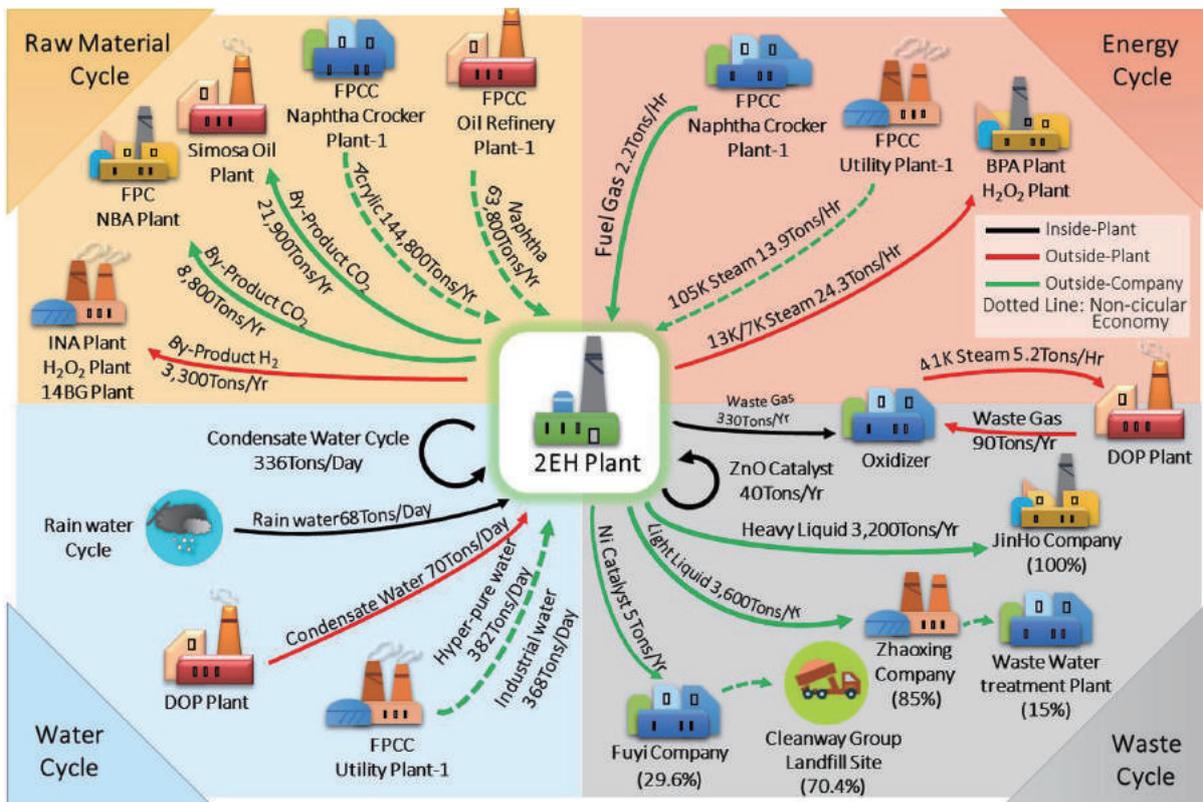
Take some examples, the Company's recycling office proposed "recycling of wastewater (cooling water, discharge water)" project. By setting up wastewater recycling facilities, 1,200 tons of daily wastewater are extracted, out of which 600 tons can be recovered at the recycling rate of 50%, which can then be used in the process.

In addition, the isooctyl alcohol plant proposed "2EH Plant Raw Material Recycling" project. Through cross-company cooperation, the CO<sub>2</sub> that was originally intended to be released into the atmosphere was directed to the n-butanol plant. It is expected to reduce CO<sub>2</sub> emission by 41,800 tons per day.

In order to effectively and systematically promoting circular economy, Formosa Plastics Group has reviewed the raw material reduction, integration of energy resources, and the reduction and recycling of discharge water and waste. Each plant has integrated the circular economy relationship within the plant. From the aspects of raw materials, energy cycle, water cycle and waste cycle, the sources and consumption of raw materials, energy and water are reviewed and integrated. Afterwards, the effort and performance of each plant will be reviewed.

An example would be the circular economy integration of the Company's isooctyl alcohol plant (2EH plant). The 2EH plant's energy source comes from Formosa Petrochemical Corporation. The 2EH plant in turn supplies the low-pressure steam generated in the process to the Company's BPA and epoxy resin plants. The CO<sub>2</sub> by-product is supplied to the Simosa Oil Co., Ltd and Formosa Plastics Corporation's Butanol plant. The improvement of rainwater and waste recycling utilization rate will be carried out in the future to achieve the goal of circular economy.

2EH Plant Circular Economy Integration Figure



### 3.5 Environmental Violations

The Company did not have any major leakage in 2017, but 3 environmental violations tickets were received. It was mainly due to the fact that the personnel did not operate the equipment in accordance with the air pollution permit, and the contaminated soil in the plant was not collected according to the remediation plan.

After review, the problem was caused by negligent staff and faulty paperwork management. In order to prevent recurrence, the cases were used as examples to strengthen education. The plant was required to implement self-inspection and regular review of work practices to strengthen management from the beginning. Our goal is to achieve zero-environmental protection violation.

Type	2014	2015	2016	2017
Air Pollution	1 case/ NT\$100,000	0 case/ NT\$0	4 cases/ NT\$400,000	2 cases/ NT\$200,000
Water pollution	0 case/ NT\$0	0 case/ NT\$0	0 case/ NT\$0	0 case/ NT\$0
Waste pollution	0 case/ NT\$0	0 case/ NT\$0	0 case/ NT\$0	0 case/ NT\$0
Others	0 case/ NT\$0	0 case/ NT\$0	0 case/ NT\$0	1 case/ NT\$100,000
Total	1 case/ NT\$100,000	0 case/ NT\$0	4 cases/ NT\$400,000	3 cases/ NT\$300,000



# 4

## Creating a Happy and Safe Workplace

## Governance

### Visions & Goals

Employees are the cornerstone of the sustainable development of Nan Ya Plastics Corporation. The Company's overall productivity and competitiveness are enhanced through the joint effort of all employees. In terms of recruiting and retaining talents, we abide by the laws and regulations to protect the employees' human rights. We also offer excellent remuneration packages as well as a sound management system, robust training, and smooth promotion channels. Furthermore, we treat the physical and mental health of the employees and work environment as our top priorities. We actively establish the culture of work safety, raise employee awareness, and strive to provide a safe and secure work place.

### Material Issues

1. Employee benefits and remuneration
2. Occupational health and safety
3. Industrial and public safety

### Management Flow

1. Employee benefits and remuneration: The Company provides packages that are above the local minimum wage. Packages for new recruits are based on the qualifications required for the job. Female and male employees of the same position and rank receive equal pay for equal work. Employee performance is reviewed regularly in order for raise and promotion to be given accordingly.
2. Occupational health and safety: All personnel are required to participate in the security, health, and environmental management through review, audit, communication, education, and training. Security, health, and environmental requirements are also strengthened in the procurement and contracting systems. In addition, employees are offered regular health checkups. Medical staff members are also present at all plants to provide professional medical guidance and consultation.
3. Industrial and public safety: We have established the concept of risk management by implementing international norms, importing technologies and professionals, and integrating various operating systems and procedures. Through implementing risk management of process, equipment and personnel, all on-site risks can be eliminated. Externally, through strengthening supervision of the contractors' operations, conducting safety assessment of transportation contractors, and setting up a safety supervisor, industrial and public safety can be strengthened.

### Relevant Policies and Actions

1. Complying with labor laws and corporate personnel management rules when conducting all operations.
2. Providing employees with communication channels and valuing employee feedback.
3. Providing regular health checks for employees that are superior what is required by the law.
4. Promoting process safety management to strengthen work safety and lower risks.
5. Implementing contractor construction safety management, safety supervisor, and contractor transportation safety assessment.

### Communication Channels

1. Regular trade union and welfare committee meetings and internal communication channels such as the 799 hotline.
2. Bi-annual "PSM operation exchanges and personnel seminar" are held. The results of process risk management are presented each year.
3. Coordination meetings with contractors are held regularly, and toolbox meetings are held on a daily basis.

## 4.1 Human Rights Protection and Employment

In order to attract outstanding talents, the Company provides stable and excellent salary, as well as comprehensive education, training, and promotion systems. The employees' professional capacity is continuously developed. To take full advantage of human resources, comprehensive welfare, safe work environment, and employee health are all taken care of. We also established multiple communication channels for employee feedback and rights protection, in the hope that employees can be an important cornerstone to the Company's sustainable development.

### 4.1.1 Human Rights Protection

The Company strictly abides by domestic and foreign regulations of labor and human rights to treats all employees fairly. The measures include:

- A. Labor conditions are formulated in accordance with government labor laws and regulations.
- B. Adhering to the Employment Services Act to provide open, fair and impartial job opportunities to all job seekers.
- C. Setting up "Employee Grievance Procedure" as well as multiple channels for appeals. The employees can make appeals anytime when their rights are infringed.
- D. There is a personnel review meeting where senior executives discuss and decide on major reward or discipline cases.
- E. Strengthening sexual harassment prevention by setting up "Measures of Prevention, Correction, Complaint and Punishment of Sexual Harassment at Workplace". The employees are provided with clear complaint channels to ensure employee rights and interests.
- F. Setting up "personal data management regulations" to properly store and handle all personal data.
- G. In order to implement and advocate anti-corruption policies, relevant provisions are clearly stated in the "pledge" that each employee is required to sign and abide by.



### 4.1.2 Employment

The Company's recruitment process has always been fair, just, and impartial. The candidates are hired based on their qualifications while fully abiding by the provisions of Labor Law. Child labor has never been employed. Human rights principle of equal employment opportunities is upheld. Based on the human rights principle of equal employment opportunities, conditions such as age, ethnicity, gender, sexual orientation, religion, partisanship, native place, marital status, appearance, and disability are never taken into consideration. The promotion, assessment, training, rewards and disciplines are all clearly defined and standardized, so that all employees enjoy fair treatment. There were no violations of human rights or discrimination in 2017.

**Age and regional distribution of Nan Ya Plastics Corporation's new recruits in 2017**

Unit: Person

Type	Division	Female	Male
Age	Under 29	38	429
	30-39	11	115
	40-49	0	1
	50-59	0	0
	Over 60	0	0
Region	Northern Taiwan	24	216
	Central Taiwan	0	60
	Southern Taiwan	25	269
Total		49	545
Proportion of New Recruits		2.7%	5.4%

Note: The proportion of new recruits is the number of new recruits of the gender divided by the total number of people of the same gender.

### 4.1.3 Workforce Structure

In 2017, 98% of the employees were full-time workers, and contract staff only accounts for 2% (of which 235 were males, including 5 consultants, 10 on fixed-term contracts, 209 foreign workers, 11 part-time workers; 2 were females, including 1 consultant and 1 part-time worker). The 161 persons with disabilities accounted for 1.3%. The proportion of full-time workers for the past 5 years has remained above 90%, and more than 98% are local employees. As for outsourced manpower, there were a total of 294 people at the end of 2017, including 197 men and 97 women, all of whom were locals. In addition, the ratio of local men and women is about 5.5:1, the average age is 46.5 years old, and the average length of service is 21.7 years.

**Workforce Structure of Nan Ya Plastics Corporation in 2017**

Unit: Person

Type	Division	Female		Male		Total
		Number of People	Proportion of the group	Number of People	Proportion of the group	
Position	Executive and above	2	0.1%	54	0.5%	56
	Primary & Secondary Supervisor	53	2.9%	1,845	18.2%	1,898
	Junior supervisors and personnel	1,777	97.0%	8,220	81.3%	9,997

Type	Division	Female		Male		Total
		Number of People	Proportion of the group	Number of People	Proportion of the group	
Location	Northern Taiwan	1,132	61.8%	4,728	46.7%	5,860
	Central Taiwan	58	3.2%	1,397	13.8%	1,455
	Southern Taiwan	642	35.0%	3,994	39.5%	4,636
Age	Under 29	92	5.0%	1,014	10.0%	1,106
	30-39	345	18.8%	1,108	10.9%	1,453
	40-49	880	48.0%	3,855	38.1%	4,735
	50-59	445	24.4%	3,346	33.1%	3,791
	Over 60	70	3.8%	796	7.9%	866
	Length of Service	Less than 10 years	152	8.3%	1,844	18.2%
11-20 years		437	23.8%	1,459	14.5%	1,896
21-30 years		839	45.8%	4,779	47.2%	5,618
Over 30 years		404	22.1%	2,037	20.1%	2,441
Education	Ph.D.	0	0.0%	31	0.3%	31
	Master's Degree	31	1.7%	481	4.8%	512
	College	45	2.4%	1,524	15.0%	1,569
	Others	1,756	95.9%	8,083	79.9%	9,839
Gender subtotal		1,832		10,119		11,951

Note: The workforce structure is based on the number of employee' statistics on December 31, 2017.

#### 4.1.4 Local Supervisor Ratio

The supervisors at all levels of the Company are local. They are trained and promoted internally to boost employee morale. In addition, the Company has created stable employment opportunities in various locations. Priority is given to local residents when recruiting junior staffs to benefit the local community. The Company also actively cultivates local residents to become senior supervisors. The proportion of locally-hired supervisors in the past three years has remained above 48%.

##### Proportion of locally-hired supervisors of Nan Ya Plastics Corporation in the past three years

Year	2015	2016	2017
Number of People	2,334	2,450	2,550
Ratio of local hires (%)	53.9%	56.6%	48.4%

Note: The supervisors on this chart refer to the staff in junior management and above with 5 years of service, with registered addresses in the same county as the plant.

## 4.2 Employee Rights and Benefits

### 4.2.1 Employee Remuneration

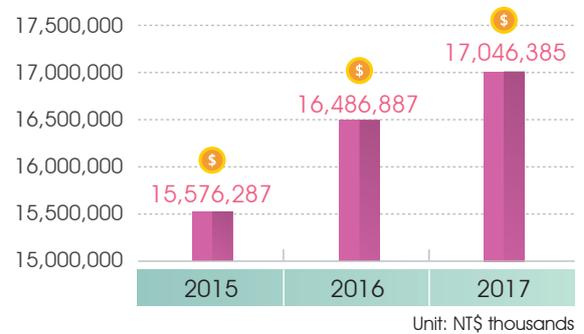
The Company's salary is above the local minimum wage. In order to attract and retain outstanding talents, the salary is also above the industry average. Salaries for new recruits are based on the qualifications required for the job. Female and male employees of the same position and rank receive equal pay for equal work. Employee performance is reviewed regularly in order for raise and promotion to be given accordingly.

#### Proportion of salary for female and male employees of the same position and rank



Note: In 2017, the salary of female secondary supervisors (inclusive) and above is higher since the amount of female is more than that of male in this position. The number for male junior supervisors (inclusive) and below is higher since they take on shift work for increased allowance.

#### Salary and welfare expenses of the Company



Source: Historical financial statements of the Company

### 4.2.2 Good Job Security

To respond to the rapid changes in the industry and the continuous advancement and innovation of technology, the Company continues to rationalize its management and actively promotes process optimization to provide a quality work environment. Personnel who are deemed as unfit for the job are coached, transferred, or dismissed. The procedure complies with the provisions of the Labor Law. Prior to the transfer or changes in duties, the department heads will first communicate with the parties as well as following the prescribed procedures.

In the past five years, the Company's voluntary quitting rate has remained below 0.08% (mainly between 0.06-0.10% every month). The absence rate was 0.29%. (the absence rate calculation takes sick leave, official leave, and work-related injury leave, of which male took up 0.27%, and female 0.37%). Absence rate for outsourced employees was 0.11% (0.14% for men and 0.08% for women). This fully demonstrates the effectiveness of employee care and job security, and the employees' strong trust and recognition of the Company.

### Age and regional distribution for resigned employees for Nan Ya Plastics Corporation's in 2017

Unit: Person

Type	Division	Female	Male
Age	Under 29	12	92
	30-39	11	72
	40-49	10	43
	50-59	8	91
	Over 60	1	96
	Retirement	6	96
Region	Northern Taiwan	36	308
	Central Taiwan	1	33
	Southern Taiwan	11	149
Total		48	490
Turnover Rate		2.6%	4.8%

Note 1: The number of resignations in the above table includes retirees and employee who dismissals with severance pay.

Note 2: The turnover rate is the number of people who has resigned of the gender, divided by the total number of people of the same gender.

### 4.2.3 Employee Benefits and Care

In order to let all full-time employees work with ease of mind and fully utilize his / her expertise, the Company continues to treat employees like family. During the construction of each plant, food, accommodation and leisure facilities have all been planned. Long-term welfare of the employees is also taken into consideration by actively planning various benefits systems.

The Company has implemented a number of employee benefits and preferential measures that are superior to statutory requirements, including:



For more details of the benefits, please refer to our website:  
[https://www.npc.com.tw/j2npc/zhtw/employee\\_benefits.jsp](https://www.npc.com.tw/j2npc/zhtw/employee_benefits.jsp)

In addition, in order to create a mother-friendly workplace, nursing rooms are set up in the plants in compliance with the law. Moreover, unpaid parental leave is also offered. Eligible staff members can also adjust work hours depending on childcare needs. In 2017, a total of 14 employees applied for unpaid parental leave (of which were 9 women and 5 men). The reinstatement rate was 88.9%.

Parental leave application and reinstatement rate of the Company

Unit: Person

	2015			2016			2017		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Actual Number of Parental Leave Applications	9	3	12	6	6	12	9	5	14
Number of Employees Expected to be Reinstated during the Year (A)	14	0	14	7	2	9	10	8	18
Number of Applications for Reinstatement during the Year (B)	14	0	14	7	2	9	9	7	16
Reinstatement Rate % (B/A)	100	-	100	100	100	100	90	87.5	88.9
Retention Rate %	100	100	100	100	100	100	100	100	100

Note: Retention rate refers to the rate of reinstated employee staying for over 1 year after parental leave ends.

