

**台塑企業**  
FORMOSA PLASTICS GROUP



# CSR Report 2017

Formosa Petrochemical Corporation  
Corporate Social Responsibility Report



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## Details in This Report

This report is the fourth report of Formosa Petrochemical Corporation. (hereinafter referred to as "FPCC"). The information disclosure period is from January 1, 2017 to December 31, 2017. The scope is mainly within Taiwan's boundary. If there is any relevant information beyond this scope, it will be indicated in the report, and the information will be disclosed by presenting the 3-year data as the editorial principle. Past reports can be downloaded from our CSR website.



### Distribution Overview

Issuance Date of the First Report: December 2015

Issuance Date of Last Report: June 2017

Issuance Date of Current Report: June 2018

Issuance Date of Next Report: June 2019



### Report Boundary and Scope

The disclosed information of this report is mainly based on FPCC and its affiliated companies, including Formosa Oil, Formosa Petrochemical Transportation Corp., FPCC USA, Formosa Dredging Corporation, Formosa Petrochemical Marine Company Limited, etc. The effect of proportions of affiliated companies is extremely small, and thus this report is mainly concerned with the data of FPCC. The boundary of this report does not change in comparison with the previous one.



### Basis of Data Calculation

This report discloses data regarding finance, environment, and societal performance. Relevant data of this report are collected by the President Office each operation unit, and then applied by the report composition team. FPCC CSR team reviews the data to confirm that the data is in line with the Integrity and Transparent Disclosure Principles of this report.



## Compilation Policy

This report adopts GRI Standards Core Option as main reference framework, covering sustainable performance of three major aspects: economy, environment, and society. It also refers to the three principles of Materiality, Inclusiveness, and Responsiveness of Oil and Gas Sector Disclosures and AA1000 Accountability Principle Standard, to demonstrate the sustainability of FPCC's business operations.

The disclosure direction of the report information along with "Code of Practice for CSR of Taiwan's Listed Companies", "ISO 26000 Societal Responsibility Guidelines" and "The Ten Principles of UN Global Compact" serve as the reference basis for the disclosure of report information and consideration of material issues.



## Third Party Verification

To ensure the transparency and credibility of the information disclosure, the relevant information and data disclosed in this report are independently verified by the third-party international certification organization BSI under AA1000 assurance standards and core options of GRI guidelines. The verification declaration is also included into this report.



## Contact Us

If you have any questions or suggestions regarding the content of this report, you are welcome to contact us to provide your valuable opinions. The contact information is as follows:

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## From the Chairman

### Pioneer in Dedicated Local Development

Looking back at the development of FPCC, one might notice that it resembles the growth of a big tree, which starts from plowing deep into the soil and repaying more to the local, to burying the seeds of perseverance, and then to the gradual prospering as a solid business in the petrochemical industry. FPCC connects the upstream and the downstream of the industry and leads industrial development from all aspects, growing branches, blooming flowers, and, ultimately, swelling fruits. We always bear in mind that during our pursue of becoming the most competitive company in Asia, we shall meanwhile earn trust from all stakeholders. Therefore, we sincerely put our efforts into the communication with stakeholders, expecting to open up a new horizon of value.

In recent years, the 17 Sustainable Development Goals (SDGs) set by the United Nations have become the common language of international communities in the discussion of sustainability issues. FPCC, as a member of the world and a pioneer in Taiwan petrochemical industry, extended last year's efforts and, from our core businesses, identified 8 SDGs in this year's report to keep the Company in line with international trends, looking forward to that the goal of sustainable development would outline the sustainability blueprint of FPCC.

The Company sticks to the spirit of "still waters run long". The establishment of values and the formation of habits both take time to be refined. Over the past years, we have always been listening to the voices of stakeholders, in order to program the vision of CSR development as follows:

Industrial Safety culture is the cornerstone of sustainable business operation. FPCC strengthens the operation safety responsibility of all employees, and implements management operations at all levels. Through various educational trainings and activities, we establish employee safety responsibilities and deepens the concept of self-management in employees' mindsets to strengthen security. Meanwhile, for sustainable development of the environment, we have invested in the most advanced process technology, continued to promote energy conservation and carbon reduction, reused resources, and practiced circular economy. In addition, we have invested in product R&D, and cooperated with domestic and foreign manufacturers to establish plants for high-value products, leading the petrochemical industry to upgrade, and building a green economy.

Ethical operation is the belief of FPCC corporate governance. We strive for transparent and rigorous corporate governance and enhance communication with stakeholders. In 2017, we were selected as the "Top 20% Corporations" by TWSE's corporate governance evaluation. In the face of the challenges of the external environment, we made good use of core resources and improved business development. We not only succeeded in winning the trust from investors, but also enabled shareholders to obtain reasonable return on investment. While pursuing the Company's growth, we work hand in hand with customers and suppliers to strive for the common goals and visions, provide more stable products and good service quality, and establish long-term mutual trust partnerships to jointly develop social responsibility.



Talent is one of the keys to success in maintaining core competitiveness. Therefore, we operate with our heart, provide competitive salary, improve career development, enhance employees' expertise, engage in cultivating and seeking talents to create a workplace that makes employees and their family members relieved and happy. In addition, we also encourage employees to serve as volunteers to understand the needs of the society, assist disadvantaged groups, care for the community and promote local development for a long period. We expect to shorten the gap between the countryside and the urban areas and let the land connect and grow prosperously with us.

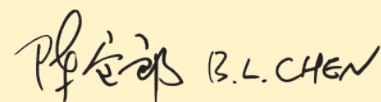
"2017 CSR Report" is the fourth report of FPCC. Over the past few years, the results of the efforts of all colleagues were recognized in 2017: We won the "Corporate Sustainability Report Award - Energy Industry - Gold Award" organized by TAISE. In the future, when facing more diverse stakeholders, we will continue to invest resources in sustainable development. We will not only extend the influence of FPCC on the society, but will also deepen our efforts and effectiveness with our partners. At the same time, we will follow the trend of international sustainability, learn to advance in various relevant issues and look forward to leading the petrochemical industry to establish a sustainable environment, sustainable social happiness and sustainable economic prosperity.



**Formosa Petrochemical Corp.**

**Sincerely,**

**Chairman**

 B.L. CHEN

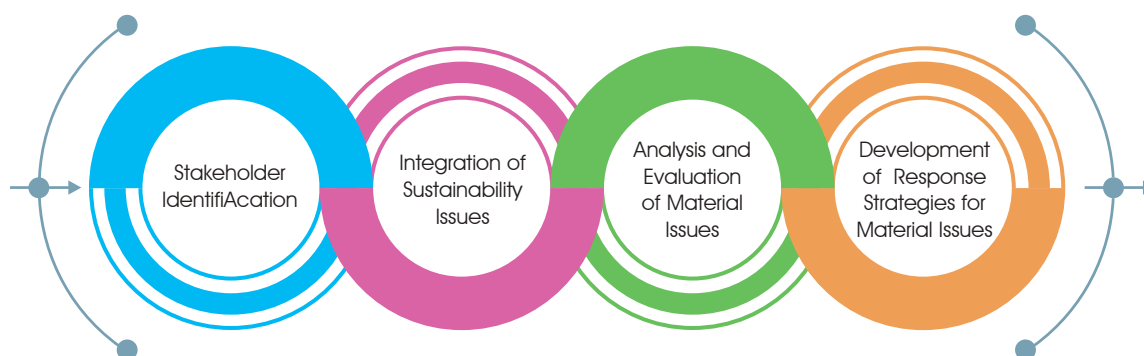
2018



# Stakeholder Engagement

## Identification Method

FPCC attaches great importance to the communication with diverse stakeholders and the exchange of opinions. The Company evaluates global sustainability trends and operational development goals, analyzes major issues of governance, economy, environment and society, and collects sustainability issues from stakeholders through different communication channels to conduct comprehensive identification. Through the discussions by internal and external experts on relevant sustainability trends, impact analysis, and the reference to AA1000 Stakeholder Engagement Standard (SES), we built up stakeholder communication process in accordance with five principles: Dependency, Concern Level, Influence, Responsibility and Diverse Perspectives.



## Stakeholder Communication and Engagement

Departments and the CSR working group in FPCC jointly identified 8 major stakeholders, and made in-depth understanding and communication to different stakeholders with corresponding departments. For each stakeholder, FPCC has built major corresponding department to make communications, accept opinions and respond to needs.