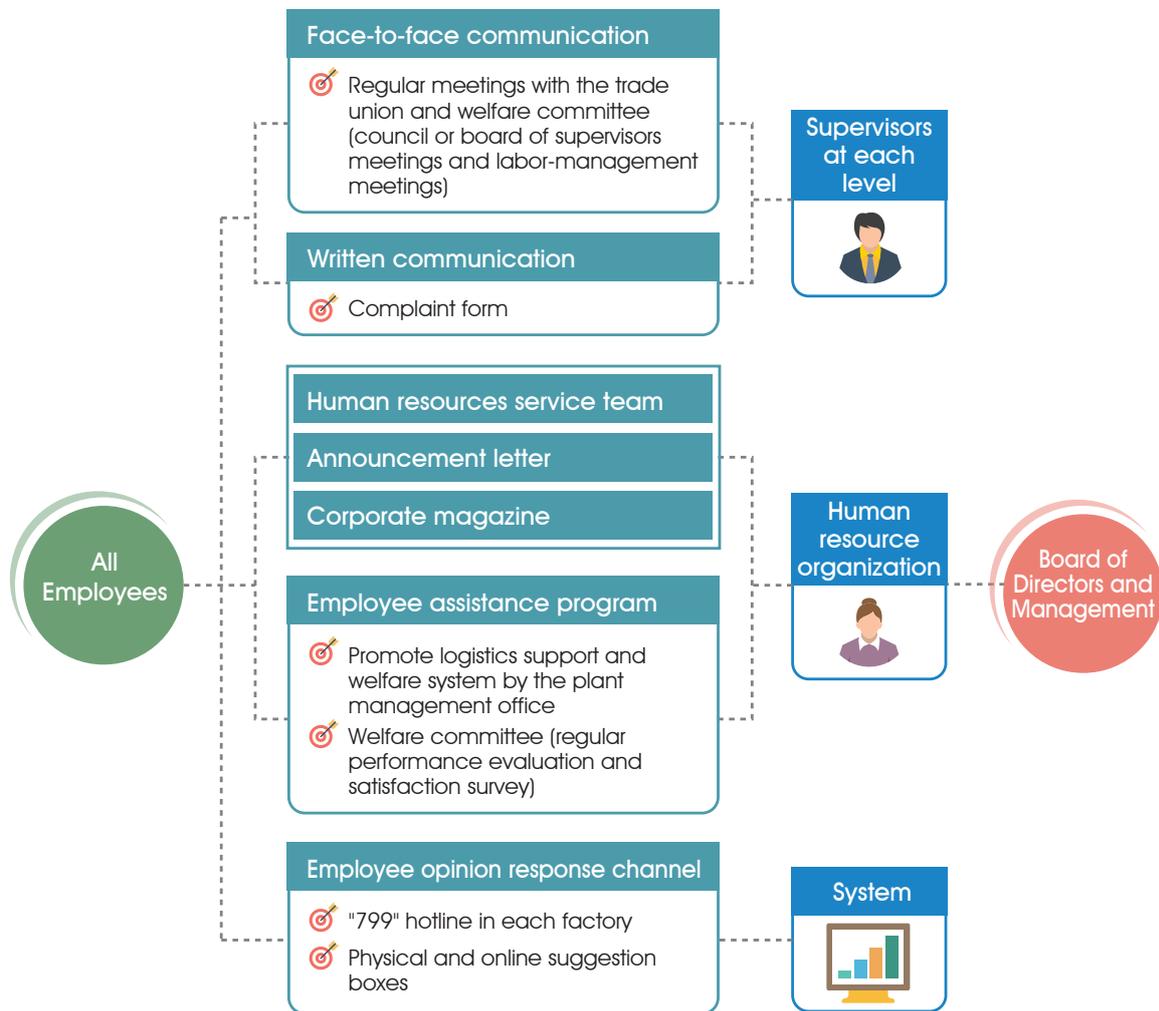
#### 4.2.4 Valuing Employee Feedback

Since employees drive the growth of a company, the Company strives to pursue harmonious labor relations as well as attaching importance to employee feedback by providing diverse and smooth communication channels. The employees are also actively encouraged to propose innovative ideas.

The Company abides by the laws and regulations of labor and human rights to treat all employees fairly. The employees are protected by the mutual agreement and are free to join trade unions. Currently, 82% of the employees are members of the work union. At the same time, employees can join organizations such as the trade union (labor union), welfare committee and so on. The employees can give recommendations and consultations through regular meetings. Department supervisors attend regular council or board of supervisors meetings and labor-management meetings held by the trade union to communicate with the labor representatives. In addition, on the major labor issues, priority is given to the opinions of the trade union. The senior executives will negotiate with the trade union to reach a consensus, in order to ensure the harmonious relationship between labor and management for the sustainable development of the Company.

In addition, employees can also give feedback about benefits through the proposal of the welfare committee. In the meantime, we also set up suggestion boxes in places where employees often pass by as well as an online suggestion box. The employees can also raise grievances by dialing the "799" hotline in each plant. Designated personnel will then file the case and reply.

## Internal communication channels for employees



## 4.3 Talent Training

### Employee education system of Nan Ya Plastics Corporation

Employees are the most important asset of a company and the basis for its sustainable operation. The Company has developed a complete personnel training system. Through the online training management system, the training can be completed step by step. The current training system includes new pre-employment training, basic job training, professional job training, as well as personnel reserves program for trainee managers in order to train all-round employees.



### 4.3.1 Staff Training and Assessment

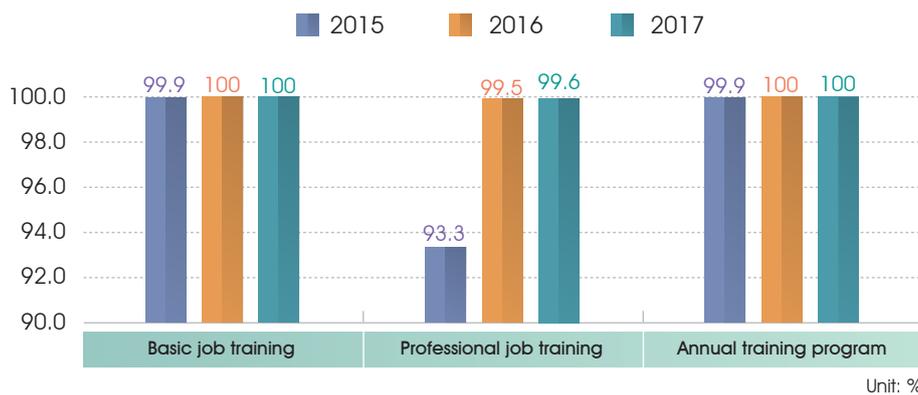
In 2017, the average number of training hours per employee was about 51 hours. The average number of training hours for the primary supervisors was 16 hours, for secondary supervisors was 33 hours, for junior supervisors was 69 hours, and for junior personnel was 75 hours. To meet the operational and safety needs of various units, the staffs are coached to obtain relevant professional licenses. In order to enhance the professional and managerial skills of the employees, courses with various themes are given from time to time, such as "Basic Training for Real Time Production Management System" , "Statistical Quality Control and Experimental Design" and "Visual Inspection Training" , etc. All aforementioned courses also help the employees manage their post-retirement life and life-long learning program. In addition, in order to raise human rights and work safety awareness, the Occupational Safety and Health Act, the Labor Standards Act, the Sexual Harassment Prevention and Gender Equality Act are also promoted through various meetings, ten-minute training programs, morning meetings, and formal trainings.

Nanya Plastics Company's training status for all employees in the past three years

Unit: Hour

Year	Rank	Primary supervisor	Secondary supervisor	Junior Supervisors	Junior staff
2015		8,014	31,447	140,691	364,213
2016		12,029	37,422	144,997	409,958
2017		12,866	37,703	170,062	555,819

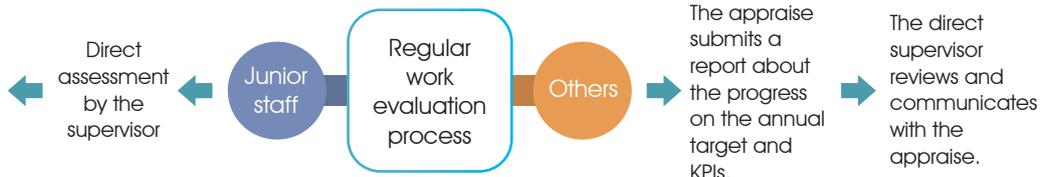
Nan Ya Plastics Corporation's training completion rate in all stages for the past three years



Note: The completion rate refers to the ratio of the assigned training programs that were completed in the same year.

In addition, in order to improve the quality of work and cultivate a responsible work attitude, the regular work assessment is specified in the "Performance Review Procedures". All employees are reviewed every 1-3 months depending on their duties. Regular work assessments motivate employees to pursue growth and create a challenging work environment.

Those who perform well are informed and encouraged accordingly. Those who perform poorly are warned, assisted, and guided.



### 4.3.2 E-learning Knowledge Management System

In order to provide employees with diversified channels for self-learning, Formosa Plastics Group has been developing an e-learning system since 2000. An "employee learning website" has also been established to provide various online courses, articles, new books, presentations and other learning resources to facilitate flexible learning among employees. In addition, the "E-Learning Newsletter" has been published monthly since April 2005. It reminds employees to take courses online, obtain the latest learning information, and to expand their knowledge.



In addition, we started to promote the knowledge management system in 2000. All kinds of in-house systems, knowledge and technical experience of each unit that are inspiring or valuable as reference are available on the shared platform to facilitate employee sharing and inquiries. This effectively passes on corporate knowledge. Currently, there are 14 categories, of which including more than 21,917 items.



### 4.3.3 Security Personnel Training

The access control of the Company's various plants and the Formosa Plastics Building is handled by the internal security guards. The security guards are the first line of defense for the people, vehicles, and objects in the office buildings. According to the regulations, all security personnel must receive comprehensive professional training course in industrial safety (fire, first aid, safety and health), security work regulations, access management rules, relevant regulations (criminal law, civil law), physical training, fire engines driving training, etc. In the meantime, regular testing on rules and fitness tests is conducted every month to maintain at good professionalism and physical fitness. In addition, on-site examples and case studies are shared, including emergency response, telephone etiquette, and duty etiquette to avoid overstepping service codes or human rights violations.

## 4.4 Workplace Safety

All personnel are required to participate in the security, health, and environmental management through review, audit, communication, education, and training. Appropriate measures are adopted to correct all abnormalities. Security, health, and environmental requirements are also strengthened in the procurement and contracting systems. The goal is creating a sustainable environment with zero work injury, zero hazards, and zero pollution.

The Company attaches great importance to employee feedback and prioritizes safety and employee care. All safety and health management proposals can be made by filling out the feedback form or attending regular seminars so that management could adjust accordingly. Moreover, medical staffs have been set up in all plants to provide professional medical guidance and consultation.

In recent years, we have also collaborated with government agencies to promote high-risk operation safety meetings and high-level executive seminars in the Mailiao Plant. High-risk hazards such as fire, explosion, and confined space are discussed in these meetings in order to improve related procedures. In addition, technicians from abroad are invited by the Company to conduct professional plant inspections. Different opinions and suggestions are collected to improve the safety of various equipment and facilities. As a result, equipment facilities

and management measures are more refined. Our goal is staying on par with the international community in terms of creating a safe workplace.

### 4.4.1 Workplace Safety Management

The Company's main workplace safety management measures include setting up "Occupational Safety and Health Committee", "process safety management", "disaster prevention training", etc. According to statistics, there was no fatal accident in 2017, the disabling injury frequency rate was 0.34, and the disabling injury severity rate was 7. The disabling injury index was 0.04. All occupational hazard indicators performed better than the peers (in plastics industry). There were 8 injuries that led to disabilities, which were classified by categories with 3 cases each of high-temperature contact and falling, accounting for 37%; 2 cases of getting trapped by the equipment, accounting for 25%.

Nan Ya Plastics Corporation's work accident indicator in comparison with the industry

Year	Nan Ya Plastics Corporation			Plastic products manufacturing and processing		
	Disabling injury frequency rate	Disabling injury severity rate	Disabling injury index	Disabling injury frequency rate	Disabling injury severity rate	Disabling injury index
2015	0.36	275	0.31	2.20	337	0.86
2016	0.31	37	0.10	1.90	237	0.67
2017	0.34	7	0.04	1.87	293	0.74

Note 1: Disabling injury frequency rate (DIFR) = number of disabling injury × 10<sup>6</sup> ÷ total manhours worked

Note 2: Disabling injury severity rate (DISR) = number of injured days off work × 10<sup>6</sup> ÷ total manhours worked

Note 3: Disabling injury index = (DIFR × DISR ÷ 1000)<sup>1/2</sup>

Occupational accident data from all plants of Nan Ya Plastics Corporation in 2017

	Male			Female		
	Disabling injury frequency rate	Disabling injury severity rate	Disabling injury index	Disabling injury frequency rate	Disabling injury severity rate	Disabling injury index
Taipei	0	0	0	0	0	0
Shulin	0	0	0	0	0	0
Linkou	1.02	28	0.16	0	0	0
Kung San	0.74	19	0.11	0	0	0
Jinxing	0	0	0	0	0	0
Mailiao	0.38	14	0.07	0	0	0
Chiayi	1.49	12	0.13	0	0	0
Hsinkang	0	0	0	0	0	0
Renwu	0	0	0	0	0	0
Details	8 male employees were involved in occupational incidents, of which 3 cases each were high- temperature contact and falling, accounting for 37%, and 2 were getting trapped by the equipment, accounting for 25%.			No female employee was involved in occupational accident.		



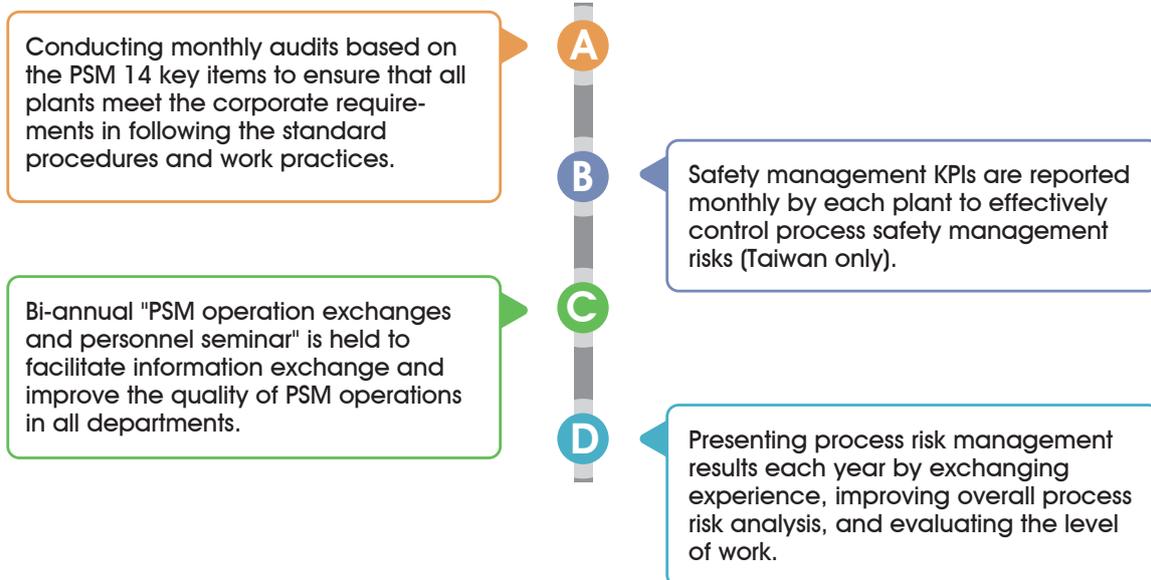
### Setting up the Occupational Safety and Health Committee

All plants have set up an Occupational Safety and Health Committee in compliance with the laws and regulations. The committees convene once every three months. The total number of members is 181, of which 70 are labor representatives, accounting for 39%, which is higher than the legal requirement. The Company has been in touch with professional teams domestic and abroad to obtain guidance and techniques in these fields, such as holding regular seminars and meetings with labor inspection agencies, conducting emergency drills with local authorities, sending firefighters to domestic professional firefighting training units, commissioning TÜV Rheinland (Germany) and the Lloyd's Register (UK) for comprehensive inspection, verification and recommendations, as well as inviting IHS (US) to guide process hazard analysis (PHA). The aforementioned measures make the Company's safety and health, risk assessment and fire management operations converge with the international standards. The Company is also capable of supporting government agencies to maximize the benefits of every resource.



## Process Safety Management

14 PSM operations are promoted in accordance with the corporate regulations. A total of 149 PSM personnel (86 in Taiwan, 56 in China, and 7 in Vietnam) at different levels have been put in place to promote and control PSM management operations in different departments, as well as ensuring the quality of PSM operations. The details of the operation are as follows:



### A. Process Hazards Analysis (PHA)

In order to understand and take control of the operations risks in plants, aside from re-conducting reviews of process and personnel's PHA operations, suggestions are also conducted for improvement and progress control.