Stakeholders	The Significance to FPCC	Responsible Department	Communication Channels and Frequency	Annual Communication Highlights	Response and Engagement
Employees	Employees are the foundation of FPCC's competitiveness. We enhance employees' cohesiveness through providing comprehensive educational training and friendly working environment.	President Office	<ul style="list-style-type: none"> <li>Labor-Management Meeting (once every two months)</li> <li>Welfare Committee (once every two months)</li> <li>Suggestion Box / E-mail (any time)</li> <li>Announcement Letter (ad hoc)</li> </ul>	Employees' General Situation and Welfare	<ul style="list-style-type: none"> <li>Labor-Management Meeting Proposal Completion Rate: 91%</li> <li>Welfare Committee Proposal Completion Rate: 100%</li> </ul>



Stakeholders	The Significance to FPCC	Responsible Department	Communication Channels and Frequency	Annual Communication Highlights	Response and Engagement
Investors/ Shareholders	Investors / shareholders support the operation of FPCC, as we continue to operate with integrity and implementation of the principle of sustainable governance to gain investors' favor. We also maintain and create long-term feedback for investors / shareholders.	President Office	<ul style="list-style-type: none"> <li>Shareholder's Meeting (once)</li> <li>Investor Conference (more than twice)</li> <li>E-mail/Telephone (any time)</li> </ul>	<ul style="list-style-type: none"> <li>Corporate Governance</li> <li>Economic Performance</li> </ul>	<ul style="list-style-type: none"> <li>Invited to the Investor Conference for 3 times</li> </ul>
Residents within Operating Areas	Maintaining good interaction with community residents within operating areas is the focus of FPCC operation. When setting annual strategic objectives, it is always added to relevant assessment considerations as a key item operational planning.	Regional Management Department	<ul style="list-style-type: none"> <li>E-mail / Telephone (any time)</li> </ul>	<ul style="list-style-type: none"> <li>Local Community Development and Communication</li> </ul>	<ul style="list-style-type: none"> <li>Pay Attention to Local Residents' Health</li> <li>Promotion</li> <li>In combination with Government Environmental Knowledge</li> </ul>
Customers	Meeting customers' needs is one of the key points of FPCC's operations. Customers' suggestions and requirements are the driving force for our improvements.	Operation Units of each Business Department	<ul style="list-style-type: none"> <li>Customer Satisfaction Survey (twice a year)</li> <li>E-mail/Telephone (any time)</li> <li>Meeting (once a month)</li> </ul>	<ul style="list-style-type: none"> <li>Product Quality and Means of Transportation</li> </ul>	<ul style="list-style-type: none"> <li>The result of 2017 Customer Satisfaction Survey is better than the Satisfaction Index.</li> </ul>
Government Agencies	In addition to complying with relevant regulations, FPCC also conducts two-way communications with the government to provide industry experience and jointly promote sustainable development of the industry.	President Office	<ul style="list-style-type: none"> <li>Conferences (4 times a year)</li> <li>E-mail/Official Document (ad hoc)</li> </ul>	<ul style="list-style-type: none"> <li>Industrial and Public Safety</li> </ul>	<ul style="list-style-type: none"> <li>No manufacture safety incident occurred in 2017.</li> </ul>
Suppliers and Contractors	Suppliers and contractors provide high quality products and services. Mutual trust strengthens the relationship between FPCC and its supply chain.	Safety and Health Divisions of each business department	<ul style="list-style-type: none"> <li>Conferences (ad hoc)</li> <li>Contractor Auditing (ad hoc)</li> <li>E-mail/Telephone (any time)</li> </ul>	<ul style="list-style-type: none"> <li>Emergency Protocols</li> </ul>	<ul style="list-style-type: none"> <li>199 Emergency Drills</li> </ul>
Environmental Groups	Due to FPCC's industrial characteristics, we attach great importance to environmental protection issues. We exchange ideas with environmental groups to work together for environmental sustainability.	President Office	<ul style="list-style-type: none"> <li>E-mail/Telephone (any time)</li> <li>Meeting (once a quarter)</li> </ul>	<ul style="list-style-type: none"> <li>Water Resource Management</li> </ul>	<ul style="list-style-type: none"> <li>The amount of water consumption per unit decreased by 1.5% compared to the previous year.</li> <li>The effective monitoring rate of water quality automatic connection facilities per quarter is over 99%.</li> </ul>



Stakeholders	The Significance to FPCC	Responsible Department	Communication Channels and Frequency	Annual Communication Highlights	Response and Engagement
Experts and Scholars	We attach importance to sustainability recommendations based on academic theory, and actually apply the theory in order to collectively enhance Taiwan's industrial competitiveness.	President office	<ul style="list-style-type: none"> <li>E-mail (any time)</li> <li>Meeting (once a quarter)</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Industry-academy Cooperation with National Taiwan University and Academia Sinica</li> </ul>

## Procedures for Analysis of Material Issues

In order to let the content of disclosed information live up to stakeholders' expectations, FPCC analyzes issues concerned by stakeholders' through the process of material analysis, and sorts the issues in accordance with the concern level of each issue to effectively make response.

### 8 Kinds of Stakeholders

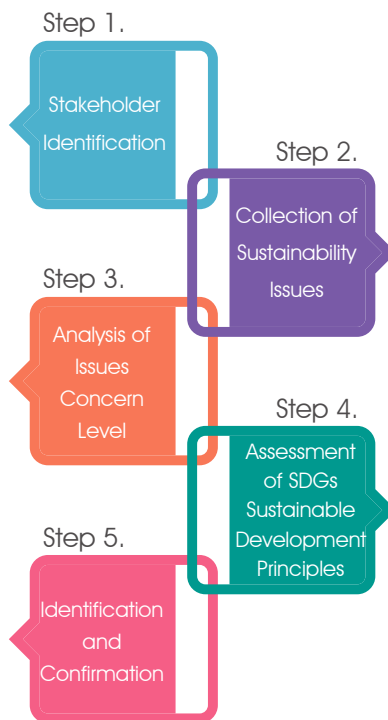
The Company refers to relevant issues in domestic and foreign petroleum industry and the United Nations SDGs, and implement a comprehensive assessment of the intermediate and long-term visions and daily operational status of FPCC itself to identify 32 sustainability issues.

### 121 Questionnaires Returned

Respectively sending electronic questionnaires and CSR website to 32 senior supervisors of FPCC and 89 internal and external stakeholders to sort out the concern level and impact level of relevant issues.

### 11 Material Issues

CSR core team assesses and identifies United Nations SDGs to establish 11 material consideration issues for FPCC and to ensure that relevant issues are transparent, balanced and completely disclosed in the report.



### 32 Sustainability Issues

The Company refers to relevant issues in domestic and foreign petroleum industry and the United Nations SDGs, and implement a comprehensive assessment of the intermediate and long-term visions and daily operational status of FPCC itself to identify 32 sustainability issues.

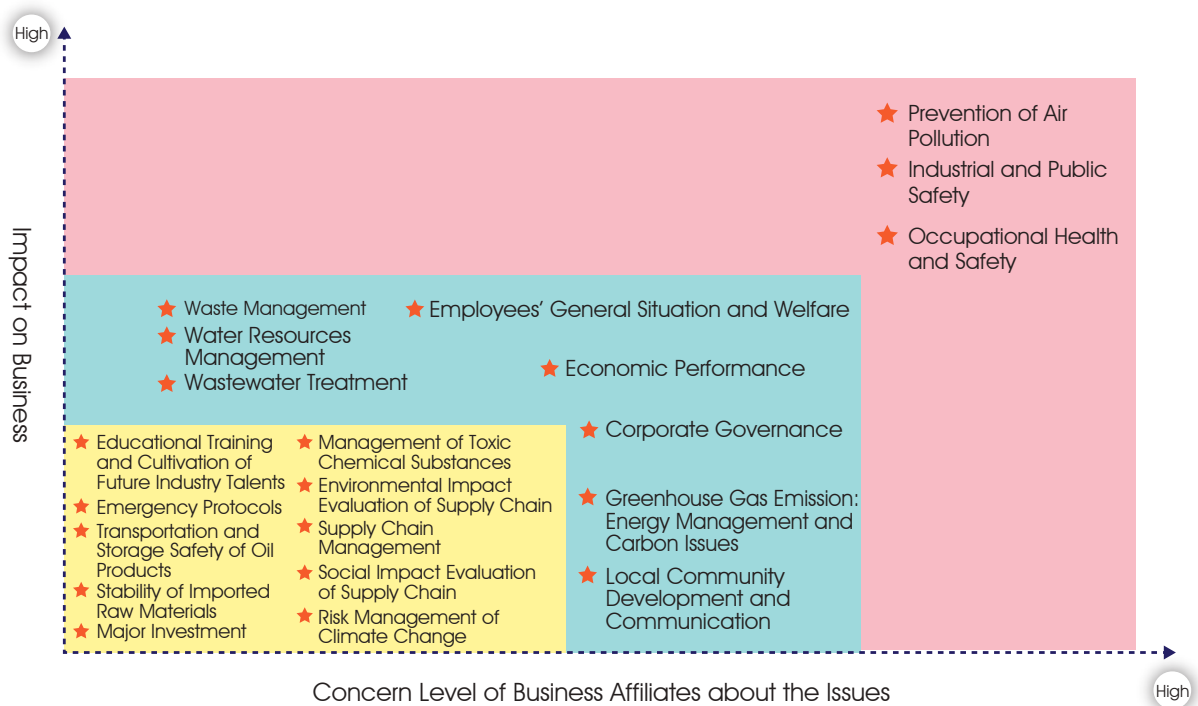
### 8 SDGs Sustainable Development Principles

Assessing the relevance of the United Nations SDGs to operations of Formosa Petrochemical Corp. and comprehensively examining the impact of corporate operations on the corresponding objectives to assess the corresponding development principles



## Materiality Analysis Matrix

FPCC identifies stakeholders' prior concerns and 21 materiality issues by materiality analysis matrix. Through the joint discussion of departments and CSR working group, we include 11 representative sustainability issues with intermediate-level and high-level impacts in this report. The report completely discloses FPCC's management methods and performance results to make the information disclosure meet stakeholders' expectations.



## Material Topics and Boundaries

Reporting boundaries and ranges are defined by the internal and external sustainability issues compared with material topics of GRI Standards. This report provides a comprehensive disclosure of material issues to ensure that the report discloses information with integrity and transparency.

Aspects of Issues	Material Issues	GRI Standards Themes	Corresponding Chapters	Within the Organization (Formosa Petrochemical Corp.)	Boundaries						
					Outside the Organization						
					Investors/Shareholders	Residents of Operating Areas	Customers	Government Agencies	Suppliers and Contractors	Environmental Groups	Experts and Scholars
Economic Aspect	Corporate Governance	Governance	1.1 Corporate Governance	●	●	●	●	●	●	●	●
	Economic Performance	Economic Performance	1.2 Sustainable Development Business Model	●	●				●		●
			1.3 Corporate Risk Management	●	●						●
			4.2 Employee Benefits and Care								●

Aspects of Issues	Material Issues	GRI Standards Themes	Corresponding Chapters	Within the Organization (Formosa Petrochemical Corp.)	Boundaries						
					Outside the Organization						
					Investors/Shareholders	Residents of Operating Areas	Customers	Government Agencies	Suppliers and Contractors	Environmental Groups	Experts and Scholars
Environment Aspect	Air Pollution Prevention	Emission GRI OG6	2.3 Air Pollution Prevention								
	Greenhouse Gas Emission: Energy Management and Carbon Issues	Energy and Emission Oil Industry Issues	2.2 Greenhouse Gas Emission and Energy Management								
	Management of Water Resources	Water GRI OG6	2.4 Water Resources, Wastewater, and Waste Management								
	Wastewater Treatment	Wastewater and Waste GRI OG8	2.4 Water Resources, Wastewater, and Waste Management								
	Waste Management	Wastewater and Waste GRI OG5	2.4 Water Resources, Wastewater, and Waste Management								
Societal Aspect	Industrial and Public Safety	Occupational Safety and Health GRI OG13	3.1 Establishment of the Industrial Safety Culture 3.2 Risk Management of Industrial Safety								
	Employees' General Situation and Benefits	Labor and Capital Relationship	4.1 Employee Structure 4.2 Employee Benefits and Care								
	Occupational Health and Safety	Occupational Safety and Health	3.2 Labor Safety Risk Management 4.2 Employee Benefits and Care								
	Local Community Development and Communication	Local Community GRI-OG10	2.3 Air Pollution Prevention 4.3 Community Development and Communication								

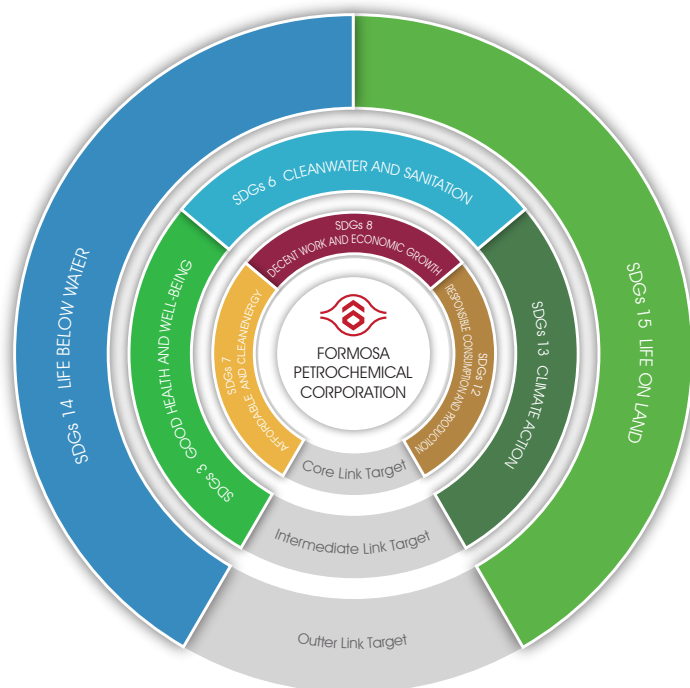


## Material Issues on Significance and Boundary of FPCC



Sustainability Issues	The Significance to FPCC
Air Pollution Prevention	Reduce impacts posed on the environment, take up the social responsibility towards the local residents, and share the prosperity with the community to achieve the company's goal of sustainable business operation.
Industrial and Public Safety	Through the introduction of various international norms and technologies, we implement process, equipment and personnel risk ranking management to reduce on-site risks.
Occupational Health and Safety	We follow the requirements of Occupational Safety and Health Act and conduct a health management project in a systematic manner to establish a high-quality workplace culture.
Waste Management	We manage from the source and demand ourselves by outperforming regulations to minimize operational impact on the environment.
Management of Water Resources	
Wastewater Treatment	
Employees' General Situation and Benefits	We construct welfares better than those required by regulations, and enhance employees' well-being to build a happy company together.
Economic Performance	We review corporate governance tasks and make sure that they are handled in a rigorous manner, grow stably, and take the interests of all parties into account to create maximum value.
Corporate Governance	We follow various laws and internal regulations such as articles of association to ensure the Company's operation philosophy.
Greenhouse Gas Emission: Energy Management and Carbon Issues	We take environmental protection as one of our operational considerations, outline the Company's overall management policy from a multi-dimensional perspective, ensure the correctness of greenhouse gas emission calculation, and promote various process optimization and energy-saving solutions to continuously reduce greenhouse gas emissions to show the determination and ability in sustainable business operation.
Local Community Development and Communication	We combine the resources of Chang Gung medical system to improve health promotion and sanitation education of local residents, and work with the community deeply.

## FPCC SDGs






As a pioneering industry in close connection with economy, FPCC actively takes the first step from its own business on the road of sustainable development, cares about the international sustainability trend, comprehensively examines the organization's link between sustainable practice and the United Nations 17 SDGs, integrates SDGs into FPCC material issues for comprehensive evaluation, and gradually integrates SDGs into business sustainability decision-making process to outline the FPCC sustainability blueprint.



The Company's structured sustainability blueprint identified 8 SDGs. After a comprehensive assessment of global sustainability trends, industry issues, and material issues, we further ranked them and integrated them into business strategy to plan a sustainability policy.

Identification and Ranking	United Nations SDGs	Material Issues	SDGs and FPCC's Relationship	2017 FPCC Sustainability Conduct
Tier 1 Core Link Target		Economic Performance Greenhouse Gas Emission: Energy Management and Carbon Issues	We expand the supply efficiency of global sustainable energy by improving energy efficiency and developing clean energy.	Evaluation of Gas Station and Setting of Solar Photovoltaic System
		Economic Performance Industrial and Public Safety Occupational Health and Safety	The industry goes in the direction of high value-added development, create equal employment opportunities, and improve working environment security.	We promote local employment development and employ local residents to maintain senior management positions at a rate of over 35%.
		Air Pollution Prevention Greenhouse Gas Emission: Energy Management and Carbon Issues Waste Management	We expand global sustainable energy supply by improving energy efficiency and developing clean energy.	A total of 1,214 Cumulative Improved Cases The cumulative investment amount is NT\$5.4 billion.



Identification and Ranking	United Nations SDGs	Material Issues	SDGs and FPCC's Relationship	2017 FPCC Sustainability Conduct
Tier 2 Intermediate Link Target		Employees' General Situation and Benefits Occupational Health and Safety Local Community Development and Communication	Realizing Local Health Care and Occupational Health Management	Examining Staff Comprehensively and Taking Care Their Health Comprehensively in a Technological Way
		Management of Water Resources Wastewater Treatment	We improve water usage rate, do a good job in wastewater treatment, and protect water ecosystems.	Promoting 100,000 Tons/Daily Scale Desalinator Construction Plan
		Greenhouse Gas Emission: Energy Management and Carbon Issues Air Pollution Prevention	We reduce climate change impact by controlling and reducing greenhouse gas emissions.	We have effectively controlled greenhouse gas emissions in the past five years and the emissions have been reduced by 5% compared with the previous year.
Tier 3 Outer Link Target		Local Community Development and Communication	We reduce the impact of land waste on the ocean to conserve marine ecology.	We commissioned NKMU to implement marine ecological survey and environmental photography project and applied for EU's EcoPorts eco-port authentication to strengthen marine ecological conservation.
		Local Community Development and Communication	We reduce actions that destroy natural habitats and protect terrestrial ecological resources and species.	We conducted a survey of species in Mailliao and Taixi areas for 10 consecutive years and took up the responsibility for species conservation at the operating place.



# 1

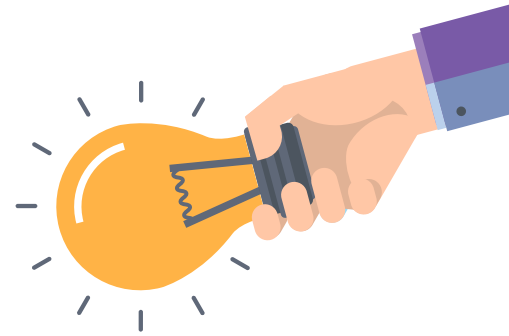
## Industry Leading: Development

- Relevant stakeholders:  
investors/shareholders, customers, and  
government agencies
- Materiality issues:  
corporate governance and operational  
performance



## Section Summary

In 2017, FPCC continued to operate in a stable and full capacity manner throughout the year under the principle of labor safety and environmental protection, ensured profitability through stringent cost control measures, which coincided with the widening of interest rate differential of petroleum products and chemicals, and achieved remarkable results throughout the year. The profits hit a record high. In terms of corporate governance, risk management, and supply chain relationship maintenance, we have maintained a steady attitude towards continuous and steady progress.