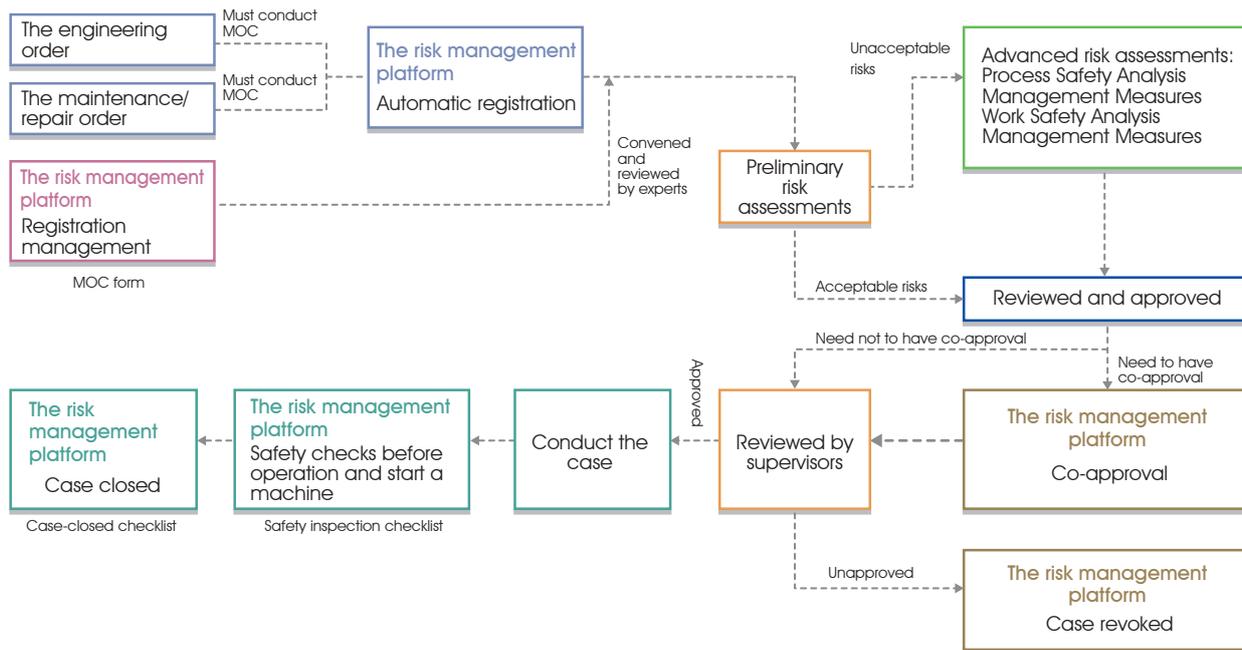
In terms of improving the quality of PHA, the Company has commissioned IHS to conduct training and certification for PHA facilitators. A total of 23 people have been certified (16 in Taiwan, 7 in mainland China) to perform PHA monthly in order to comprehensively guide and promote the PHA operation of each plant. The goal is to identify the potential hazards in the workplace and effectively control process risks.



## B. Management of Change (MOC)

In order to ensure changes in all designs, equipment, raw materials or operating conditions do not have a negative impact on the process, a change management control staff has been set up in each department to be in charge of change management procedures in accordance with corporate regulations.

MOC process flow chart



In addition, the designated personnel of the Safety and Health Department and the MOC personnel of the business department perform monthly on-site checks to confirm the integrity of the hazard analysis.



## C. Job Safety Analysis (JSA)

In order to ensure that the safety analysis procedures are followed, organizational and systematic analysis techniques are applied to assess various potential hazard risks for the personnel and operations. Appropriate precautions are then taken to ensure safety. The safety and health personnel perform monthly on-site checks to confirm the integrity of the work safety analysis.

## D. Standard Operating Procedure (SOP)

In order to ensure the implementation and full participation of the SOP, each unit regularly holds the SOP review revision seminar, SOP amendment and training, SOP case presentation and survey, SOP audit, plant inspection, and KPI review. The safety and health personnel and department supervisors team up to perform monthly on-site checks to ensure the integrity of the implementation.

### Disaster prevention training

#### A. Fire management operations

In order to strengthen the emergency response, firefighting and disaster relief capabilities of various plants, in the event of a major fire, the accident site can immediately notify the plants nearby for equipment and manpower support. In addition to the bi-annual emergency drills held by each plant, Formosa Plastics Corporation, Nan Ya Plastics Corporation, Formosa Chemicals & Fibre Corporation, and Formosa Petrochemical Corporation have organized a fire brigade to assist the professional fire brigade. There are 424 people and 1,806 trainees in the Mailiao Plant, as well as 567 people in other plants. In order to strengthen firefighting and disaster relief capacity, the Formosa Petrochemical Corporation's firefighters were commissioned to guide the live-fire training for the Company's self-defense firefighting personnel in the Mailiao plant. Firefighting personnel in other plants will be sent to the Nantou Zhushan Training Center and the Hsinchu Minghu Training Base to receive fire-fighting training to enhance the emergency response ability.



Live-fire training (Trainees are wearing protective equipment)

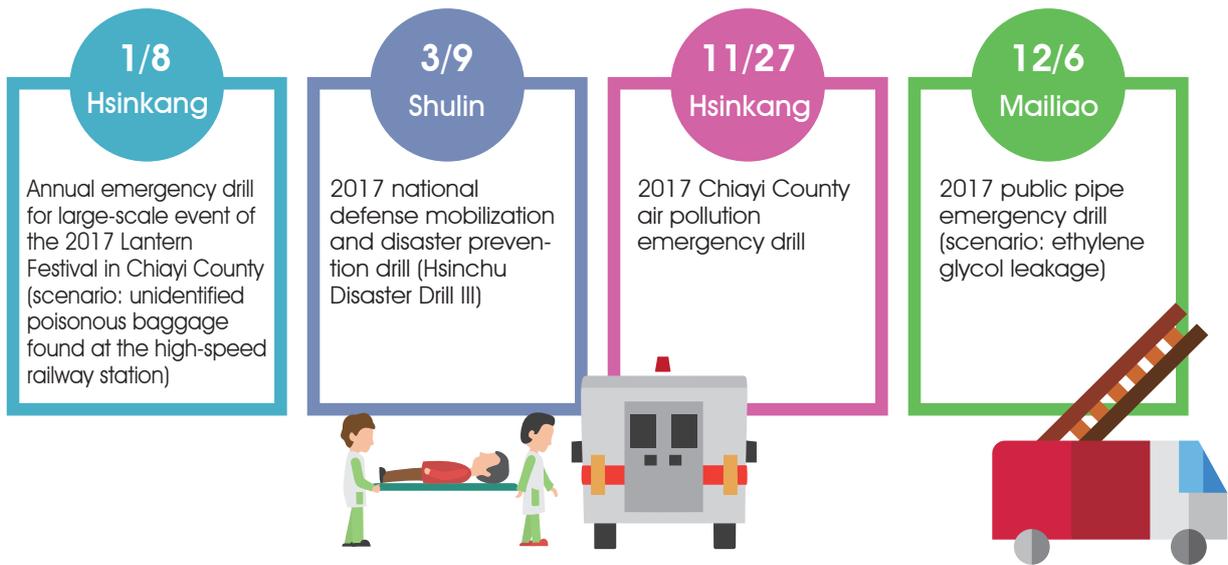


Live-fire training (Indoor fire fighting training)

#### B. Disaster prevention plan

In order to strengthen disaster relief and response, the plants participate in the joint drills conducted by the authorities in addition to the regular on-site drills. The drills simulate the rescue procedures and task assignment, so that the disaster response unit can understand the hazards and potential risks of each process. The drills include poisonous material accidents and complex disaster response drills in the plant. With the air quality worsening, this year the Company also cooperates with local environmental protection bureaus to conduct air pollution emergency drills.

In 2017, the Company participated in 4 joint training and collaborative support sessions. The simulation drills enhanced the emergency response and the ability to assist in disaster relief. Good practices of other units are also referenced as a self-improvement goal:



2017 National Defense Mobilization and Disaster Prevention Drill" - participation in large-scale drills organized by the government to conduct underground pipeline leakage and poison rescue drills to improve the emergency response capability within the plant.



2017 Chiayi County air pollution emergency drill scenario: when air pollution alert is issued by the chiayi county government, the plant adopted measures to lower the air pollution impact as well as responding to the fire that took place in the process.



Annual emergency drill for large-scale event of the 2017 Lantern Festival in Chiayi County scenario: unidentified gas leakage at the high-speed railway station. Assisted the relevant units in the rescue and post-disaster recovery.

### 4.4.2 Transportation safety outside the plant

In order to ensure the safety of transportation operations and reduce the risk of operation, the Company follows the various systems and operating standards set by Formosa Plastics Group. These include the "Transport Safety Management Measures" and "Emergency Response Management Measures", which are implemented through evaluation, education, training and rescue drills.

Management Measures	Details	2017 Progress
Evaluation	The Company's transportation contractor must first pass the evaluation of the "Safety Quality Assessment System (SQAS)" and obtain a certificate of conformity (every three years)  Qualified contractors are required to receive annual assessments in accordance with the assessment level. (Grade A once every two years, grade B once every year)	A total of 18 contractors were evaluated
Education and training programs	Safety review meetings with all plants are regularly held. Meetings with contractors are held from time to time to review and analyze all accidents.	At least once a month
Rescue drills	Each plant regularly holds disaster prevention training and participates in joint drills held by the competent authorities from time to time	According to the disaster prevention plan outlined in Ch4.4.1

### 4.4.3 Employee Healthcare

The Company systematically promotes health by providing a healthy and safe work environment and a good training program. The employees know that there are clear goals for them to utilize their capacity and participate actively.



### Health promotion category

- ▶ Health Management
- ▶ Dietary hygiene
- ▶ Zero violence in the workplace
- ▶ Tobacco hazard prevention
- ▶ Prevention and treatment of infectious disease
- ▶ Leisure activities
- ▶ Public welfare activities (blood donation, volunteer days, tree planting)
- ▶ Gender equality
- ▶ Humanistic management
- ▶ Best people for the job
- ▶ Leisure facilities
- ▶ Specific work hazard prevention
- ▶ Incentives for units and employees with excellent performance



### Corporate management regulations

- ▶ Health management approach
- ▶ Health management approach
- ▶ Personnel management rules
- ▶ Plant access/exit rules
- ▶ Health management approach
- ▶ Employee welfare management measures
- ▶ Management performance review principles
- ▶ Sexual harassment prevention measures, grievances and disciplinary measures in the workplace
- ▶ Safety observation and interview methods
- ▶ Health management approach
- ▶ Employee welfare management measures
- ▶ Health management approach
- ▶ Work safety rewards and disciplines measures

## A. Commissioned a third-party group to conduct work environment monitoring

In order to understand the actual working environment and assess the potential exposure of hazard factors as the basis for improvement, the Company commissioned a professional occupational health team to supervise the work environment. In 2017, the Taiwan Occupational Health Association monitored the environment of the Mailiao plant. Exposure testing was carried out in five plants and on 167 people. The concentration of chemical substance was lower than allowed according to both national and international standards. The results were published as part of the effort to continuously strengthen occupational health management.



Certificate of Operating Environment Measurement

## B. Promoting a healthy diet

The Company imposes strict hygiene management for staff restaurants through various management measures. The results of the food inspection are regularly published. In order to promote healthy eating, we publish information on dietary nutrition each month. With the assistance of nutritionists from Chang Gung Memorial Hospital, we have improved the cooking methods, condiment usage, food selection and menu. The ratio of fried good is less than 6%. We inspected 4,000 dishes in the staff restaurant every month in 2017, and the number of fried dishes was all below 240.

## C. Continuously promoting employee health management

In addition to implementing the health checks stipulated in the Act, the Company has added additional inspection items such as high-density lipoprotein cholesterol, alpha-fetoprotein, cancer embryo antigen, oral mucosa and other metabolic syndrome screening, and cancer screening in order to take care of employees' health. For employees that are in the environment with high temperature, noise, free radiation, lead, tetrachloroethane, dimethylformamide, n-hexane, benzene, TDI compounds, arsenic and its compounds, dust, or chromium, etc., special health checks and health grading management are implemented. In 2017, no abnormality was detected in special health check results. In addition, in order to comply with the regulations, the Company implemented maternal protection, the prevention of musculoskeletal diseases triggered by repetitive work, etc., the prevention of illegal infringement while on duty, and the prevention of diseases triggered by abnormal workload.

Occupational disease prevention project	Details
Maternal protection	During pregnancy till one year after child birth, female employees are protected from maternal health hazards through hazard assessment and control, physician counseling guidance, graded-risk management, and adaptive job arrangement.
Prevention of musculoskeletal diseases triggered by repetitive work	Preventing musculoskeletal diseases caused by poor posture, excessive exertion, repetitive movements, etc. by adopting relevant human factors engineering improvement measures.
Prevention of illegal infringement while on duty	Preventing employees from being threatened or attacked in the work-related environment by adopting measures such as hazard identification and assessment, adaptive job arrangement, hazard prevention and communication skills training to ensure zero violence in the workplace.
Preventing diseases triggered by abnormal workload	Preventing brain and cardiovascular diseases caused by irregular working hours, long working hours, frequent business trips and shifts, etc. Health advice, working hour adjustment, and job content change will be given to the employees for better health management.

In addition, the plant has medical staff to provide personal health guidance and consultation. The employees can enjoy health management measures such as weight management, tobacco hazard prevention, health presentations, preventive healthcare and injury treatment. Moreover, medical and health services provided by Chang Gung Memorial Hospital have been integrated to further raise employees' health awareness. On-site doctors would provide suggestions for improvement and related medical consultation services after studying the work environment, employees' work habits and safety protection operations.



Chang Gung Biotechnology assists in performing health tests



Chang Gung Biotechnology provides stress relief activities

## D. Sharing the experience of creating a healthy workplace

In order to share the results of a healthy work environment and obtain suggestions from experts and scholars, the Company actively participates in the healthy workplace activities organized by the competent authorities. In 2017, Mailiao plant won the "Health Management Award." Linkou, Shulin, Tai Ran and Hsinking plants won the "Health Promotion Label."



# 5

## The Pursuit of Co-Prosperity and a Better Homeland

## Governance

### Visions & Goals

In addition to constantly strengthen the strength of its own operations; the Company has followed the two founders' vision of "what is taken from the society is used interests of the society." This is achieved by promoting environmental protection, community outreach, and social welfare in order to realize the goals of "perpetual business operation," and "dedication to the society." As an example, we strive to contribute to neighborhood development by improving the environment, caring for the residents' health, and promoting local industries. We have also increased communication and interaction with the residents through traditional culture activities, charitable services, and caring for disadvantaged groups. In addition, we engage in charitable activities along with FPG to fulfill our responsibilities as corporate citizen.

### Management Flow

1. Community Outreach: All district management departments set up community outreach and volunteer teams. Members are sent for visits from time to time as well as organizing neighborhood events such as traditional cultural promotion, charitable services, and caring for disadvantaged groups. The employees are encouraged to volunteer for activities such as local environment cleaning and non-profit second-hand market in order to strengthen communication and interaction with the local community.
2. Sustainable local development: Take Mailiao Industrial Complex for example, FPG set up a dedicated research unit to conduct local environmental monitoring and impact assessment, as well as providing local residents with free healthcare and promoting environmental knowledge.
3. Social Welfare: In conjunction with FPG, we engaged in various public welfare activities. Through the Company's operation and management experience, we can maximize the long-term benefits of every charity activity.

### Relevant Policies and Actions

1. Each plant's management team sets up community outreach and volunteer groups to promote neighborhood activities and volunteer work.
2. FPG established the "Evaluation and Advisory Committee on Mailiao Industrial Complex's Impact on Air Quality" and the "Evaluation and Advisory Committee on the Impact of Effluent of Mailiao Industrial Complex on Marine Biology" for environmental assessment and recommendations.
3. FPG commissioned National Cheng Kung University to carry out a "Health Risk Assessment of Certain Hazardous Air Pollutants" in the neighboring areas of Mailiao Industrial Complex.
4. The two founders of FPG established seven foundations and charitable trusts. Working alongside of civic organizations, professional scholars and experts, we continuously promote various charitable projects with the principle of being "comprehensive, holistic and systematic". We seek to improve the overall efficiency of public welfare institutions.

### Communication Channels

1. The management team of each plant conducts occasional visits to government agencies, environmental protection groups, local groups, local offices, and neighborhood areas
2. Promoted of Environmental Education at Mailiao Industrial Complex
3. We enhance community health by offering free health checks for Mailiao's residents.
4. Promoting Mailiao's agricultural and fishing industries.

Nan Ya Plastics Corporation has long played the role of a corporate citizen that fulfills its corporate social responsibility by investing in the community. We hope to create a vision of co-prosperity and a better homeland through the influence of FPG. Starting from environmental protection and community outreach, the Company also engages in FPG's public welfare activities.

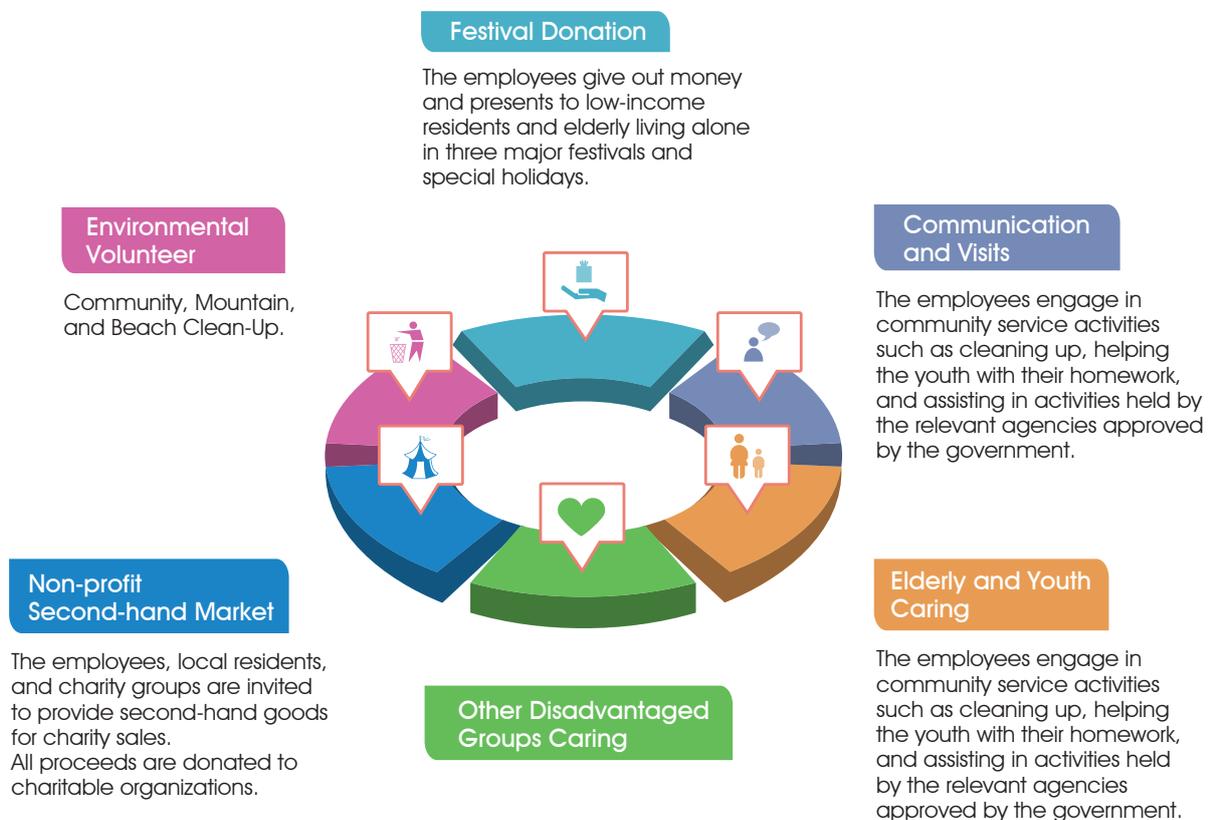
Take environmental protection promotion of Mailiao Industrial Complex for example, FPG has set up dedicated research units to conduct environmental monitoring and impact assessment. Moreover, free health care and environmental knowledge promotion for the residents are also provided. The management team of each plant plans for occasional visits, traditional culture promotion, charitable services, and caring for disadvantaged groups. The employees are also encouraged to volunteer for activities such as local environment cleaning and non-profit second-hand market in order to strengthen communication and interaction with the local community. Furthermore, the Company follows FPG to promote and engage in various public welfare activities. Through the Company's operation and management experience, we hope to maximize the long-term benefit of various charity activities in order to fulfill our corporate social citizenship responsibilities. Our long-term goals are "perpetual business operation" and "dedication to the society".



## 5.1 Local Participation

### 5.1.1 Community Outreach

Nan Ya Plastics Corporation has long participated in the local community. The management team of each plant sets up community outreach and volunteer teams for building mutual trust with the local residents through visits. At the same time, we would like to contribute to the community and our planet through caring for the elderly, the youth, and other disadvantaged groups, assisting the local social welfare organization in organizing festive activities or non-profit second-hand market, and encouraging employees to work as environmental protection volunteers. We hope to spread love and hope within our society and strengthen the relationship between the Company and local community.



All Nan Ya Plastics Corporation's plants follow the planning of the local management team to promote the community outreach. In the case of the plants in northern Taiwan of the Company, the actual community outreach work conducted in 2017 is as follows:

Item	Collaborative Unit	Promotion Method	2017 Progress
Visits	1. Local office 2. Local resident	1. Strengthening Communication through occasional visits 2. The local residents are invited for plant activities to enhance the relationship	The plants have maintained great relationships with the local communities. There has no complaints or feedback
Traditional Culture Promotion	Apple Theater (Kung San Site) If Kids Theater (Linkou Site)	Sponsoring theater companies to perform at the plants	Apple Theater: 1,500 people in the audience If Kids Theater: 2,500 people in the audience
Community Outreach	1. Township office 2. Village office 3. Community development association	Actively participate in activities held by township offices, village offices, and community development association in order to strengthen relationships.	The amount of sponsorship (donation) is NT\$3,921,414
Environmental Volunteer	Employees and their families of each plant	The employees and their families are invited to do environmental protection volunteer work in order to keep the plants as well as the surrounding areas clean.	The plant holds monthly environmental protection volunteering activities. There were 47 sessions and 953 volunteers in total.
Charitable Services	1. Charitable Service Club of welfare Committee 2. Labor union 3. Local public welfare group	1. Regular visits to orphanages and nursing homes are conducted. Goods are collected and donated to social welfare institutions. 2. Second-hand markets were held in conjunction with the Charitable Service Club of Welfare Committee and local public welfare groups. All proceeds were donated. 3. Disadvantaged groups were assisted in applying for emergency relief assistance from the FPG's "Qingbao Charitable Trust"	1. A total of 29 charitable service activities were organized with 1,121 participants 2. NT\$ 396,000 of "Qingbao Charitable Trust" emergency relief assistance were in application



Photo of Apple Theater and people from Kung San Site



Bringing Food during the Chinese New Year to the elderly living alone



Employees volunteer to clean up the environment around the plant



Household goods were donated to low-income households



Low-income households were assisted in applying for emergency relief assistance from the FPG's "Qingbao Charitable Trust"



Charity sales were organized with local public welfare groups. All proceeds were donated to Genesis Social Welfare Foundation

## Local tourism promotion for Taoyuan: Formosa LOHAS circle

In the spirit of "dedication to the society", FPG has been striving to integrate leisure, sightseeing, healthy lifestyle, cultural, and catering resources within corporate. Working together with local communities, businesses, small farmers, and local governments, we have created "Formosa Lohas circle". At present, we have built Formosa Lohas circles in Taoyuan, Yilan, Yunlin, and Kaohsiung. More Lohas circles are being planned.

The first Lohas circle is located in the Taoyuan's Guishan District. Apart from offering a full range of services including shopping, dining, health checks, entertainment, culture and art activities, it also integrates Furong Hotel, Global Mall A8, and Taoyuan Winery to create the Taoyuan Lohas circle. (For more detailed information, please refer to the official website: <http://www.formosalohas.com.tw/index.htm>).

Moreover, in order to improve the public space, FPG took the lead in sponsoring a part of Wenhua 1st Road and transforming it into a highlight of local sights. The wall along Kung San Site and Wenhua 1st Road was artistically designed and painted. The total cost was about NT\$1.4173 million dollars.



### 2017 Landscape adoption along Wenhua 1st Road

- Since station A8 is one of the airport MRT's express stations, the number of people passing through the station is large. The Wenhua 1st Road which is the main road of the airport MRT station A8, would give the most direct feeling toward tourists by its landscapes.
- The Formosa Plastics Group picked an area along the Wenhua 1st Road as a demonstration site and applied to Wenxin Elementary School and Taoyuan City Government for landscape adoption. The beautification of the area was completed.



### 2017 Wall painting at NPC's Kung San site

- The Company painted NPC Kung San site's surrounding wall which is opposite airport MRT station A8, hoping to light up the industrial area and shape a lively environment.



## 5.1.2 Perpetual Development of Mailiao Area

The Company has long promoted various environmental protection management tasks. Preserving the local environmental quality is seen as an important goal and social responsibility. Before the establishment or expansion of a plant, stringent environmental assessments are conducted to measure water, air, and community impacts. The development plans are all carried out according to the EIA commitments. For example, in addition to the BAT (Best Available Technology) and BACT (Best Available Control Technology) that Mailiao Industrial Complex has always adhered to, the best process and equipment are also planned in order to achieve reduction. After the process is set in motion, it is constantly reviewed and improved in order to enhance environmental management. We also cooperate with the Yunlin County Government's "Environmentally-Friendly Project" to engage in environmental protection, health care, and industrial promotion. Our goal is promoting local development through finding the reasons and solutions to the problems and allowing Sixth Naphtha Cracking Plant to achieve co-prosperity with the local community. We want to fulfill our social responsibility while achieving sustainable economic development.



### Dedicated Research Unit Set-Up

As Mailiao Industrial Complex's impact on air quality causes public concern, the FPG has set up special research units for air quality and marine ecology assessments to understand whether the quality of plant effluent affects marine ecology. Through rigorous scientific research, we hope to correctly analyze this issue and continuously engage in environmental and ecological protection around the Mailiao Industrial Complex according to the findings and recommendations:



Evaluation and Advisory  
Committee on Mailiao  
Industrial Complex's  
Impact on Air Quality

Established in 2011

The research found that the air quality in the towns near the plant was better than that in other cities of western Taiwan, indicating that the plant had limited impact on the local air quality. Other areas including Douliu, Puli, Chiayi, Lunbei and other inland areas have suffered from severely polluted air for a long period of time. After analyzing the data, it shows that the impact on the west coast of the Mailiao Industrial Complex is minimal, and the government research further confirmed that lowering the industrial base load has a negligible impact on the reduction of PM<sub>2.5</sub>. Instead, the government is urged to face the impact of open burning, vehicle and restaurant emissions, etc. To improve the air quality in Taiwan, it is necessary to make a comprehensive plan so that the pollution sources can be reduced as a whole. It will then be possible to establish reasonable air quality standards and accountability.



Marine Ecological  
Impact Assessment and  
Advisory Committee

Established in 2010

The committee invites experts and scholars at home and abroad to review and make feasible suggestions so that FPG can integrate plans of monitoring water quality and ecology, fishery resources, fishery economic activities, biological toxicity of effluent and beach drift. The FPG effectively uses scientific arguments to further clarify the impact of the Mailiao Industrial Complex's effluent on the nearby waters. As of 2017, the survey result determined that the Mailiao Industrial Complex had no detectable effects on the water quality, ecology, fish culture period, fishery resources, and beach drift in the nearby waters.



# Environmental Impact Assessment

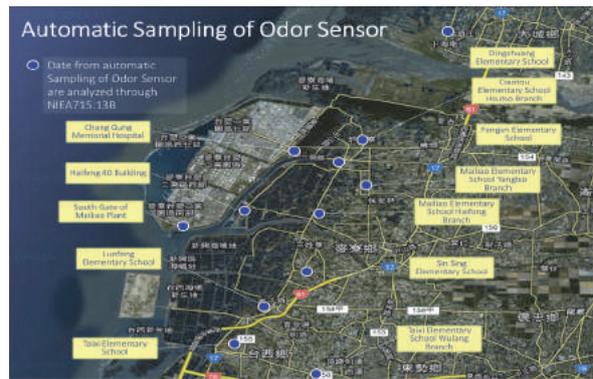
## (1) Air Quality

### A. Network for Close Monitoring

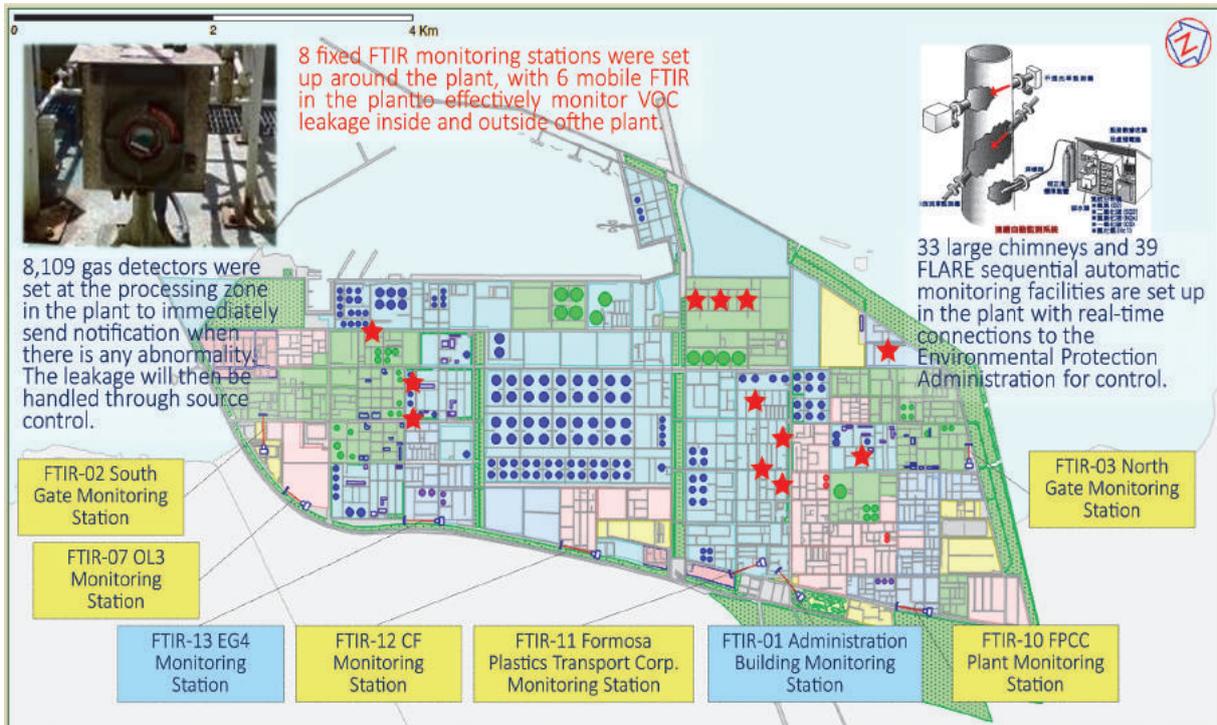
To immediately take various environmental indicators under control, we built a sound environmental monitoring network. By taking the prevailing wind direction in Mailiao into consideration, we could track the emission sources as soon as possible to ensure the local air quality through 8 layers of intensive monitoring and control operations.



Location map of the Sixth Naphtha Cracking Plant's eight-layer environment monitoring network



Location of automatic odor sampling station



Plant monitoring equipment location

## (2) Analysis of the Impact on Air Quality

More than 3 million monitoring results have been collected from EPA's four air quality monitoring stations all over Taiwan, including Tucheng of New Taipei City, Xianxi of Changhua County, Taixi of Yunlin County, and Xiaogang of Kaohsiung City. All the monitoring results indicated that the trends of air quality changes in various regions of western Taiwan are roughly the same, and there is no particular abnormality along the southwest coast.

Comparison table of changes in measured values of EPA's northern, central and southern air quality monitoring stations and that of the Sixth Naphtha Cracking Plant

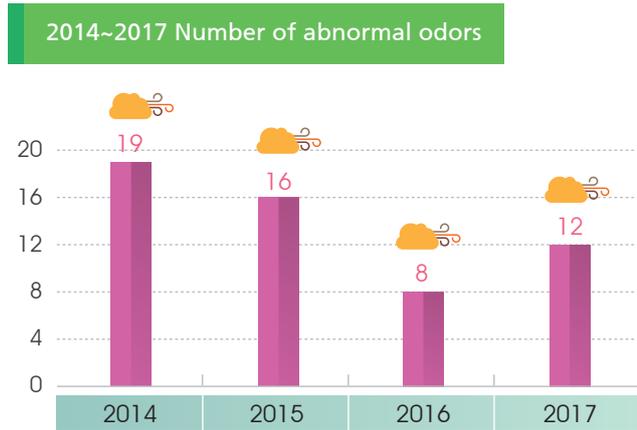
Monitoring Items	Monitoring Station	Pre-Construction Base Value 1993/7~1994/5	During Construction 1994/6~1998/12	Stage 1 of Sixth Naphtha Cracking Plant 1999/1~2001/3	Stage 2 of Sixth Naphtha Cracking Plant 2001/4~2002/3	Stage 3 of Sixth Naphtha Cracking Plant 2002/4~2004/6	Stage 4 of Sixth Naphtha Cracking Plant 2004/7~2010/3	Stage 4 of Sixth Naphtha Cracking Plant 2010/4~2017/12	Air Quality Standard
SO <sub>2</sub> (ppb)	Sixth Naphtha Cracking Plant	4	6.8	6.1	3.9	5.2	4.2	3.9	250
	Tucheng (North)	7.9	6.3	4.1	3.8	3.6	4.4	3.2	
	Xianxi (Central)	6.4	5.7	4.5	3.6	3.4	4.5	4.1	
	Taixi (Southwest Coast)	3.7	3.3	2.5	3.0	3.2	4.6	3.4	
	Xiaogang (Kaohsiung/Pintung)	19.4	18.9	16.2	13.3	11.1	12.7	7.9	
NO <sub>2</sub> (ppb)	Sixth Naphtha Cracking Plant	7	8.2	17.8	17.2	14.3	9.8	9.2	250
	Tucheng (North)	27.0	25.2	26.1	24.3	23.5	22.6	18.1	
	Xianxi (Central)	18.0	18.3	18.7	18.2	16.5	14.8	12.3	
	Taixi (Southwest Coast)	12.0	9.9	11.3	11.5	10.7	10.1	8.2	
	Xiaogang (Kaohsiung/Pintung)	34.2	34.0	35.3	32.8	29.3	27.8	23.3	
O <sub>3</sub> (ppb)	Sixth Naphtha Cracking Plant	30	24	31.3	35.5	35.0	32.9	30.7	120
	Tucheng (North)	19.1	19.6	22.0	25.6	24.3	26.9	28.1	
	Xianxi (Central)	—	—	—	—	30.9	29.9	31.4	
	Taixi (Southwest Coast)	28.5	30.9	32.4	30.2	33.9	36.5	36.4	
	Xiaogang (Kaohsiung/Pintung)	16.0	21.0	22.9	26.3	24.9	26.0	25.8	
CO (ppm)	Sixth Naphtha Cracking Plant	0.6	0.5	0.4	0.4	0.4	0.4	0.4	35
	Tucheng (North)	1.0	0.9	0.8	0.8	0.7	0.6	0.5	
	Xianxi (Central)	—	—	—	—	0.3	0.4	0.3	
	Taixi (Southwest Coast)	0.5	0.4	0.4	0.4	0.4	0.3	0.3	
	Xiaogang (Kaohsiung/Pintung)	1.1	1.0	0.9	0.8	0.7	0.6	0.5	