The United Nations  
SDGs



### Strategy

- ⚙️ Progressing driving force of high-value products and search for the next generation
- ⚙️ Well-rounded corporate governance
- ⚙️ Guarantee of shareholders' equity - transparency of information and stability of shareholders' remuneration

### Medium-term and Long-term Visions

- ⚙️ Sustainable development, stable operation, and assurance of shareholders' equity

2017 Targets	2017 Performance	2018 Targets
Seeking to add values to our products and search for the strength to keep on moving for the new generation:		
<ul style="list-style-type: none"> <li>⚙️ Promotion of HSBC (Hydrogenated Styrene Block Copolymer) joint venture</li> <li>⚙️ Promotion of HHCR (Hydrogenated Hydrocarbon Resins) joint venture</li> <li>⚙️ Energy conservation, carbon reduction, and increased green energy usage</li> <li>⚙️ Self-raised water source and setting of desalinator</li> <li>⚙️ Launch of new re-investment evaluation</li> </ul>	<ul style="list-style-type: none"> <li>⚙️ In February 2017, the products were officially released. Currently, various new production specifications are being tested according to production and marketing plans.</li> <li>⚙️ Active execution of construction projects</li> <li>⚙️ Assessment of photovoltaics system installed at gas stations</li> <li>⚙️ Promotion of desalinator plan sent to EIA</li> <li>⚙️ Promotion of Louisiana Plan and UV LED Joint Venture Plan</li> </ul>	<ul style="list-style-type: none"> <li>💡 All products were tested and entered a stable production stage.</li> <li>💡 Continuously promote the construction project and expect the trial run in 2019.</li> <li>💡 Set-up is started according to results of assessments, and promotion is also under way.</li> <li>💡 Preparation for construction of desalinator</li> <li>💡 Continual promotion of Louisiana Plan and UV LED Plan</li> </ul>

2017 Targets	2017 Performance	2018 Targets
Well-rounded corporate governance:		
<ul style="list-style-type: none"> <li>📁 Board of Directors meetings held at least 6 times and Directors' average attendance rate to be over 80%</li> <li>📁 Top 20% of all companies participated in Corporate Governance Evaluation</li> <li>📁 Completion of Board of Directors' approved internal auditing plan and effective improvement of deficiency</li> <li>📁 Execution of internal control of effective assessment</li> </ul>	<ul style="list-style-type: none"> <li>📁 Board of Directors meetings held 6 times and Directors' average attendance Rate to be 91%</li> <li>📁 Maintained at the top 20% in the Third Corporate Governance Evaluation</li> <li>📁 The 53 audit plans approved by the Board of Directors were all completed. The deficiencies discovered were 100% improved.</li> <li>📁 Completion of effective evaluation of the internal control system and confirmation of effective internal control and presentation of declaration</li> </ul>	<ul style="list-style-type: none"> <li>💡 Board of Directors meetings held at least 6 times and Directors' average attendance rate to be over 80%</li> <li>💡 Top 20% of all companies participated in Corporate Governance Evaluation</li> <li>💡 Completion of Board of Directors' approved internal auditing plan and effective improvement of deficiency</li> <li>💡 Execution of internal control of effective assessment</li> </ul>
Guarantee of shareholders' equity - transparency of information and stability of shareholders' remuneration		
<ul style="list-style-type: none"> <li>📁 Reinforcement of disclosed content on the official website</li> <li>📁 Complied with disclosure obligations and no cases of sanctions due to violation of declaration obligations</li> <li>📁 Attendance of at least 2 road shows</li> <li>📁 Stable shareholder remuneration</li> </ul>	<ul style="list-style-type: none"> <li>📁 Increase of disclosed communication status among Independent Directors, internal auditing supervisors and CPAs, employee benefits measures, personal safety protection measures, etc.</li> <li>📁 There are no cases of sanctions due to violation of information declaration obligations in 2017.</li> <li>📁 Attended 3 road shows</li> <li>📁 Yield ratio of 5.91%, higher than one-year time deposit interest rate of 1.04%</li> </ul>	<ul style="list-style-type: none"> <li>💡 Reinforcement of information disclosed in Chinese and English on the official website</li> <li>💡 Complied with disclosure obligations and no cases of sanctions due to violation of declaration obligations</li> <li>💡 Participation in 4 or more road shows and participation of at least once per quarter</li> <li>💡 Stable Shareholder Remuneration</li> </ul>





## 1.1 Corporate Governance



### Corresponding to GRI Standards: Governance

FPCC regards Board of Directors as the Highest governance body, adhering to all the laws and internal regulations such as articles of association to ensure the Company's business philosophy. It also has internal control systems to examine all the businesses of corporate governance following the rules.



## Organization Structure and Integrity Management



### Company Overview

Established in 1992, Formosa Petrochemical Corp. is mainly engaged in petroleum products business and petrochemical basic raw material production and sales. It is the only privately-owned petroleum refining company of the country, producing and selling various petroleum products such as gasoline and diesel. The Company's naphtha crackers produces petrochemical basic raw material such as ethylene, propylene, and butadiene. The capacity scale ranks first in the country. In addition, it has qualified cogeneration system, supplying various common fluids such as steam, electricity, etc., needed by each plant of FPG's Mailiao Industrial Complex.

Company Name	Formosa Petrochemical Corp.	
Establishment Date	April 6, 1992	
Listing Date	December 26, 2003	
Capital Sum	NT\$95,259,596,520	
Number of Employees in 2017	5,179 People	
Consolidated Turnover in 2017	NT\$624,107,890,000	
Operational Locations	Headquarters: No.1-1, Taisu Industrial Park, Jhongsing Village, Mailiao Township, Yunlin County 638, Taiwan (R.O.C.) Taipei Office: 4F., Rear Block, FPC Building, No.201, Dunhua N. Rd., Songshan Dist., Taipei City 105, Taiwan (R.O.C.)	
Credit Ratings	Taiwan Ratings twAA-; Standard & Poor's BBB+	

Note: As of December 31, 2017

FPCC is an identification system member of FPG. The corporate identification system uses the chain shape as a common symbol, indicating the connection in length and breadth, mutual assistance and cooperation, and the meaning of harmony among all the companies, symbolizing consistency, prosperity, and endless development of FPG.



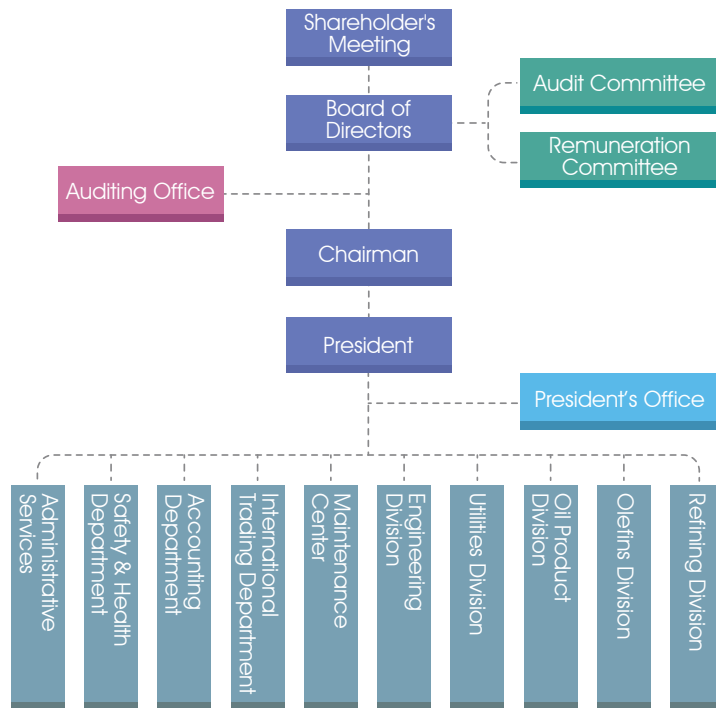
## Business Philosophy

Today, FPG has developed into a comprehensive industrial group across all kinds of fields. The organization has been able to continuously expand, grow, and thrive. It is the spirit of "Diligence, Perseverance, Frugality and Trustworthiness, To Aim at the Sovereign Good, Perpetual Business Operation, and Dedication to the Society" which the two founders, Mr. Wang Yung-Ching and Mr. Wang Yung-Tsai, who keep emphasizing and carrying out.



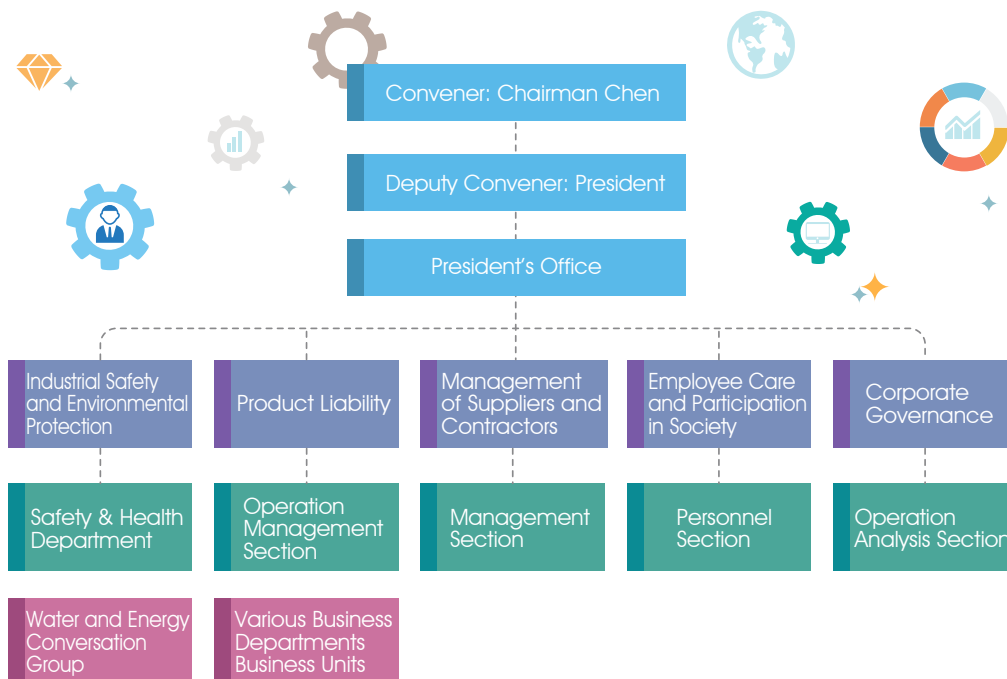
## Corporate Governance Structure and Sustainable Governance Organization

The organizational structure of FPCC has clear rights and liabilities. The Chairman does not concurrently serves as the Company's President. In order to ensure the Company's operational independence, the apartments under the President are divided into different business ones. They not only focus on their own businesses, but also have irregular inter-departmental communication and support one another to achieve business goals.