Monitoring Items	Monitoring Station	Pre-Construction Base Value 1993/7~ 1994/5	During Construction 1994/6~ 1998/12	Stage 1 of Sixth Naphtha Cracking Plant 1999/1~ 2001/3	Stage 2 of Sixth Naphtha Cracking Plant 2001/4~ 2002/3	Stage 3 of Sixth Naphtha Cracking Plant 2002/4~ 2004/6	Stage 4 of Sixth Naphtha Cracking Plant 2004/7~ 2010/3	Stage 4 of Sixth Naphtha Cracking Plant 2010/4~ 2017/12	Air Quality Standard
PM <sub>10</sub> (μg/ m <sup>3</sup> )	Sixth Naphtha Cracking Plant	69	106	63	71	69	63	55	125
	Tucheng (North)	73	53	46	45	43	50	41	
	Xianxi (Central)	57	53	52	56	60	61	50	
	Taixi (Southwest Coast)	67	70	62	64	61	56	49	
	Xiaogang (Kaohsiung/Pintung)	103	89	93	72	73	81	67	
PM <sub>2.5</sub> (μg/ m <sup>3</sup> )	Sixth Naphtha Cracking Plant	—	—	—	—	—	30	31	35
	Tucheng (North)	—	—	—	—	—	29	23	
	Xianxi (Central)	—	—	—	—	—	34	26	
	Taixi (Southwest Coast)	—	—	—	—	—	31	27	
	Xiaogang (Kaohsiung/Pintung)	—	—	—	—	—	52	32	
NMHC (ppm)	Sixth Naphtha Cracking Plant	0.28	0.4	0.46	0.45	0.3	0.3	0.3	—
	Tucheng (North)	—	—	—	—	0.3	0.3	0.2	
	Xianxi (Central)	0.2	0.1	0.1	0.1	0.3	0.2	0.1	
	Taixi (Southwest Coast)	—	—	—	—	—	0.1	0.1	
	Xiaogang (Kaohsiung/Pintung)	0.5	0.4	0.5	0.4	0.5	0.3	0.2	
Description	<ul style="list-style-type: none"> <li>○ The sampling of fine suspended particles (PM<sub>2.5</sub>) at Mailiao's Sixth Naphtha Cracking Plant was performed manually. EPA's stations performed the sampling automatically.</li> <li>○ The air quality is the hourly average of the air quality standard set forth by the EPA.</li> <li>○ The sampling of fine suspended particles (PM<sub>2.5</sub>) at Mailiao's Sixth Naphtha Cracking Plant is lower than that of Xiaogang. It is the equivalent to the statistics measured at the stations from the nearby industrial areas.</li> </ul>								

Source: EPA and Sixth Naphtha Cracking Plant's air quality monitoring data

Moreover, in order to prevent odors from affecting nearby residents, FPG established an odor prevention team on September 17, 2010. The joint inspection team which is composed of members from the Group Administration and the four major companies conducts odor inspections around the processing area and the plants every day. Primary supervisors in each plant are notified and required to propose the improvement projects to eliminate the odor as soon as possible. Since then, the number of odors has showed a decreasing trend.

Of the 177 abnormal odor cases founded from 2010, 173 cases have been improved and 4 cases are in progress. We started promoting the improvement project of odor source tracing between 2014 and 2015, resulting in an increase in the number of odor detections. The number of odor decreased in 2016 and 2017, and the overall odor control has achieved significant results.



### (3) Water Issues

According to the monthly "Jiji Dam Industrial and Public Water Supply Report" of the Industrial Development Bureau of , Ministry of Economic Affairs, the annual water supply of Jiji Dam in the past three years (2015-2017) ranges from 247,589 to 572,887 megatons. The average of industrial water consumption accounted for 2.3% of the total water supply, and the water transferred from agricultural water usage only accounted for 1.8% during the past 3 years. Water consumption is shown in the table below.

Water Supply Statistics from Jiji Dam for 2015-2017

Unit: Megaton

Year	Jiji Dam Inflow (A)	Agricultural Irrigation Average Water Consumption (B)	Industrial			
			Average Water Consumption(C)	Percentage of the Water Source Proportion (C)/(A)	Transfer of Agricultural Water (D)	Proportion of Total Agricultural Water Consumption (D)/(B)
2015	247,589	144,380	9,999	4.0%	3,632	2.5%
2016	510,257	227,234	9,976	2.0%	3,317	1.5%
2017	572,887	186,163	10,138	1.8%	3,328	1.8%
Average during the Past 3 Years	443,578	185,926	10,038	2.3%	3,426	1.8%

Although the water consumption of Mailiao Industrial Complex does not affect other industries and farmers, FPG has made additional efforts to preserve the precious water resource by improving process, equipment efficiency, operating conditions, and water reuse. In addition, both the recycling of waste water and the recovery of rainwater have also been promoted.

## (4) Ecological Impact

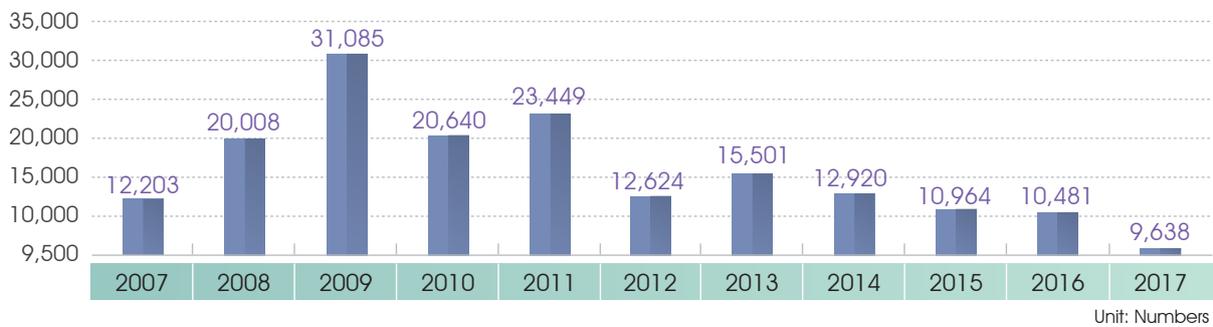
### A. Land Ecological Survey

To better understand the extent of Mailiao Industrial Complex’s ecological and environmental impacts on nearby areas, professional agencies have been commissioned to investigate bird species, mammals, amphibians, reptiles, butterflies, and plants since 2007. The species composition, population dynamics, and quantitative changes are then analyzed to understand the current status in order to assess the degree of impact on the local environment after the Sixth Naphtha Cracking Plant starts operating. According to the annual survey results, the number of plant species is stable, and the number of animals changes predictably with season. Mailiao Industrial Complex’s establishment brings no significant change in this area.

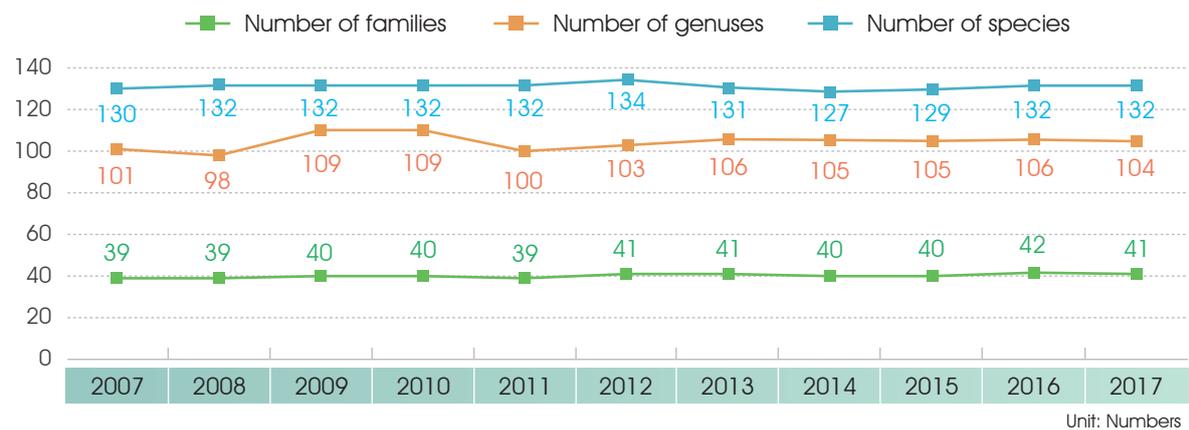
Statistics on Animal Species in the Vicinity of Mailiao Industrial Complex from 2007 to 2017



Statistics on Animal Numbers in the Vicinity of Mailiao Industrial Complex from 2007 to 2017



Change in the Number of Plant Species from 2007 to 2017



## B. Marine Ecology

Mailiao Industrial Complex's average daily wastewater discharge in 2017 is 83,838 tons, which is significantly lower than the 187,638 tons of EPA quantification. FPG strictly controls the wastewater treatment sites so that all wastewater is processed to meet the standards before discharge. In addition to automatically monitoring the temperature, conductivity, and pH, water samples are also collected at regular intervals. The monitoring results over the years are consistent with the discharge standards.

## C. Indo-Pacific Humpback Dolphin Research

Indo-Pacific Humpback Dolphin was listed as a critically endangered species on the Nature's red list of International Union for Conservation in August 2008. According to domestic studies, the Indo-Pacific Humpback Dolphin's habitat ranges 3 kilometers away from the coast from Miaoli to Tainan.

To better understand the Indo-Pacific Humpback Dolphin's natural habitat, FPG has commissioned professional agencies to implement the research project since 2008. So far, 233 trips to the sea have been conducted. 272 schools of a total of 1,342 Indo-Pacific Humpback Dolphins were spotted. The spotting mainly took place along the coast of Yunlin (<3 kilometers offshore, <15 meters water depth). According to the fact that each year mothers with cubs take up 50-70% of the population, and 54% of the members are spotted at a regular interval, the Yunlin coast should be one of the important habitats of the Indo-Pacific Humpback Dolphins.

In 2017, 6 schools were observed close to the wastewater outlet of Mailiao Industrial Complex. The distance was merely 500 meters. Two other schools were observed in the north of the wastewater discharge outlet close to estuary of Zhuoshui River. This shows that Mailiao Industrial Complex's discharge has not affected the dolphins or their behavior.



## Healthcare for Mailiao Residents

### (1) Health Risk Assessment

Since 2009, National Cheng Kung University has been commissioned to conduct Health Risk Assessment for Certain Hazardous Air Pollutants. As of 2017, health risk assessments for 64 specific hazardous air pollutants have been completed. The scope of assessment includes Mailiao, Taixi, Dongshi, Lunbei, Baozhong, Sihu, and Dacheng. The simulated result of carcinogenic risk was  $5.07 \times 10^{-7}$ , and the maximum carcinogenic risk was  $6.38 \times 10^{-6}$ . Both figures are between 1 in a million ( $10^{-6}$ ) and 1 in 10,000 ( $10^{-4}$ ). The maximum total non-carcinogenic risk value is less than one, which is an acceptable risk for human health.



## (2) Healthcare

In order to care for the health of local residents, Yunlin Chang Gung Memorial Hospital was set up in December 2009 to provide local residents with comprehensive medical services. Moreover, Chang Gung's medical education resources were combined to promote health and health education in the hopes of making Mailiao the model of a healthy community.

### Frame Work of Health Promotion for Residents near Mailiao

#### A Beautiful New World Vision of Health Communities along Yunlin Coast



Home



School



Hospital



Health Administration System



#### Health Promotion Plans for Pregnant Women, Children, Teenagers, Adults, and Seniors

- ▶ Increasing the balance diet ration
- ▶ Increasing the stress handling ration
- ▶ Reducing the obesity ratio
- ▶ Increasing the regular exercise ratio
- ▶ Reducing the tabaco/ alcohol/ betel nut ratio
- ▶ Increasing the quality of life

- ▶ Health database establishment and maintenance
- ▶ Health and data analysis
- ▶ Result sharing

- ▶ Exception control
- ▶ Increase in revisit rate
- ▶ Diagnosis and treatment
- ▶ Annual follow-up



- ▶ Residents' health trends
- ▶ Health issues of resident and social concerns trends
- ▶ Care promotion measures

- ▶ Improvement in medical quality
- ▶ Improvement in residents' health
- ▶ Public-private group Exception control cooperation

#### A. Medical Quality Improvement

Yunlin Chang Gung Memorial Hospital was set up in Mailiao, where the medical resources are severely limited. It takes on the responsibility of 24-hour emergency care in the coastal area. In 2017, there are 260 medical staffs, 522 beds, and 23 Western and Chinese medicine clinics. In 2017, there were 105,525 outpatient visits and 14,217 emergency visits. The Yunlin Chang Gung Memorial Hospital will continue to expand its service range and scale to improve medical services along the coastal of Yunlin Township.

#### B. Free Health Checkups for the Residents

In order to provide the most practical and considerate medical assistance and healthcare, Mailiao Industrial Complex has commissioned Yunlin Chang Gung Memorial Hospital to provide free health checkups for the residents of Mailiao and Taixi Townships since 2010. In 2017, a total of 9,928 residents received health checkups, of which 539 people were detected health disorders and offered followed-up medical assistance. Through health checkups, the residents are updated with their health status. Early detection can also lead to early treatment.

#### C. Health Promotion

Mailiao Industrial Complex has co-promoted health promotion activities with Chang Gung University of Science and Technology and Chang Gung Memorial Hospital since 2010. In 2017, we provided 470 hepatitis B vaccine injections, of which 193 people with antibodies were followed up, and held community health education activities with 3,507 participants. The data showed that the residents' health continued to improve. Anti-smoking campaigns were held for 853 junior high school students. Since one of main causes for smoking among students was stress relief, sports programs were introduced to Mailiao High School and Taixie Elementary School in cooperation with the John Tung Foundation in 2017. This also helps young people understand the importance of regular workouts.



## Living Quality Improvement

### (1) Traffic Improvement

Since the construction of the Mailiao Industrial Complex in 1997, traffic monitoring was carried out on the main roads of the plant area every quarter according to the environmental review of EPA. The development unit actively arranged for the staff and contractors to start working and getting off work at different hours, offering shuttle bus service, asking the staff and contractors to use the dump car lane and Yunlin Expressway No. 1, as well as cooperating with police officers to direct traffic at important intersections. In addition, to ensure the safety of school children, volunteers are asked to guide them across the road before school hours.

### (2) Noise Management

To manage noise in the vicinity of Mailiao Industrial Complex, qualified inspection agencies are regularly appointed to conduct monitoring operations near the north bank, south bank, Mailiao dormitory, Xiebin Bridge, Qiaotou Elementary School, Xucou campus (former site), Fengan Elementary School, Qiaotou and Haifeng. The monitoring results showed that there were occasionally higher values caused by human activities such as night markets, temple fairs, school bells, as well as natural sources like frogs. Otherwise, the level of noise meets regulatory standards. It is clear that the operation of Mailiao Industrial Complex has not created significant noise.



Location Map of Noise Monitoring Establishment in the Vicinity of Mailliao Industrial Complex

### (3) Vicinity Road Maintenance

In order to improve the quality of surrounding roads during the operation of Mailliao Industrial Complex, FPG has worked with the Yunlin County Government to establish the “Road Maintenance Fund”. At the same time, we assist Mailliao Township in cleaning the roads which lead to the Industrial Complex every month to maintain the environment.

Road Name	Starting and Ending Point	Length (Kilometers)	Cleaning (Number of Times)	Cleaning Length (Kilometers)
Yunlin Expressway No. 1	Mailliao Industrial Complex to Provincial Highway 61	6.0	16	96
Road 154	Mailliao Industrial Complex to Sansheng Forest Office	0.7	16	11.2
	Xucuo Bridge to Neighborhood 16 of Sansheng Village	1.8	16	28.8
Dump Truck Lane at North Bank	Mailliao Industrial Complex to Provincial Highway 17	6.4	16	102.4
Total	--	--	--	238.4

#### (4) Air Quality

In order to maintain the air quality in Yunlin County, diesel vehicles are required to submit emission certificate when applying for Mailiao Industrial Complex's entry permit. If the diesel vehicle are deemed to be unqualified by the competent authority, the contractor must obtain a new certificate before it is allowed to enter again. According to the statistics of diesel vehicle exhaust detection conducted by the Environmental Protection Bureau of Yunlin County in 2017, 393 inspections were carried out on the roads entering and exiting Mailiao Industrial Complex. All of them passed the inspection. The results of vehicle stop in past three years are as follows:

Year	Traffic Quantity (A)	Number of Inspections (B)	Number of Cars Checked (C)	Unqualified Number (D)	Checked Unqualified Rate (D/C)	Inspection Unqualified Rate (D/B)	Traffic Unqualified Rate (D/A)
2015	1,650	330	101	8	7.9%	2.4%	0.5%
2016	1,875	375	126	2	1.6%	0.5%	0.1%
2017	1,850	393	156	0	0.0%	0.0%	0.0%



#### Environmental Education Promotion

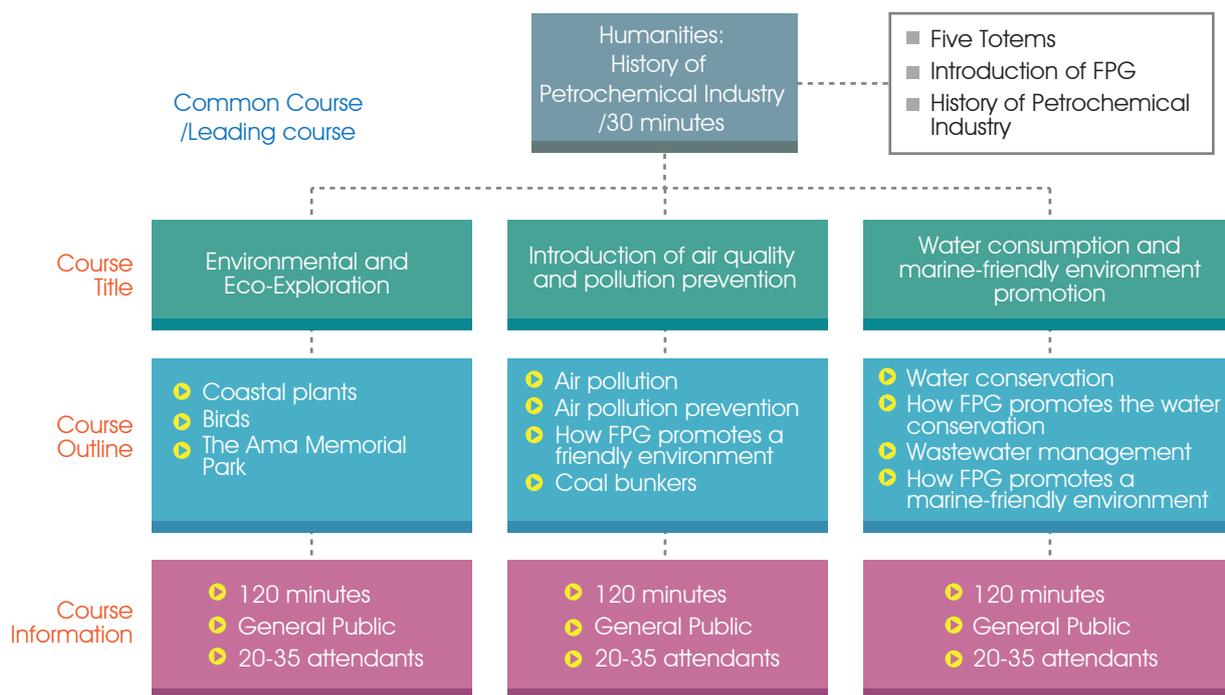
In order to make both Sixth Naphtha Cracking Plant's efforts and excellent results of promoting the circular economy, preserving water and energy and protecting environment to be recognized, we promoted the environmental education in Mailiao Industrial Complex and obtained the education certification. Since High school students must engage in at least four hours of environmental education and off-campus teaching activities each year, students are invited to Mailiao Industrial Complex to learn about environmental protection, water and energy conservation, as well as ecological conservation. They can then share the knowledge with their families and implement the practices in daily life. It is vital to know the importance of environmental and ecological protection from an early age. This is the embodiment of protecting the environment while promoting industrial development.