For the Company's sustainable development, the Chairman of the Board of FPCC acts as the convener, and the President as the deputy convener. It coordinates the President's Office and relevant units to jointly handle various CSR-related work, and understand stakeholders' thoughts and needs through diverse and smooth communication channels to serve as an important reference for the Company's drafted sustainability policy.

### Organizational Chart of "FPCC Social Responsibility Work Promotion Team"





## Board of Directors, Audit Committee, and Remuneration Committee

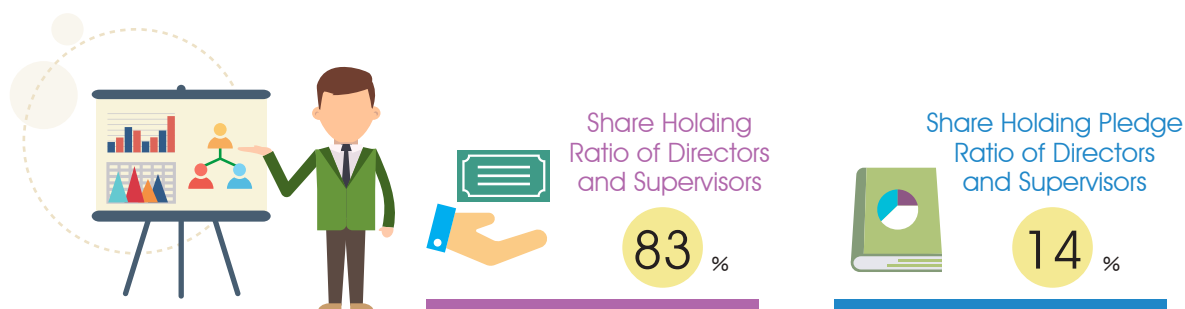
### Board of Directors Overview



Since 2015, FPCC has elected Director candidates for nomination. After the qualifications are reviewed, the list of candidates will be submitted to the shareholders' meeting for the selection of suitable candidates. The Directors will serve for a term of three years. For Board of Directors' diversification policy and relevant requirements such as required knowledge, skills, and literacy while executing duties are regulated in the Company's "Corporate Governance Code".

At present, the Company's Board of Directors has a total of 14 members with an average age of 68 years old. The average period of time as a Director of the Company is about 10 years. All of them are highly specialized and experienced in the industry, providing the most appropriate strategic guidance for the Company's development. Besides, in order to enhance the professional knowledge and legal literacy of Directors, FPCC arranges refresher courses every year to assist Directors in enriching their knowledge. For details of the Directors' academic background, expertise, status of independence and further education, and shareholding situation, please refer to the Company's website (<http://www.fpcc.com.tw/>) and the annual report.

Company	Board of Directors Seats (Including Independent Director)	Independent Director		Female Director		Average Age	Average Tenure of the Company's Director
		Number of Seats	Percentage	Number of Seats	Percentage		
Formosa Petrochemical Corp.	14	3	21.43%	1	7.14%	68	10



The Board of Directors shall convene at least one meeting per quarter. In 2017, Board of Directors was convened six times, and the actual attendance rate is 91%; The directors' and supervisors' shareholding ratio of FPCC in the past five years is about 83%, which is much higher than the minimum requirement of 2% directors' and supervisors' shareholding of the same scale public entities. At the same time, the directors' and supervisors' shareholding pledge rate is only about 14%. The ratios indicate that the Company's Board of Directors' interests are highly correlated with shareholders and are worthy of shareholders' entrusting and trust.

### Operations of Audit Committee

FPCC Audit Committee consists of Independent Directors, supervises the Company's business execution and financial position upholding the principle of integrity and independence, audits the Company's financial statements, assists Board of Directors in performing supervision duties, and is responsible for the tasks assigned by Company Act, Securities and Exchange Act, and other relevant regulations. In 2017, the Audit Committee convened five times with actual average attendance rate of 100%, and was disclosed on the Company's website (<http://www.fpcc.com.tw/>) in the section of Corporate Governance.

Job Title	Name	2015		2016		2017	
		Number of Actual Attendance	Attendance Rate	Number of Actual Attendance	Attendance Rate	Number of Actual Attendance	Attendance Rate
Convener	Jhang Chang-bang	4	100%	5	100%	5	100%
Audit Committee Member	Luo Ji-tang	3	75%	3	60%	5	100%
Audit Committee Member	Jheng You	3	75%	5	100%	5	100%
Total		10	83.33%	13	86.67%	15	100%

### Overview of the Operation of Salary Remuneration Committee

Since August 2011, FPCC has set up a "Remuneration Committee" to evaluate directors' and managers' salary remuneration policies and systems, and make recommendations to Board of Directors to prevent the compensation policy from guiding directors and managers in undertaking the Company's risk appetite conduct.

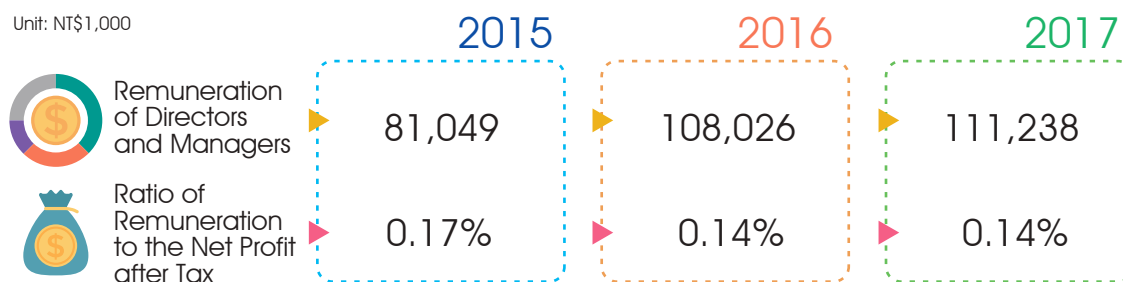
At present, all the three members of the Remuneration Committee are Independent Directors. In 2017, there were two meetings and the actual average attendance rate reached 100%. The detailed information is disclosed on the Company's official website (<http://www.fpcc.com.tw/>) in the section of Corporate Governance.

Job Title	Name	2015		2016		2017	
		Number of Actual Attendance	Attendance Rate	Number of Actual Attendance	Attendance Rate	Number of Actual Attendance	Attendance Rate
Convener	Jhang Chang-bang	3	100%	2	100%	2	100%
Audit Committee Member	Luo Ji-tang	2	67%	1	50%	2	100%
Audit Committee Member	Jhen You	2	67%	2	100%	2	100%
Total		7	77.78%	5	83.33%	6	100%

## Directors' and Managers' Remuneration



Regarding the directors' and managers' remuneration, currently the Independent Directors are entitled to monthly remuneration and traffic allowance, part of which is paid according to the actual number of times of meeting attendance. The manager's annual compensation package mainly includes salary, bonuses, and employee dividends along with retirement allowance, benefits, etc. The manager's performance appraisal is determined by the Chairman's comprehensive appraisal of the manager's overall performance within the scope of responsibilities and the achievement of the individual's "Yearly Work Goals" to ensure that the senior executives understand and jointly achieve the Company's strategic objectives. This will make the incentive system, supervisor's individual performance, and the Company's overall performance link to one another.

The Ratio of Total Remuneration of FPCC Directors and Managers to FPCC's Net Profit after Tax:



## Reinforcement of Information Transparency

In order to strengthen the communication between the Company and the stakeholders, FPCC's actions are as follows:

-  According to current regulation, information is disclosed in Market Observation Post System regularly and irregularly. All disclosures and declarations were handled in accordance with the law in 2017, and there was no violation of declaration and sanctions by Stock Exchange and Financial Supervisory Commission.
-  At least two road shows are held each year.
-  The Company's website is continuously optimized and gradually strengthen information disclosure, including adding disclosure of Independent Directors and communication status of internal auditing supervisors and accountants to the corporate governance zone. Disclosed employee benefits measures and personal safety protection measures are added to the section of CSR.
-  We have set up an "Investor Section" on the Company's website to provide investors with relevant information and an exclusive contact person is designated to answer relevant questions.
-  We have established a spokesperson system to provide a link between shareholders and legal entity investment institutions.

Specific results reflected in the various evaluations. In TWSE's information disclosure evaluation system, from the 3rd published evaluation level in 2006 to the 12th in 2014, FPCC had gained grade A or above ratings for ten consecutive years. In addition, in the corporate governance review implemented from 2014, FPCC ranked the top 20% of all evaluated listed companies for three consecutive years.

## Code of Conduct, Anti-corruption Policy, and Internal Audit System

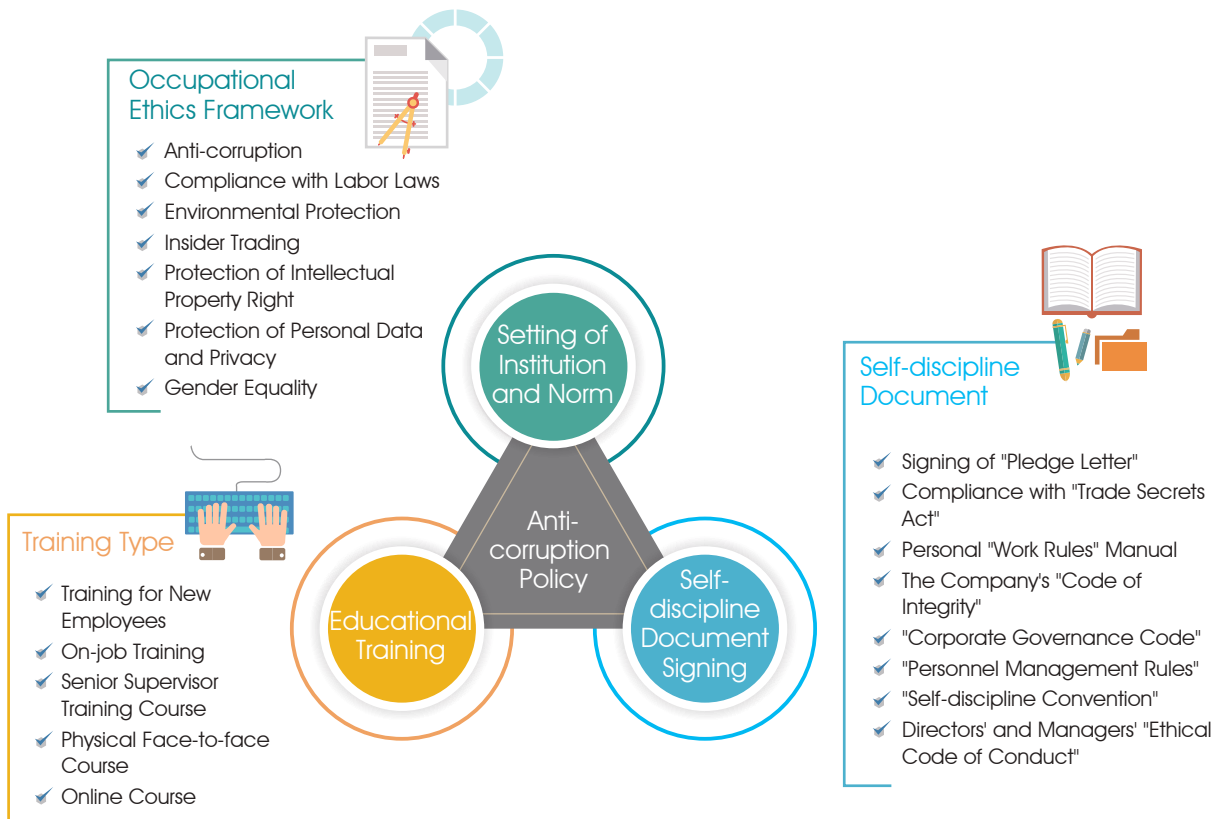
### Code of Conduct

In order to ensure that the Company can uphold the business philosophy, the Company has established 17 regulations such as Corporate Governance Code and Code of Integrity, which are disclosed on the Company's official website (<http://www.fpcc.com.tw/>) in the section of Corporate Governance.





## Anti-corruption Policy



### Setting of Institution and Norm

The Company has established relevant systems or regulations for different legal fields. For any violation of professional ethics, the Company adopts the spirit of no wrong and no indulgence, adopts measures such as termination of employment or business relationship for the violators, and takes proper legal action.

### Self-discipline Document Signing

In case of dishonesty, the Company has self-discipline documents to regulate it. All employees must sign "Pledge Letter" and abide by "Trade Secrets Act", and they will be issued "Working Rules" manuals to serve as an intermediary with external vendors (e.g., purchasing and contracting) and must sign "Self-discipline Convention" and adopt regular rotation to prevent fraud. For directors and managers, there is "Ethical Code of Conduct" that prohibits direct or indirect provision, promise, requirement or acceptance of any undue advantage, or other conduct that violates good faith, legality, or fiduciary duty.

### Educational Training

Educational training is an important channel for promoting internal systems and establishing employees' correct concept of rule of law. The Company has long absorbed various business-related regulations and the concept of rule of law into various training courses such as new personnel training, professional job training and supervisor training to enable colleagues to have relevant legal concepts. We have also planned online courses on "Policy Announcement of Anti-corruption Laws" to help them establish correct work ethics and develop their abilities to discover abnormalities and risks.

## Grievance Channel

The Company provides a channel for internal reporting of wrongdoing through an institutionalized “Employee Grievance Key Points”. When an employee discovers that there are illegal or improper activities that affect personal or company interests and intend to use the position to obtain improper benefits, he or she may fill out “Grievance Form” to report. The grievance case shall be handled by relevant department supervisors. The Company and investigating personnel shall conduct investigations and reports in a spirit of fairness and impartiality, and shall keep confidential throughout the entire process.

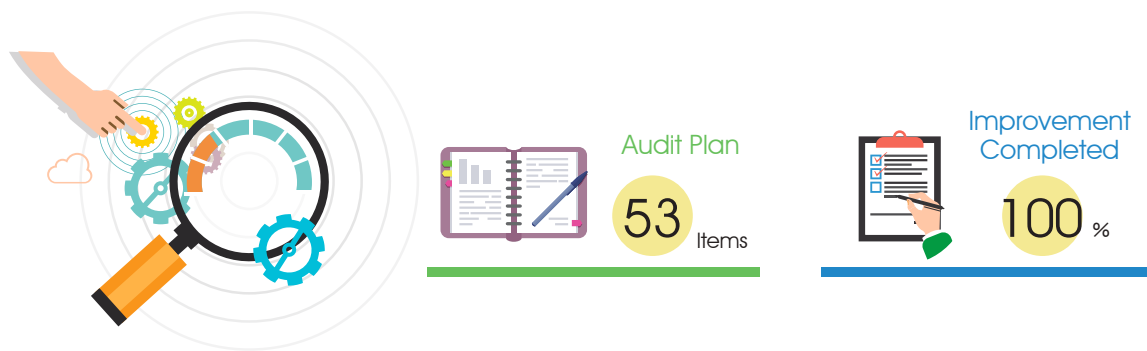
## Internal Audit

FPCC has established an effective internal control mechanism, fully implements computerized operation, uses scientific and technological management to connect six major management functions of personnel, finance, business, production, supplies, and engineering to each other layer by layer, performs abnormal management, and establishes professional independent internal audit operation structure. The internal control system is evaluated by Board of Directors each year for effectiveness. An internal system validity declaration is also issued. In 2017, effectiveness evaluation was approved by Board of Directors on March 15, 2018.



In 2017, based on “2017 Annual Audit Plan” approved by Board of Directors, the audit projects included 53 transaction cycles such as sales and receipts, purchasing and payment, production, payroll, financing, fixed assets, computer information and investment to achieve goals such as operational effectiveness and efficiency, reliability of financial reporting, and compliance with relevant laws. As for the actual audit results, 13 of them were found to be deficient. The abnormal content was mostly omissions in the paperwork or incomplete data without material defects. The lack of internal control and abnormalities found in the inspections had been made into an audit report, and the tracking and follow-up were regularly listed. The deficiency has been fully improved with completion rate of improvement by 100%.





### Internal Audit Execution Process

	2015	2016	2017
Audit Plan	47 Items	50 Items	53 Items
Found Deficient Cases	10 Cases	9 Cases	13 Cases
Completion of Improved Cases	10 Cases	9 Cases	13 Cases
Improvement Completion Rate	100%	100%	100%

## Public Policy and Public Association Participation Role

### Donation and Political Offertory Policy

The various donations handled by the Company in 2017 are based on the consideration of giving back to the local community and fulfilling social responsibilities. There is no political donation based on lobbying purposes. Material donations to related parties or non-related parties are subject to Board of Directors' approval.

### Public Policy Involvement:

The Company mainly responds to our suggestions on the energy industry through the Annual Suggestion White Paper of Chinese National Federation of Industries, and expresses thoughts and opinions on industry-related norms when consulting government agencies to establish a positive communication channel to give feedback. In the 2017 White Paper, our suggestions include comments on government's allocation method of Centrally-Allotted Tax Revenues, energy policies, and labor issues as a reference for governance.

### Participation in Non-profit Organizations:

In order to assist Taiwan's industries to improve operational status, the Company actively participates in various industry unions and associations, and serves as Board Director, supervisor, and representative of the organizations. Through unions, we share our operating experience with our peers and share the latest market conditions, supply and demand changes and technical information with the industry, hoping to contribute to the overall industry.



Name	The Company's Supervisor	Position
Taiwan Petrochemical Industry Trade Association	Chairman Chen Bao-lang	Managing Supervisor
Chinese Petroleum Institute	Chairman Chen Bao-lang	Managing Supervisor
Center for Corporate Sustainability	Chairman Chen Bao-lang	Director
Chinese Institute of Engineers	Chairman Chen Bao-lang	Director
Sino-arabian Cultural & Economic Association	Chairman Chen Bao-lang	Director
Sino-indonesia Cultural and Economic Association	Chairman Chen Bao-lang	Director
Taiwan Responsible Care Association	Director Wu Heng-sheng	Director
Chinese Association for Energy Economics	-	-
Taiwan Institute of Chemical Engineers	-	-
Chinese Chemical Society	-	-
Taiwan Association of Marine Pollution Control	-	-
Pressure Vessel Association	-	-
Taiwan Safety Council	-	-
Water Industry Development & Promotion Association	-	-
The Society for Nondestructive Testing & Certification of R.O.C.	-	-
Yunlin Hsien Industrial Association	-	-
Yunlin County Labor and Capital Association	-	-

## 1.2 Sustainable Development Business Model

### Industry Overview



The domestic petrochemical industry is affected by the policy direction. In recent years, there have been no large-scale expansion projects and no new capacity. In Asia, including China and Korea, new capacity gradually appears. FPCC is facing looming competitive pressure, but it maintained stable production throughout 2017 without material changes in production.