##### (1) The Concept of the Mailiao Industrial Complex's Environmental Education Curriculum:

The course is designed with a common curriculum with two major themes. The precursor course is about the "Developmental History of the Petrochemical Industry." The two themes include "air quality, water quality and marine environment". The lessons are respectively "Humanities Education: Industry Development in Taiwan and the Importance of Taiwan's Petrochemical industry", "Introduction of Air Quality and Pollution Prevention," and "Water Consumption and Marine Environment." In the future, courses will continue to be developed with short, medium and long-term agendas. "Environment and the Eco-Exploration" has been planned as a short-term course.

##### (2) Mailiao Industrial Complex's Environmental Education Facilities Plan

With the administrative building, environmental monitoring centers, environmental protection and ecological laboratories, and Mailiao Port etc. facilities, the environmental education involve lessons, professionals and volunteers. The related plans are as follows:



## Community Industry Promotion

Experts are commissioned to counsel the residents who engage in agricultural and fishery industries in Mailliao, Taixie, Dongshi, Sihou, and Kohou in order to improve their livelihood. The goal is to increase the economic value of the crops and fisheries product.

### (1)Agricultural Counseling

#### A. Crop Improvement and Farm Management Strategy Counseling

FPG has commissioned Chaoyang University of Technology to implement "Guidance and assistance in agricultural production, crops quality improvement, and farm management" for seven years. The scope of counseling includes Mailliao, Taixie, Sihou, Dongshi, Dacheng, and Baozhong Townships. 353 farmers have been guided and assisted in using scientific planting techniques. Both the quantity and quality of the crops are better than ever.

In addition to the improvement in the crop quality and quantity, the farmers are also coached to obtain organic certification, production and sales resume certification, etc. Up to now, 14 farmers have passed organic certification, 1 production and sales class and 2 individuals have obtained production and sales resume certification. The Company has achieved the goal of co-prosperity with the local community.



## B. Afforestation Subsidies

In order to help the Yunlin County Government promote carbon reduction and afforestation, a 10-year afforestation and carbon reduction subsidy has been offered since 2011. As of 2017, the application area for afforestation is 1,099 hectares. Formosa Plastics Group has provided 998 million in grant.

## (2) Fishery Counselling

Since May 2009, FPG has been working with domestic academic teams to promote the study on the improvement of aquaculture technology and added value of fishery products in the vicinity of Mailiao. The fishermen have been guided to stimulate the growth of clams by feeding them fermented materials. The survival rate of clams resulting in increasing by 20% to 30%, and the breeding period was also reduced by 2 to 3 months. Health risk management of aquaculture ponds was introduced to increase the survival rate of fishes. Fishermen were assisted to obtain the national production and sales resume certification. In 2013, only 4 obtained the certification. In 2017, the number has increased to 36. With a passing rate of 100%, the fishermen who receive counseling all passed the drug residue inspection. Significant results have been achieved in the field of aquaculture safety.

In addition, in order to further enhance the concept of marine ecological conservation, FPG has actively hired experts and scholars with marine ecological conservation experience and fishery knowledge as lecturers for the youth in local fishing villages, school teachers and students. At the same time, FPG has implemented fingerling release in the surrounding marine waters of Mailiao Industrial Complex between 2008 and 2017. The total number of fingerling released in the water has reached 4,367,300, which enriches the local fishery resources and increases fishermen's catch.

## 5.1.3 Social Concerned Issues

### 1. The Disappearance of 25,000 Pollution Statistics from FPG

According to the Green Citizens' Action Alliance, the 34 chimneys of the FPG's Sixth Naphtha Cracking Plant produced 25,000 pollution statistics based on the continuous emission monitoring systems' data (CEMS) from January to November 2016. 262 cases merited a fine. In fact, the chimney's CEMS generates data once every hour. During the 11-month period, 34 chimneys would have generated 1.9 million data. The data of the "excessive standard" mentioned by the Green Citizens' Action Alliance is corrected and maintained in accordance with the law and marked as invalid as a result. Most numbers are lower than the requirement. According to the EPA, the data accuracy has to be above 75%. The invalid data from the 34 chimneys of FPG's Sixth Naphtha Cracking Plant is only 1.3% (25,000/1,900,000), which means the data accuracy is over 98%.

In January 2016, there was indeed an abnormal process which led to the CEMS detecting a concentration of NO<sub>x</sub> that exceeded the regulatory standards. FPG was dealt with a NT\$ 100,000 fine by the Yunlin County Government. The abnormality was immediately eliminated. According to data from the Mailiao Industrial Complex Air Quality Monitoring Station, the concentration of NO<sub>x</sub> stayed at 11-19 ppb, indicating that the air quality in the vicinity was not affected.

FPG's Sixth Naphtha Cracking Plant has set up 34 chimneys with continuous monitoring facilities, 10 perimeter air quality monitoring stations, and 10 photochemical assessment monitoring stations in accordance with the law, all of which are supervised by the Yunlin County Environmental Protection Bureau and the Industrial Zone Service Center of the Industry Bureau. EPA, and competent authorities at all levels can audit the plants at any time. FPG will cooperate fully.

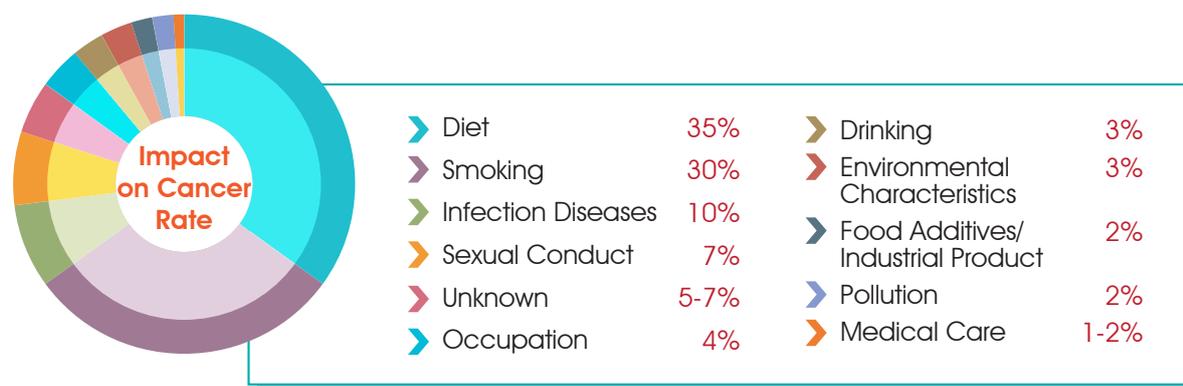
Press Release: <http://www.fpg.com.tw/j2fpg/portal/News/5ILPHM2AAW0>

## 2. Taixi Township Litigation

The coastal area of southwestern Taiwan has always been a region with a higher cancer incidence. According to the domestic research reporting a high incidence of cancer near the Sixth Naphtha Cracker Plant in Taixi Township, few local residents filed a civil lawsuit against five companies in the Sixth Naphtha Cracker Plant in August 2015 on the grounds of suffering from cancer or deaths due to cancer and claimed some NT\$70 million. A total of 8 verbal arguments have been called, and relevant evidence is still under investigation and clarification.

According to the national statistics compiled by Ministry of Health and Welfare, the total incidence of cancer in Taixi Township from 2008 to 2010 increased by 0.40 time compared with that between 1999 and 2001, which is lower than the national increase of 0.45 time. The increase of 4.07 times claimed by the residents is nonexistent. Therefore, there is no exact causal relationship between the residents' suffering from cancer and the operation of the Sixth Naphtha Cracker Project.

We will continue to carry out environmental protection improvement plans and the community outreach program while pursuing economic development.



### Reference:

1. Doll R, Peto. *The causes of cancer*. Oxford: Oxford University Press. 1981.
2. Colditz GA, Sellers YA, Trapido E. Epidemiology-identifying the causes and preventability of cancer? *Nat Cancer*. 2003; 6: 75-83.
3. Harvard Report on Cancer Prevention. Volume 1: *Causes of human Cancer*. *Cancer Causes & Control (Supplement 1)* 1996; 7: s3-s59.

## 5.2 Social Contribution

In order to implement the philosophy of the two founders, FPG has actively engaged with the government and various civil society organizations to gain a deeper understanding of social needs as well as caring for disadvantaged groups. Over the years, NT \$55.79 billion dollars have been invested. We will continue to lend a helping hand to those in need in our society. Since large-scale public welfare activities are planned and organized by the Group Administration, the Company is responsible for the promotion and execution of the aforesaid activities.

## FPG Social Charity Contribution Summary

Unit: NT\$100 million

Year	Type	Charitable Event	Donation Amount
1960~Today	Education	Establishment of Ming Chi University of Technology and subsequent donations	279.3
		Establishment of Chang Gung University and subsequent donations	
		Establishment of Chang Gung University of Science and Technology and subsequent donations	
1990~Today	Medical	Establishment of Chang Gung Memorial Hospital	28.4
		* Assisting low-income patients to seek medical treatment	
2000~Today	Caring for Disadvantaged Groups	Assisting indigenous students receive education (job hunting) and other sponsorships	35.3
		* Cochlear Implant Donation	
		Improving the service quality of disability organizations and other social welfare organizations	
		Children's and women's welfare	
2000~Today	Environmental Care	Inmates Counseling (Rainbow Project for AIDS inmates, Xiangyang Project for addition inmates)	12.6
		Kitchen Waste Recycling	
		Organic Vegetable Cultivation	
2000~Today	Caring for the Elderly	Afforestation	6.4
		* Establishment of Chang Gung Health and Culture Village	
2000~Today	Disaster Relief	Pneumococcal vaccine donation, welfare for the elderly, etc.	47.9
		🏠 Donation for reconstructing old and dangerous school buildings after the 921 earthquake and Typhoon Morakot (76 buildings in total)	
	Culture Promotion	Donations to local culture and performance groups	0.8
	Sports Promotion	Sports promotion and athlete sponsorship	2.0
	Health Promote	Engaging in various health promotion research and academic research	2.3
	Local Contribution	Contribution to the neighboring areas around all plants	133.7
	Others	Chang Gung Social Welfare Fund and other donations	9.2
Total			557.9

Note 1: The project marked with \* derived from the revenue of Chang Gung Memorial Hospital and therefore are not included in the total donation amount.

Note 2: The old and dangerous school building reconstruction projects marked with 🏠 include the amount which is donated to schools under reconstruction.

Note 3: This table only records donations in Taiwan.

## 5.2.1 Promotion of Medical Care and Education

### Chang Gung Medical Care System

Alerted to the lack of medical resources in Taiwan during the 1970s, the two founders of FPG dedicated themselves to promoting social welfare donations and decided to establish a non-profit medical center-level teaching hospital. Through 40 years effort, Taipei, Linkou, Keelung, Kaohsiung, Chiayi, Taoyuan, and Yunlin Chang Gung Memorial Hospitals were established one after another. These hospitals provide integrated health care from preventive medicine, acute medical care, chronic medical care, traditional Chinese medicine, long-term care, and health villages.

Chang Gung Memorial Hospital also actively provides medical services and disadvantaged care in the rural areas of Taiwan. In case of disasters overseas, it provides timely assistance. In countries with fewer medical resources such as Burkina Faso, Cambodia, Indonesia, Myanmar, and so on, free medical care, health education, and assistance in founding medical institutions are also offered. At the same time, it trains medical personnel from all over the world to show that love and compassion have no borders.

### Founding Three Schools

In order to cultivate the professionals in the industrial field, FPG established Ming Chi Technical College (now Ming Chi University of Technology) in 1963, and established Chang-Gung College of Medicine (now Chang-Gung University) and Chang-Gung Institute of Nursing (now Chang-Gung University of Science and Technology) in 1987 and 1988 successively after the establishment of Chang-Gung Memorial Hospital in 1976 in order to cultivate the outstanding medical talents. All three schools adhere to the philosophy of "Diligence, perseverance, frugality and trustworthiness". Professional training programs were implemented to train the students to be independent and hardworking. They are required to achieve both theoretical and practical excellence in order to become professionals with outstanding knowledge and skills.



### Assisting Indigenous Youth in Accessing Education and Employment

FPG has spared no effort in helping indigenous students access to education since 1995. Chang-Gung University of Science and Technology enrolled indigenous girls in nursing schools; Ming Chi University of Technology launched "indigenous technical training courses" and "indigenous skills and employment training program" to assist indigenous youth who are not continuing their education in cultivating skills and finding employment. Those who are willing to continue their education are also helped. In addition, all academic expenses incurred during the school year are sponsored by the two founders. At the same time, internships opportunities are offered to reduce the financial burden on the students' families. So far, more than 5,400 students have benefited from grants, and the amount has exceeded 1.7 billion.

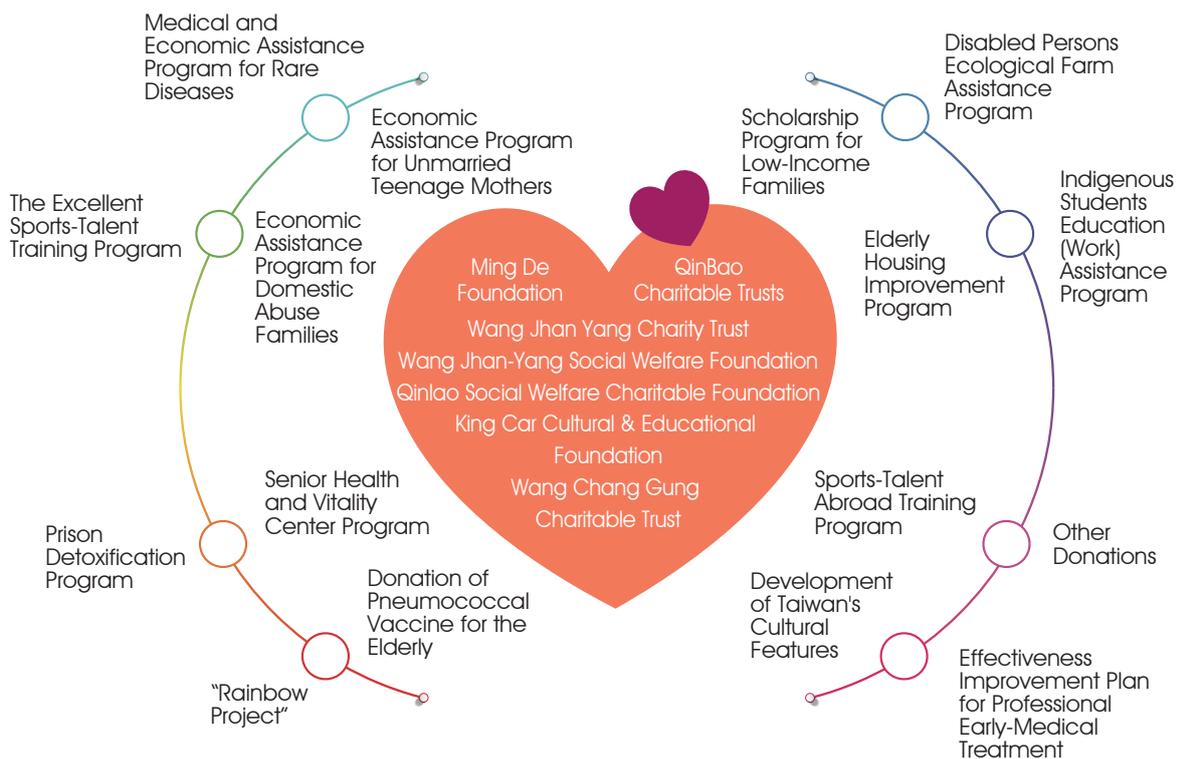
School	Classes	Number of Beneficiaries	Sum of Scholarship
Chang Gung University of Science and Technology	Indigenous class in nursing school	3,646 people	Around NT\$ 1.27 billion
	Indigenous technical training course		
Ming Chi University of Technology	Indigenous class in 5-year college	1,783 people	Around NT\$ 430 million
	Indigenous class in vocational high school		
	Indigenous class in 4-year technical program		

### 5.2.2 Social Assistance

The two founders of FPG actively engaged in social welfare promotion by establishing seven foundations and charitable trusts. In order to concentrate the donations to underprivileged groups and social welfare agencies, FPG saves the personnel and administration cost as much as possible. In addition, FPG works with professional groups, scholars and experts; continuously promote various charity plan based on the principle of "Comprehensive, Holistic and Systematic".

The mission is to gradually improve the operational efficiency of the all public welfare institutions, so that the resources can be effectively utilized. Each project is not only a domestic initiative, but also contributes to service quality improvement and sustainable management.

#### Seven Foundations, Charitable Trusts and Their Plans



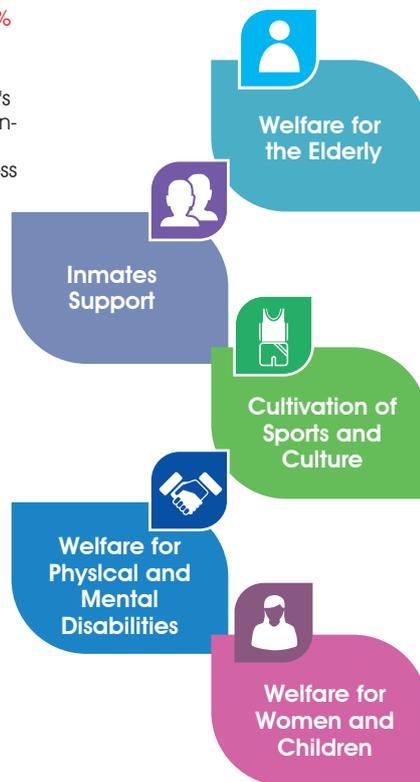
## Social Responsibility Performance

- 🍎 The Wang Jhan Yang Foundation's "Rainbow Project" offers counseling to inmates with addiction and AIDS in Yunlin, Taipei, and Kaohsiung. The recidivism rate is less than **25%** (far lower than the average 70-80%)

The Wang Jhan Yang Charity Trust's "Xianyang Project" offers professional counseling to inmates with addiction. The recidivism rate is less than **10%** (far lower than the average 60-70%)

- 🍎 Create the first online "Early Treatment Forum" which has more than **5,000** professional members. The materials developed by the Company have been downloaded for more than **110,000 times**

- 🍎 Promote "Early Treatment Community Support" with **20** early treatment facilities to balance the resources in remote areas



- 🍎 Between 2007 and 2017, **1.12 million doses** of vaccines were donated to the "Pneumococcal Vaccination Program for the Elderly"

- 🍎 The vaccination program saved the government **NT\$12.8 billion** dollars in medical expenses

- 🍎 We promoted "Elderly Housing Improvement Program and Home Appliances Subsidies" in **15 counties** and cities. **813 houses** have been repaired to date

- 🍎 Donated more than **NT\$80 million** to the Taiwanese cultural theater group

- 🍎 Over **NT\$200 million** have been invested in sponsoring exceptional talents in tennis, table tennis, billiards, badminton, and golf. Chang Gung Memorial Hospital also provides medical assistance to prevent and treat sports injuries

- 🍎 A total of nearly **NT\$84 million** in scholarship for low-income students have been given out, benefiting nearly **6,200** students.

- 🍎 Invested nearly **NT\$ 1.3 billion** for "Aboriginal Nursing Classes" in order to train aboriginal female become a nursing professional

- 🍎 Invested more than **NT\$ 400 million** for "Aboriginal Vocational Classes" to help the aboriginal youths enhance their employability



### Professional Early Treatment Improvement Project

The best period for early treatment is before the age of 6, and treatment received before the age of 3 is 10 times more effective than that after the age of 3. With proper treatment, the children can even integrated in the normal schooling program and society, thereby reducing the burden on families and society. Through planned personal participation and investment, the facilities' quality, professional competence and parental awareness can be improved within the least possible time, so that more young children can get quality treatment services. From 2006 to 2017, more than NT\$ 560 million have been invested in this program, benefiting more than 20,000 children and 70 agencies (for more detail, please visit the website of the Wang Jhan Yang Foundation: [http:// www.wjy.org.tw/j20r/Cc1a00.do](http://www.wjy.org.tw/j20r/Cc1a00.do)).



### Donation of Pneumococcal Vaccine for the Elderly

Since 2007, FPG has donated pneumococcal vaccines to the Taiwan Centers for Disease Control to jointly promote the free pneumococcal vaccination program for people over the age of 75. By the end of 2017, 1.12 million vaccines have been donated, saving the government nearly NT\$12.8 billion in medical expenses.



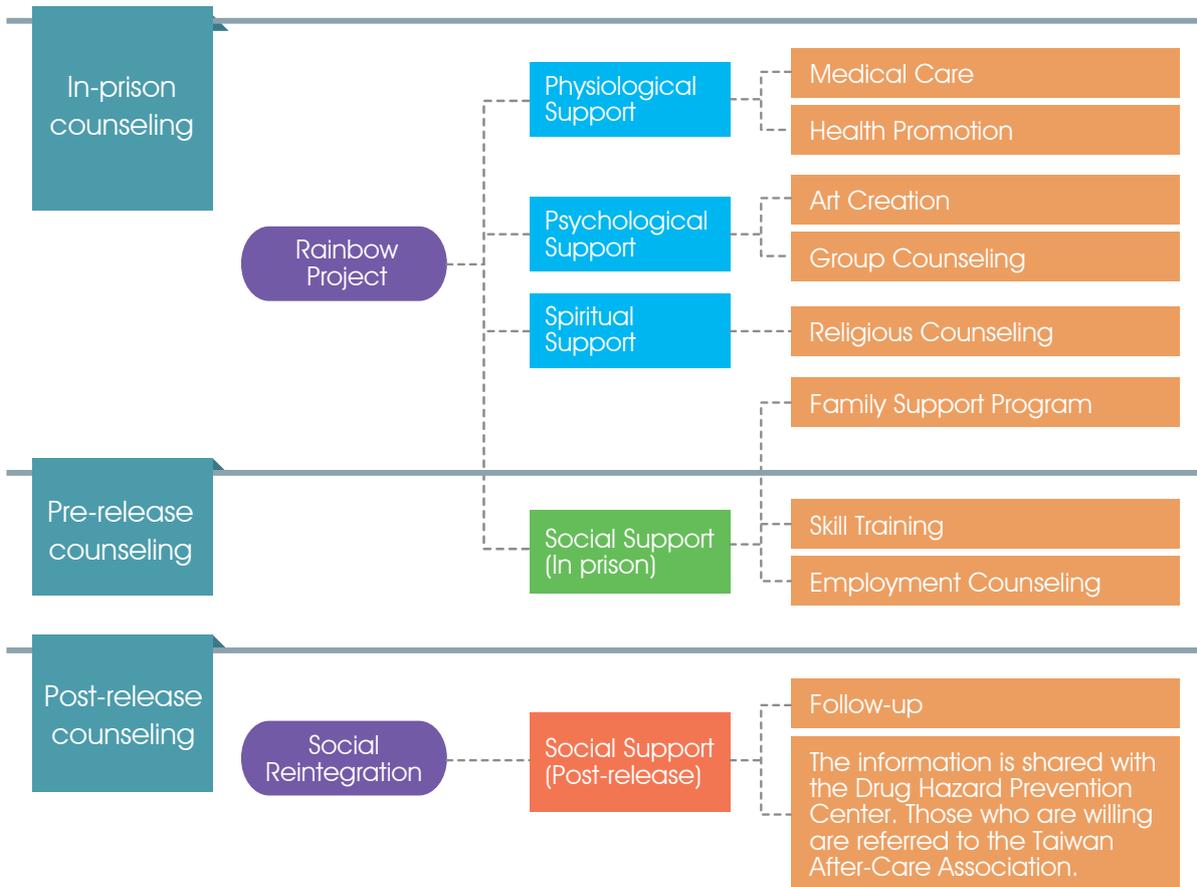
## Wang Jhan Yang Foundation "Rainbow Project" and Wang Jhan Yang Charity Trust "Xiangyang Project"

The Rainbow Project is subsidized by the Wang Jhan Yang Foundation to support the Yunlin Second Prison, Taipei Prison and Kaohsiung Prison in reintegrating prisoners with drug addiction and AIDS prisoners in family and society by acquiring a skill. Xiangyang Project is subsidized by Wang Jhan Yang Charitable Trust to support the Yunlin Second Prison and Kaohsiung Prison. In 2017, the project was extended to Tainan Prison, Hualien Prison and Kaohsiung Women's Prison to assist drug convicts to return to normal life. (For more detail, please visit the websites of Wang Jhan Yang Foundation: <http://www.wjy.org.tw/j20r/Cc1a00.do> and Wang Jhan Yang Charitable Trust: <http://www.wjytrust.org.tw/j20w/Cc1a00.do>).



Xiangyang Project's donation ceremony symbolizes the joint effort of Wang Jhan Yang Charitable Trust, the Ministry of Justice, and the Correctional Department of the Ministry of Justice in combating the drug problem

### Rainbow Project Detail and Process



## Senior Health and Vitality Center

FPG is committed to extending and improving the health of the elderly, so as to significantly reduce the pressure on their children which comes from offering psychological, care, and medical support. This has an overall positive influence on the society. Through the Pro-Diligence Charitable Foundation and Federation for the Welfare of the Elderly, we founded the Senior Health and Vitality Center to provide services at the all service locations in order to improve health, strength, mental acuity, vitality and social participation. All the service locations provide the elderly with a great place to be during day time. They can continue to contribute to the society by maintaining their vitality and mental acuity.



Center members form a group to perform magic shows for primary school located in rural areas

The Company organized teams with experts in different fields such as public health, social work, nursing, occupational therapy, sports, and elderly medical care to review and revise the contents of the proposal, service plan and evaluation indicators. After reviewed by the expert team, the pilot program was implemented in Taichung, Tainan, Taitung, Hsinchu, Taoyuan, Yunlin, Chiayi, Xinzhuang, Yonghe and Nantou. From July 2013 to the end of 2017, the Company has assisted 5,842 people with the satisfaction rate of participating members reached over 92%, and progress has been made in various performance evaluation indicators. The program has been deemed as successful and will be extended to other location in Taiwan.

## Elderly Home Improvement Project

Since 2011, the Pro-Diligence Charitable Foundation and Qingbao Charitable Trust have worked together with the "Federation for the Welfare of the Elderly" and the "Yunlin County Elderly Welfare Protection Association" in Pingtung County, Taitung County, Taoyuan City, Chiayi County, Hualien County, Yunlin County, Yilan County, Hsinchu County, Changhua County, Miaoli County, Nantou County, New Taipei City, Taichung City, Tainan City, and Kaohsiung City to promote the elderly home improvement project. By the end of 2017, 813 households have been repaired. The service will be extended to more disadvantaged elderly.



Professionally-Repaired Residence  
Press Conference for Residence Improvement Project for the Elderly



### Scholarship for Students from Low-Income Households

Since 2011, the Pro-Diligence Charitable Foundation has sponsored high school and college students with financial difficulties (low-income households) and excellent academics. This allows them to concentrate on schoolwork and complete their studies. They are also encouraged to help others in need when they get the chance in the future. By 2017, a total of 5,576 students have been sponsored.



Thank-You Notes from the Scholarship Awardees



# *Appendix*



## Appendix 1: Global Reporting Initiative (GRI) Comparison Table

The indexes mentioned below are cross-referenced with the GRI Standards: 2016. As presented by the Independent Assurance Opinion Statement, related information has been verified to meet the requirements of the GRI Standards:

GRI Standards	Disclosure Item	Referenced Section	Pages	Remark	
Organizational profile					
GRI 102: General Disclosures 2016	102-1	Name of the organization	1.1 About Nan Ya Plastics	P.8	
	102-2	Activities, brands, products, and services	2.1 Diversified Product Application	P.50	
	102-3	Location of headquarters	1.1 About Nan Ya Plastics	P.8	
	102-4	Location of operations	1.1 About Nan Ya Plastics	P.8	
	102-5	Ownership and legal form	1.1 About Nan Ya Plastics	P.8	
	102-6	Markets served	1.1 About Nan Ya Plastics	P.8	
	102-7	Scale of the organization	1.1 About Nan Ya Plastics 1.2 Corporate Governance	P.8 P.13	
	102-8	Information on employees and other workers	4.1 Human Rights Protection and Employment	P.94	
	102-9	Supply chain	2.1 Diversified Product Application 2.3 Supplier and Contractor Management	P.50 P.63	
	102-10	Significant changes to the organization and its supply chain	-	-	No significant changes occurred in 2017
	102-11	Precautionary Principle or approach	1.2.8 Risk Management	P.23	
	102-12	External initiatives	3.1 Commitment to Environmental Protection	P.70	
	102-13	Membership of associations	1.1 About Nan Ya Plastics	P.8	
	Strategy				
102-14	Statement from senior decision-maker	From the Management Team	P.2		

GRI Standards	Disclosure Item	Referenced Section	Pages	Remark	
GRI 102: General Disclosures 2016	102-15 Key impacts, risks, and opportunities	From the Management Team	P.2		
		1.2.5 Internal Control Mechanism	P.20		
		1.2.8 Risk Management	P.23		
		5.The Pursuit of Co-Prosperity and a Better Homeland	P.112		
	Ethics and integrity				
	102-16	Values, principles, standards, and norms of behavior	1.1.3 Business Philosophy	P.10	
			1.2 Corporate Governance	P.13	
	Governance				
	102-18	Governance structure	1.2 Corporate Governance	P.13	
	102-22	Composition of the highest governance body and its committees	1.2 Corporate Governance	P.13	
102-23	Chair of the highest governance body	1.2 Corporate Governance	P.13		
102-24	Nominating and selecting the highest governance body	1.2 Corporate Governance	P.13		
102-25	Conflicts of interest	1.2 Corporate Governance	P.13		
102-35	Remuneration policies	1.2 Corporate Governance	P.13		
102-36	Process for determining remuneration	1.2 Corporate Governance	P.13		
Stakeholder engagement					
102-40	List of stakeholder groups	1.3 CSR Management	P.25		
102-41	Collective bargaining agreements	4.2.4 Valuing Employee Feedback	P.99		
102-42	Identifying and selecting stakeholders	1.3 CSR Management	P.25		
102-43	Approach to stakeholder engagement	1.3 CSR Management	P.25		
102-44	Key topics and concerns raised	1.3 CSR Management	P.25		
Reporting practice					
102-45	Entities included in the consolidated financial statements	1.1 About Nan Ya Plastics	P.8		
102-46	Defining report content and topic Boundaries	About This Report	P.4		



GRI Standards	Disclosure Item	Referenced Section	Pages	Remark
GRI 102: General Disclosures 2016	102-47	List of material topics	1.3 CSR Management	P.25
	102-48	Restatements of information	About This Report	- No restated data
	102-49	Changes in reporting	1.3 CSR Management	P.25
	102-50	Reporting period	About This Report	P.4
	102-51	Date of most recent report	About This Report	P.4
	102-52	Reporting cycle	About This Report	P.4
	102-53	Contact point for questions regarding the report	About This Report	P.4
	102-54	Claims of reporting in accordance with the GRI Standards	Appendix 1 Global Reporting Initiative (GRI) Comparison Table	P.141
	102-55	GRI content index	Appendix 1 Global Reporting Initiative (GRI) Comparison Table	P.141
	102-56	External assurance	Appendix 6 Independent Assurance Opinion Statement	P.155
<b>GRI 200: Topic - Specific Standards Economic Series 2016</b>				
<b>Material Topic</b>				
<b>Economic Performance</b>				
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25
	103-2	The management approach and its components	1. Ongoing Sustainability Governance Strategy	P.6
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25
GRI 201: Economic Performance 2016	201-1	Direct economic value generated and distributed	1.2.7 Operational Performance	P.21
	201-3	Defined benefit plan obligations and other retirement plans	4.2 Employee Rights and Benefits	P.97
<b>Market Presence</b>				
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25
	103-2	The management approach and its components	4 Creating a Happy and Safe Workplace	P.92
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25

GRI Standards	Disclosure Item	Referenced Section	Pages	Remark
GRI 202: Market Presence 2016	202-2 Proportion of senior management hired from the local community	4.1.4 Local Supervisor Ratio	P.96	
<b>Anti-Corruption</b>				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2 The management approach and its components	1. Ongoing Sustainability Governance Strategy	P.6	
	103-3 Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 205: Anti-Corruption 2016	205-3 Confirmed incidents of corruption and actions taken	-	-	No corruption occurred in 2017
<b>GRI 300: Topic - Specific Standards Environment Series 2016</b>				
<b>Water</b>				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2 The management approach and its components	3 Green Environmental Management	P.68	
	103-3 Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 303: Water 2016	303-1 Water withdrawal by source	3.2.2 Water Resource Management	P.76	
	303-3 Water recycled and reused	3.2.2 Water Resource Management	P.76	
<b>Emissions</b>				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2 The management approach and its components	3 Green Environmental Management	P.68	
	103-3 Evaluation of the management approach	1.3 CSR Management	P.25	



GRI Standards	Disclosure Item		Referenced Section	Pages	Remark
GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	3.2.4 Greenhouse Gas Emissions	P.83	
	305-2	Energy indirect (Scope 2) GHG emissions	3.2.4 Greenhouse Gas Emissions	P.83	
	305-4	GHG emissions intensity	3.2.4 Greenhouse Gas Emissions	P.83	
	305-5	Reduction of GHG emissions	3.2.4 Greenhouse Gas Emissions	P.83	
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	3.3.3 Air Pollution Prevention	P.87	
<b>Effluents and Waste</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	3 Green Environmental Management	P.68	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 306: Effluents and Waste 2016	306-1	Water discharge by quality and destination	3.2.2 Water Resource Management	P.76	
	306-2	Waste by type and disposal method	3.3.1 Waste Management	P.86	
	306-3	Significant spills	3.5 Environmental Violations	P.91	
	306-5	Water bodies affected by water discharges and/or runoff	3.2.2 Water Resource Management	P.76	
<b>Environmental Compliance</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	3 Green Environmental Management	P.68	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 307: Environmental Compliance 2016	307-1	Non-compliance with environmental laws and regulations	3.5 Environmental Violations	P.91	