## Enterprise Business Model, Product and Capacity



### About the Sixth Naphtha Cracker Project

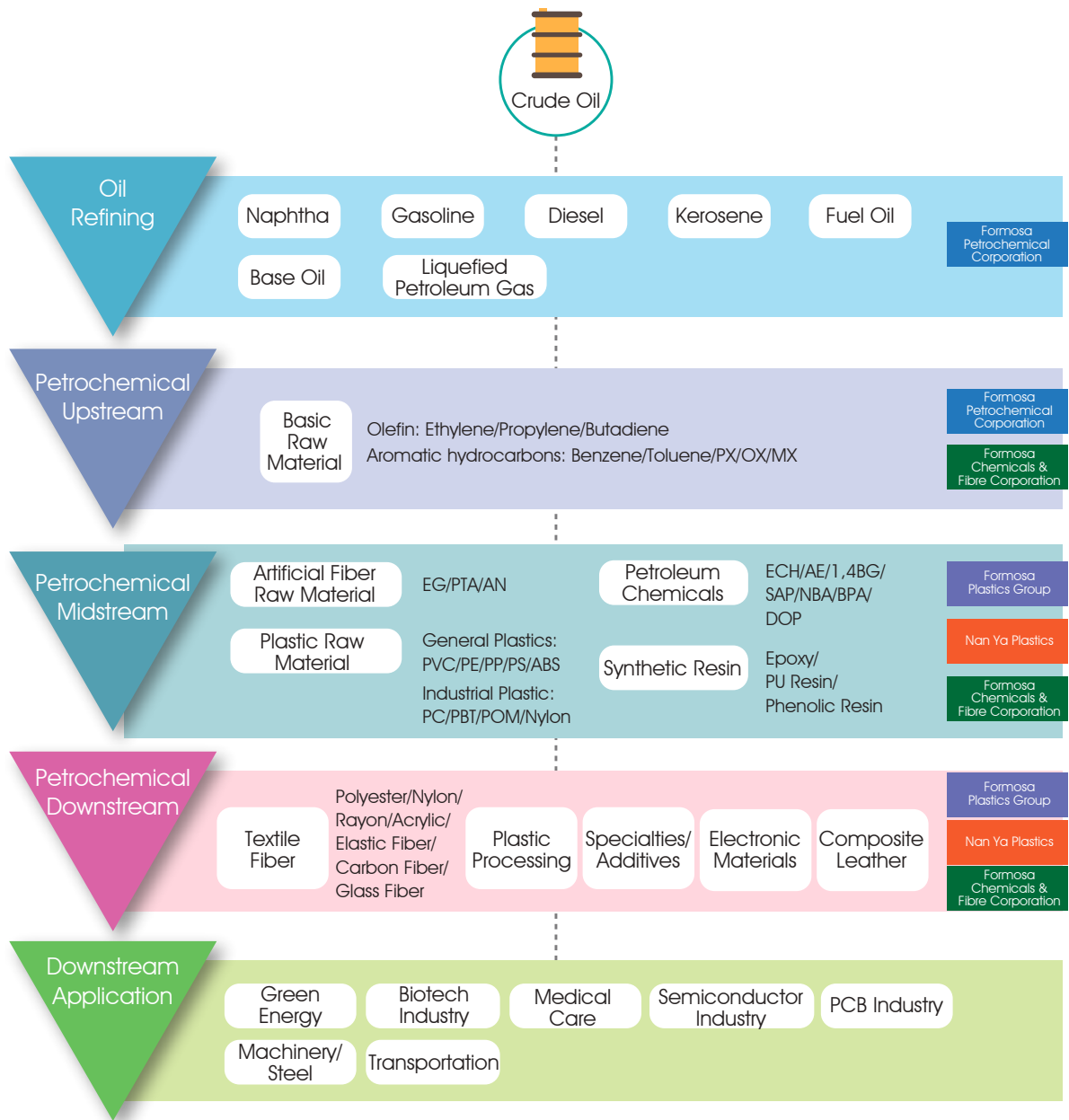
The Mailiao island location of industry in Yunlin County is located at the northernmost of Jhuoshuei River's outfall. It is about 8 kilometers long from north to south and extends more than 4 kilometers along the coastline. It is commonly known as "Wind Head and Water Tail", as the place is not only inconvenient for external transportation but also with half-year strong northeast monsoon. The environmental climate is quite severe. The construction of the project is very difficult. With the concerted efforts of all the colleagues, since 1994, the construction of the Sixth Naphtha Cracker Project from the first to the fourth phase has been completed.

- ✎ The park's amount of investment totaled approximately NT\$755.1 billion (including industrial ports and power plants).
- ✎ The land reclamation project has a sand filling capacity of about 109.15 million cubic meters. It can fill 8 lanes of pavement with a three-story height on the 373-kilometer expressway from Keelung to Kaohsiung.
- ✎ The land area is about 2,255 hectares, about 8% of Taipei City's area, accounting for around 0.062% of Taiwan's area.
- ✎ The park covers an area of approximately 2,603 hectares, more than four times of the total area of Linyuan Petrochemical Industrial Zone (403 hectares), the Dashe Petrochemical Industrial Zone (109 hectares) and Toufen Petrochemical Industrial Zone (95 hectares).
- ✎ The number of related factories is 53, and the length of piping in the plant is as long as 3,000 or more kilometers.



### FPCC Product Relationship Diagram

The petrochemical industry is divided into basic raw materials, intermediate raw materials and downstream processing products, closely related to each other. The basic raw materials are mainly Olefins and Aromatics. Naphtha, also known as Petroleum Naphtha, is refined by petroleum, made by pyrolyzing under high temperature and high pressure or restructuring. FPCC is located in the upstream of the industrial chain. The main raw materials are crude oil imported from abroad. The main products are all kinds of oil products and petrochemical basic raw materials. Regarding the Company's main raw materials supply status and the main purchasing and sales targets, please refer to the Company's annual report'.



### 2017 FPCC Capacity and Organization Scale:

Business Department	Main Capacity		
Oil Refining Business	Crude Oil Daily Refining	540	Thousand Barrels / Day
Olefin Business	Ethylene	2,935	Thousand Tons / Year
Public Utilities	Power Generation	275	Ten Thousand Kilowatts

## Oil Refining Business

The refinery has a daily refining capacity of 540,000 barrels, of which light oil production can reach 3.75 million metric tons. It is used by related factories in the Mailiao Industrial Complex and produces gasoline, diesel, aviation fuel, liquefied petroleum gas, etc.

## Olefin Business

There are three naphtha crackers with a total ethylene production capacity of 2,935 thousand tons.

## Public Utilities

The qualified cogeneration system has a total of 16 units with a total of installed capacity of 2.75 million kilowatts. It is the largest cogeneration plant in the country, producing electricity, steam, industrial water, ultrapure water, nitrogen, oxygen, compressed air, etc.



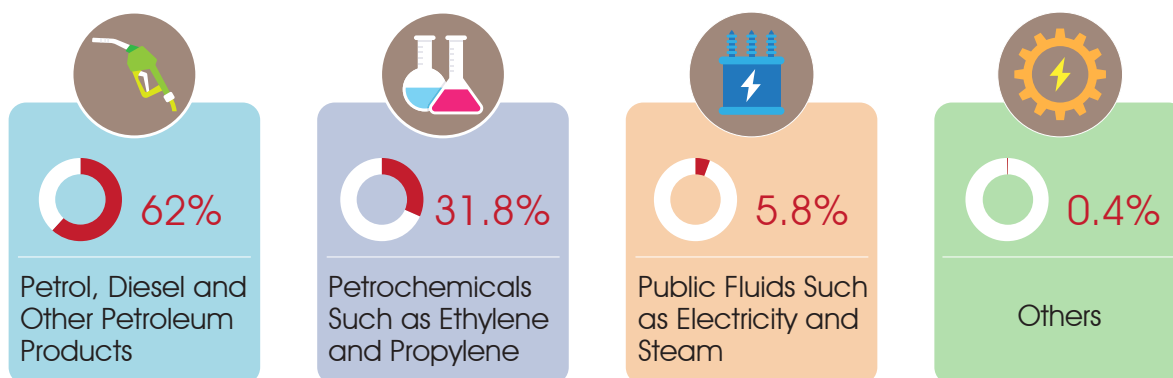
### 2017 Production

In terms of production volume, stable production was maintained throughout 2017, and there was no material difference from the previous year. For details, please refer to the Company's website (<http://www.fpcc.com.tw/>) and the annual report.



### Primary Products and Services

The main products and services of FPCC include petrol, diesel and other petroleum products, petroleum chemicals such as ethylene and propylene, and public fluids. In 2017, petroleum products accounted for 62% of turnover and petroleum chemicals, 31.9%, making them the most important core businesses.



For details of each product service, please refer to the Company's website (<http://www.fpcc.com.tw/>) and the annual report.