GRI Standards	Disclosure Item	Referenced Section	Pages	Remark	
GRI 400: Topic - Specific Standards Social Series 2016					
Employment					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	4 Creating a Happy and Safe Workplace	P.92	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 401: Employment 2016	401-1	New employee hires and employee turnover	4.1.2 Employment 4.2.2 Good Job Security	P.94 P.97	
	401-2	Benefits provided to fulltime employees that are not provided to temporary or part-time employees	4.2 Employee Rights and Benefits	P.97	
Occupational Health and Safety					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	4 Creating a Happy and Safe Workplace	P.92	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 403: Occupational Health and Safety 2016	403-1	Workers representation in formal joint management-worker health and safety committees	4.4 Workplace Safety	P.103	
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	2.3 Supplier and Contractor Management 4.4 Workplace Safety	P.63 P.103	Partial contents are disclosed
	403-3	Workers with high incidence or high risk of diseases related to their occupation	4.4 Workplace Safety	P.103	
Diversity and Equal Opportunity					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	4 Creating a Happy and Safe Workplace	P.92	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	



GRI Standards	Disclosure Item		Referenced Section	Pages	Remark
GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	1.2 Corporate Governance 4.1 Human Rights Protection and Employment	P.13 P.94	
	405-2	Ratio of basic salary and remuneration of women to men	4.2.1 Employee Remuneration	P.97	
<b>Marketing and Labeling</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	2 Product Value Expansion	P.48	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 417: Marketing and Labeling 2016	417-1	Requirements for product and service information and labeling	2.2.3 Compliance - Product Management and Customer Data Protection	P.63	
	417-2	Incidents of non-compliance concerning product and service information and labeling	2.2.3 Compliance - Product Management and Customer Data Protection	P.63	No non-compliance concerning product and service occurred in 2017
<b>Customer Privacy</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	2 Product Value Expansion	P.48	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 418: Customer Privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	2.2.3 Compliance - Product Management and Customer Data Protection	P.63	
<b>Socioeconomic Compliance</b>					
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	1.3 CSR Management	P.25	
	103-2	The management approach and its components	2 Product Value Expansion	P.48	
	103-3	Evaluation of the management approach	1.3 CSR Management	P.25	
GRI 419: Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	2.2.3 Compliance - Product Management and Customer Data Protection	P.63	

## Appendix 2: Corporate Social Responsibility Best Practice Principles for TWSE/GTSM Listed Companies

Material Issues	Description	Referenced Section	Remark
Chapter 1 General Principles	Purposes of establishment, applicable objects, and principles of practice	About This Report	
Chapter 2 Exercising Corporate Governance	Implementation of corporate governance practices	1.2 Corporate Governance	
Chapter 3 Fostering a Sustainable Environment	Development of a sustainable environment	3 Green Environmental Management 5 The Pursuit of Co-Prosperity and a Better Homeland	
Chapter 4 Preserving Public Welfare	Preservation of public welfare	5 The Pursuit of Co-Prosperity and a Better Homeland	
Chapter 5 Enhancing Disclosure of Corporate Social Responsibility Information	Improvement in the disclosure of corporate social responsibility information	About This Report	
Chapter 6 Supplementary Provisions	Review and improvement in the corporate social responsibility system	About This Report	



## Appendix 3: ISO 26000 Guidance on Social Responsibility

	Material Issues	Referenced Section	Remark
Organizational Governance	Decision-making processes and structures	1.2 Corporate Governance	
	Complying with laws and regulations and avoiding the audit of the risk posed by human rights problems	4 Creating a Happy and Safe Workplace	
	Human rights risk situations	4 Creating a Happy and Safe Workplace	
Human Rights	Avoidance of complicity - direct, beneficial, and silent complicity	4 Creating a Happy and Safe Workplace	
	Resolving grievances	4 Creating a Happy and Safe Workplace	
	Discrimination and vulnerable groups	4 Creating a Happy and Safe Workplace	
	Civil and political rights	4 Creating a Happy and Safe Workplace	
	Economic, social, and cultural rights	4 Creating a Happy and Safe Workplace	
	Fundamental principles and rights at work	4 Creating a Happy and Safe Workplace	
	Employment and employment relationships	4 Creating a Happy and Safe Workplace	
Labor Practices	Conditions of work and social protection	4 Creating a Happy and Safe Workplace	
	Social dialogue	4 Creating a Happy and Safe Workplace	
	Health and safety at work	4.4 Workplace Safety	
	Human development and training in the workplace	4.3 Talent Training	

	Material Issues	Referenced Section	Remark
The Environment	Prevention of pollution	3 Green Environmental Management	
	Sustainable resource use	3 Green Environmental Management	
	Climate change mitigation and adaptation	3 Green Environmental Management	
	Protection of the environment, biodiversity, and restoration of natural habitats	3 Green Environmental Management 5 The Pursuit of Co-Prosperty and a Better Homeland	
Fair Operating Practices	Anti-corruption	1.2 Corporate Governance	
	Responsible political involvement	1.1.4 External Association Participation 1.2.7 Operational Performance 1.2.8 Risk Management	
	Fair competition	2.2 Collaborative Business Model 2.3 Supplier and Contractor Management	
	Promoting social responsibility in the value chain	From the Management Team 1.1.3 Business Philosophy	
	Respect for property rights	-	All employees are required to sign the Statement about Respect for Intellectual Property Rights to declare the Company's policy and position against the use of illegal software. Those violating this policy are subject to legal sanctions and severe punishments according to the internal regulations.
Consumer Issues	Fair marketing, factual and unbiased information, and fair contractual practices	2 Product Value Expansion	
	Protecting consumers' health and safety	2 Product Value Expansion	
	Sustainable consumption	2 Product Value Expansion	
	Consumer services, support, and complaints and dispute resolutions	2 Product Value Expansion	



	Material Issues	Referenced Section	Remark
Consumer Issues	Consumer data protection and privacy	2 Product Value Expansion	No violation of customer privacy or loss of customer data in 2017
	Access to essential services	2 Product Value Expansion	
	Education and awareness	2 Product Value Expansion	
Community Involvement and Development	Community involvement	5 The Pursuit of Co-Prosperity and a Better Homeland	
	Education and culture	5 The Pursuit of Co-Prosperity and a Better Homeland	
	Employment creation and skill development	5 The Pursuit of Co-Prosperity and a Better Homeland	
	Technology development and access	5 The Pursuit of Co-Prosperity and a Better Homeland	
	Wealth and income creation	5 The Pursuit of Co-Prosperity and a Better Homeland	
	Health	5 The Pursuit of Co-Prosperity and a Better Homeland	
	Social investments	5 The Pursuit of Co-Prosperity and a Better Homeland	

## Appendix 4: United Nations Global Compact

	Material Issues	Referenced Section	Remark
Human Rights	Businesses should support and respect the protection of internationally proclaimed human rights.	2.3 Supplier and Contractor Management 4 Creating a Happy and Safe Workplace	
	Business should make sure that they are not complicit in human rights abuses.	2.3 Supplier and Contractor Management	
Labor	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	4 Creating a Happy and Safe Workplace	
	Businesses should uphold the elimination of all forms of forced and compulsory labor.	4 Creating a Happy and Safe Workplace	
	Businesses should uphold the effective abolition of child labor.	4 Creating a Happy and Safe Workplace	
	Businesses should uphold the elimination of discrimination in respect of employment and occupation.	4 Creating a Happy and Safe Workplace	
Environment	Businesses should support a precautionary approach to environmental challenges.	2.1.6 Product Safety and Health Responsibility	
	Businesses should undertake initiatives to promote greater environmental responsibility.	3 Green Environmental Management	
	Businesses should encourage the development and diffusion of environmentally friendly technologies.	2.1.6 Product Safety and Health Responsibility	
Anti-corruption	Businesses should work against corruption in all its forms, including extortion and bribery.	1.2 Corporate Governance	



## Appendix 5: Volume and Value Table of Production and Sales

### (1) Production volume and value in the past 2 fiscal years

Unit: NT\$ thousands

Production Volume Product Name	Annual	2017			2016		
		Production Capacity	Production Volume	Production Value	Production Capacity	Production Volume	Production Value
Flexible PVC Sheeting	ton	255,600	113,319	7,402,853	255,600	129,283	8,407,562
Soft rubber	thousand yards	54,000	29,982	3,576,157	64,200	30,399	3,669,236
Soft Rubber	ton	294,600	140,995	8,432,873	288,000	140,954	8,683,900
PU synthetic leather	thousand yards	49,080	14,810	2,272,455	39,600	14,553	2,339,278
Plastic doors and windows	ton	28,860	23,702	4,507,714	28,860	22,613	4,589,698
Hard tube	ton	245,900	122,465	5,494,102	245,900	122,125	5,336,968
Film products	ton	124,000	71,681	5,137,660	124,400	76,284	5,433,522
Plasticizer and hardener	ton	590,000	441,770	14,845,096	498,000	394,328	11,473,736
Phthalic anhydride	ton	228,000	213,379	6,403,668	228,000	205,747	5,425,403
Propionol	ton	550,000	527,389	20,175,862	550,000	492,642	16,503,304
Butanediol	ton	120,000	55,912	3,222,887	100,000	74,230	3,143,420
Ethylene glycol	ton	2,160,000	2,359,589	58,696,933	2,160,000	2,307,768	48,203,212
Copper foil substrate	thousand sheets	72,400	63,631	34,737,644	69,400	61,317	28,565,386
Epoxy resin	ton	457,000	418,035	27,587,373	457,000	376,760	21,299,394
Fiberglass cloth	thousand meters	636,000	621,854	15,948,748	600,000	537,317	13,171,811
Copper foil	ton	96,000	92,460	31,055,725	90,000	81,841	21,739,860
Glass fiber (Note 3)	ton	201,000	198,972	7,351,909	23,000	21,616	861,442
Circuit board	thousand square feet	31,140	18,581	26,162,763	31,440	18,681	29,072,678
Polyester fiber	ton	1,779,300	1,200,415	51,914,529	1,648,848	1,162,739	48,608,662
Polyester film	ton	108,000	66,975	4,445,668	108,000	62,272	4,229,923

Note 1: Production capacity refers to the volume of products that can be produced by the Company using existing equipment and under the normal operational circumstances, after taking into consideration factors such as downtime, holiday, etc.

Note 2: Production capacity for substitutes may be included in the production capacity. This will be stated in the note.

Note 3: The sales volume of glass fiber in 2016 was calculated after acquiring 100% of the equity of PFG Fiber Glass Corp. and PFG Fiber Glass (Hong Kong)CO., LTD. on November 18, 2016.

## (2) Sales volume and value in the past 2 fiscal years

Unit: NT\$ thousands

Sales volume and value Product Name	Year	Unit	2017				2016			
			Domestic Sales		Export		Domestic Sales		Export	
			Volume	Value	Volume	Value	Volume	Value	Volume	Value
Flexible PVC Sheeting		ton	40,859	3,061,495	74,252	4,458,425	47,462	3,236,352	78,558	4,959,010
Soft rubber		thousand yards	0	0	30,489	3,636,630	0	0	35,009	4,225,675
Rigid PVC		ton	26,906	1,588,371	111,485	6,688,757	27,661	1,587,418	110,082	6,898,659
PU leather		thousand yards	2,392	430,015	11,154	1,648,498	3,185	556,628	11,219	1,758,699
Plastic doors and windows		ton	9,752	1,400,703	11,893	2,715,792	7,715	1,154,468	13,057	3,061,615
Hard tube		ton	91,349	4,367,611	31,503	1,143,853	90,963	4,176,066	31,435	1,172,832
Film products		ton	30,955	2,066,308	6,164	594,157	35,203	2,296,881	5,311	588,832
Plasticizer and hardener		ton	46,675	1,768,560	351,671	11,617,330	48,631	1,599,947	307,456	8,761,093
Phthalic anhydride		ton	29,498	922,365	78,310	2,313,036	31,527	899,550	77,703	1,980,768
Propionol		ton	176,049	6,724,507	163,514	6,265,859	165,574	5,498,920	147,766	4,997,841
Butanediol		ton	25,959	1,343,792	27,156	1,717,870	41,381	1,559,148	26,126	1,299,573
Ethylene glycol		ton	347,849	7,878,659	1,428,373	36,306,487	348,093	7,026,983	1,346,756	28,373,961
Copper foil substrate		thousand sheets	8,059	4,685,191	49,276	26,615,320	8,233	4,239,851	44,975	20,547,843
Epoxy resin		ton	31,441	2,144,300	278,154	18,286,795	29,253	1,954,366	261,718	14,495,114
Fiberglass cloth		thousand meters	36,865	1,020,780	193,602	4,890,029	36,691	990,565	182,760	4,389,066
Copper foil		ton	4,123	1,467,456	40,472	13,511,238	4,321	1,265,208	38,436	10,092,561
Glass fiber (Note 1)		ton	65,221	2,692,272	16,186	315,676	2,013	50,841	5,132	233,902
Circuit board		thousand square feet	3,624	9,561,347	18,854	17,061,665	3,915	11,013,753	18,074	18,156,817
Polyester fiber		ton	275,492	11,867,366	916,547	39,684,925	289,976	11,751,325	878,047	37,078,236
Polyester film		ton	14,429	1,038,034	39,934	2,570,474	12,829	818,368	37,591	2,606,489
Others				25,411,944		12,656,060		16,973,474		20,965,733
<b>Total</b>				<b>91,441,076</b>		<b>214,698,876</b>		<b>78,650,112</b>		<b>196,644,319</b>

Note 1: The sales volume of glass fiber in 2016 was calculated after acquiring 100% of the equity of PFG Fiber Glass Corp. and PFG Fiber Glass (Hong Kong)CO., LTD. on November 18, 2016.

Note 2: The source of the data is the 2017 annual report, which is calculated according to the principle of consolidated financial statements



## Appendix 6: Independent Assurance Opinion Statement

### INDEPENDENT ASSURANCE OPINION STATEMENT

#### Nan Ya Plastics Corporation 2017 Corporate Social Responsibility Report

The British Standards Institution is independent to Nan Ya Plastics Corporation (hereafter referred to as NPC in this statement) and has no financial interest in the operation of NPC other than for the assessment and assurance of this report.

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

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

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

#### Scope

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

1. The assurance scope is consistent with the description of Nan Ya Plastics Corporation 2017 Corporate Social Responsibility Report.
2. The evaluation of the nature and extent of the NPC's adherence to all three AA1000 AccountAbility Principles in this report as conducted in accordance with type 1 of AA1000AS (2008) assurance engagement and therefore, the information/data disclosed in the report is not verified through the verification process.

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

#### Opinion Statement

We conclude that the NPC 2017 Corporate Social Responsibility Report provides a fair view of the NPC CSR programmes and performances during 2017. The CSR report subject to assurance is free from material misstatement based upon testing within the limitations of the scope of the assurance, the information and data provided by the NPC and the sample taken. We believe that the 2017 economic, social and environmental performance indicators are fairly represented. The CSR performance indicators disclosed in the report demonstrate NPC's efforts recognized by its stakeholders.

Our work was carried out by a team of CSR report assurers in accordance with the AA1000 Assurance Standard (2008). We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that NPC's description of their approach to AA1000 Assurance Standard and their self-declaration of 'in accordance' with the GRI Standards(2016): the Core option were fairly stated.

#### Methodology

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

- review of topics raised by external parties that could be relevant to NPC's policies to provide a check on the appropriateness of statements made in the report.
- discussion with managers and staffs on approach to stakeholder engagement. However, we had no direct contact with external stakeholders.
- 8 interviews with staffs involved in sustainability management, report preparation and provision of report information were carried out.
- review of key organizational developments.
- review of the findings of internal audits.
- review of supporting evidence for claims made in the reports.
- an assessment of the organization's reporting and management processes concerning this reporting against the principles of Inclusivity, materiality and responsiveness as described in the AA1000 AccountAbility Principles Standard (2008).

#### Conclusions

A detailed review against the AA1000 AccountAbility Principles of Inclusivity, Materiality and Responsiveness and the GRI Standards(2016) is set out below:

### **Inclusivity**

This report has continually reflected a fact that NPC has sought the engagement of its stakeholders. The participation of stakeholders has been initiated in developing and achieving an accountable and strategic response to sustainability. The reporting systems are being developed to deliver the required information. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the NPC's inclusivity topics.

### **Materiality**

NPC publishes sustainability information that enables its stakeholders to make informed judgements about the company's management and performance. In our professional opinion the report covers the NPC's material topics.

### **Responsiveness**

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

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

NPC provided us with their self-declaration of 'in accordance' with the GRI Standards(2016): the Core option (For each material topic covered by a topic-specific GRI Standard, comply with at least one topic-specific disclosure). Based on our review, we confirm that social responsibility and sustainable development disclosures with reference to the GRI Standards' disclosures are reported, partially reported or omitted. In our professional opinion the self-declaration covers the NPC's social responsibility and sustainability topics.

### **Assurance level**

The moderate level assurance provided is in accordance with AA1000 Assurance Standard (2008) in our review, as defined by the scope and methodology described in this statement.

### **Responsibility**

This CSR report is the responsibility of the NPC's CEO as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

### **Competency and Independence**

The assurance team was composed of Lead Auditors experienced in industrial sector, and trained in a range of sustainability, environmental and social standards including AA1000 AS, ISO14001, OHSAS18001, ISO14064 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.

*For and on behalf of BSI:*



*Peter Pu*

*Managing Director BSI Taiwan*

*2018-05-24*

**bsi.**



**AA1000**

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