### Quality Authentication Products and Services:

#### Better New Energy - FPC 95+ Unleaded Gasoline "Stable, Economical, Strong, Clean"

As a local brand in Taiwan, FPC itself has been committed to producing high-quality products for sale at home and abroad. It is deeply recognized by the international oil product markets for its quality. It is exported to advanced countries such as Germany, the United States, Japan, Australia, etc. The Company utilized the world's advanced process and equipment to do in-depth study of the world's engine technology development to accumulate years of refining technology and experience. Through the process improvement and international standard engine laboratory research test and practical road test, it has developed new formula gasoline "95Plus Unleaded Gasoline", deepening the domestic oil market and letting the new products have superior driving stability, fuel efficiency and horsepower performance.



#### FPC Petroleum - New Formula Super Diesel

Facing the ever-changing vehicle engine technology, the world's environmental regulations are becoming rigorous, and consumers are highly expecting quality products, FPC launched the "New Formula Super Diesel" in 2016, in line with the Japanese and European regulations of the highest level of diesel fuel for vehicles of Euro 5 or more with the four advantages of "Smooth Oil Flow", "Economical Oil and Excellent Oil Price", "Strong Climbing" and "Reduction of Carbon Accumulation"; this the best choice for commercial vehicles.



#### Taiwan Accreditation Foundation (TAF) Authentication

The Company's Flow Calibration Laboratory of the Maintenance Center and diesel engine laboratory of the Refining Division obtained Chinese National Laboratory Accreditation (CNLA) authentication respectively in 2003 and in 2004, also the predecessor of syndicate legal entity's Taiwan Accreditation Foundation (TAF) – Department of Laboratory Accreditation to elevate laboratory technical capabilities and quality standards to achieve international mutual recognition. After the authentication, testing reports and calibration certificates issued by the laboratory can use the authentication mark to prove abilities.



## REACH Chemical Registration

FPC's ethylene, propylene, butadiene, IPM, PIPS, and DCPD have obtained REACH chemical registration. REACH is a European community safety regulation involving chemical registration, assessment, and limitation. Obtaining the registration can assist the Company in selling its products to the EU to facilitate business development.

## The Japan Hygienic Olefin and Styrene Plastics Association (JHOSPA)

JHOSPA was established in 1973 in response to the Food Sanitation Act of Japan to regulate relevant hygiene standards for raw materials, additives and finished products for food containers/packaging. FPC has authenticated food grade white oil products 380N and 550N as JHOSPA-accredited qualified additives.



### **Seeking to add values to our products and search for the strength to keep on moving for the new generation**

- ✿ The joint venture case with Kraton has an annual capacity of 40,000 tons of HSBC. It was officially produced in February 2017 and its various new specification products are currently being tested according to the production and sales plan.
- ✿ The joint venture case with Idemitsu Kosan has an annual capacity of 43,800 tons of HHCR. The construction projects are being actively carried out and its trial run is expected to be completed in 2019.
- ✿ In response to the government's environmental protection policy, the Company's new gas station will move towards green building planning in the future, and will pass the nine major evaluation indicators such as biodiversity, greenness, rainwater conservation, daily energy conservation, carbon dioxide reduction, waste reduction, indoor environment, water resources, and sewage waste improvement. Additionally, the Company coordinates with green energy trend and will promote setting up photovoltaics system power generation, roof-type and ground sun-seeking photovoltaics system at gas stations. FPC new signboards and patio lights use LED and other power-saving lamps to achieve comprehensive environmental protection, energy conservation and carbon reduction.
- ✿ In order to use water more flexibly, the Company has actively planned to add a desalinator to replace partial industrial water.
- ✿ Under the condition of a sharp reduction in domestic investment opportunities, for the Company's perpetual business operation, the Company is actively investing in the Louisiana investment case to establish an ethane cracking plant and a downstream plant.
- ✿ The Company cooperates with NIKKISO CO., LTD. to develop UV LED (deep-UV LED) sterilization equipment for air purification, drinking water sterilization, and other deodorization and sterilization equipment. The initial investment plan has been approved by the Company's Board of Directors.





## Operational Performance



### Corresponding to GRI Standards: Economic Performance

The Company's operation is based on stable production and depends on the market conditions, coupled with flexible production and marketing deployment in order to maximize stockholders' equity. On the financial aspect, robustness is the key without financial operations unrelated to the industry to maintain the Company's stability.



### Operating Performance:

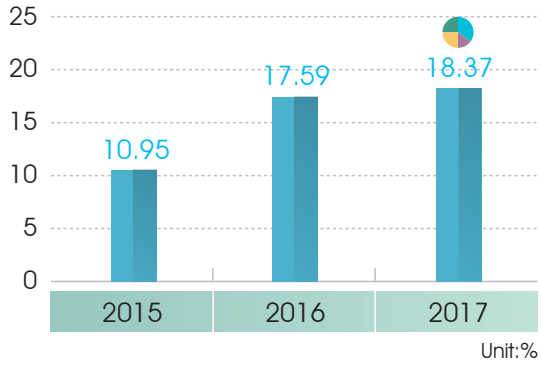
In 2017, the Company's consolidated revenue was NT\$624,107,890,000, an increase by 14% compared with 2016's NT\$546,161,410,000. The consolidated income before tax was NT\$96,094,550,000, an increase by 6% compared with the previous year's NT\$90,678,150,000. This is mainly because of increased demand for oil products as well as extended production cuts of oil-producing countries. Oil prices began to rise, leading to an increase in the prices of petrochemical raw materials. The expansion of interest rate differential in petroleum products and chemicals, making profits hit a new record high.

Item \ Year	2015	2016	2017
Operating Revenue	629,513,853	546,161,413	624,107,892
Operating Cost	574,353,426	449,702,499	521,485,633
Gross Operating Profit (Loss) Net Amount	55,160,427	96,458,914	102,622,259
Total of Operational Expenses	9,678,274	10,249,581	10,964,886
Operating Profit (Loss)	45,482,153	86,209,333	91,657,373
Total of Non-operating Income and Expenses	7,230,420	4,468,821	4,437,172
Income Before Income Tax	52,712,573	90,678,154	96,094,545
Income Tax Expense (Profit)	5,405,716	14,909,685	15,919,124
Current Profit After Tax	47,306,857	75,768,469	80,175,421

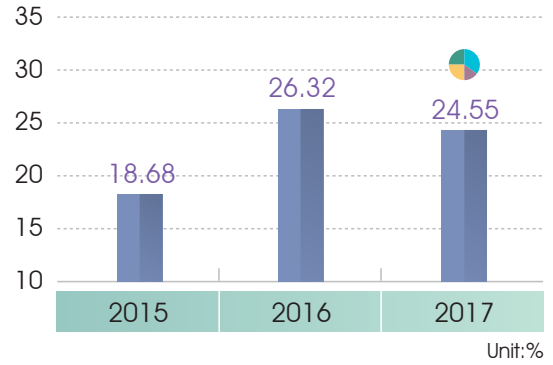


## Financial Ratios

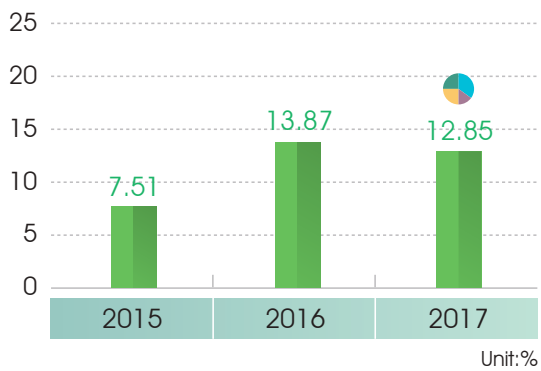
### Return on Assets



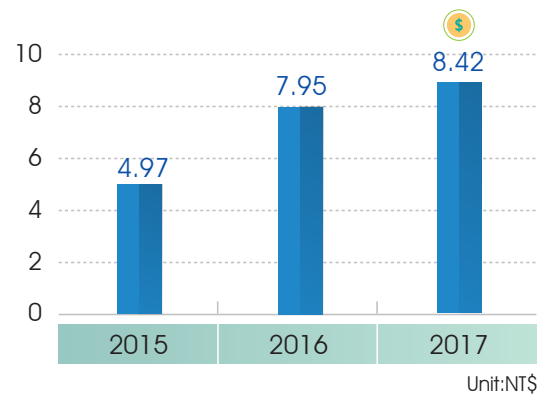
### Return on Equity



### Net Profit Margin

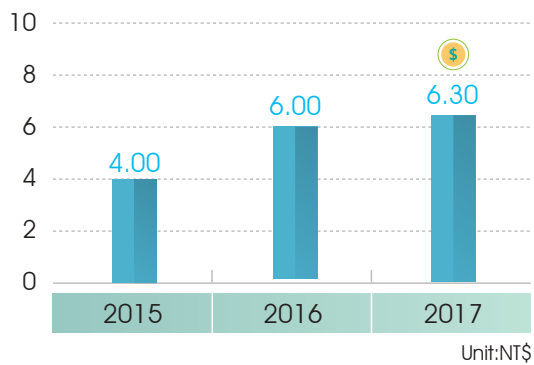


### Earnings Per Share After Tax

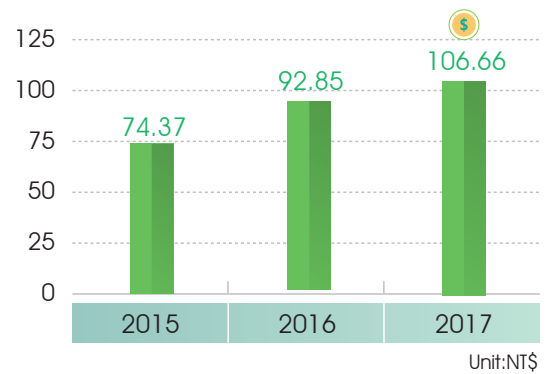


## Dividend Distribution

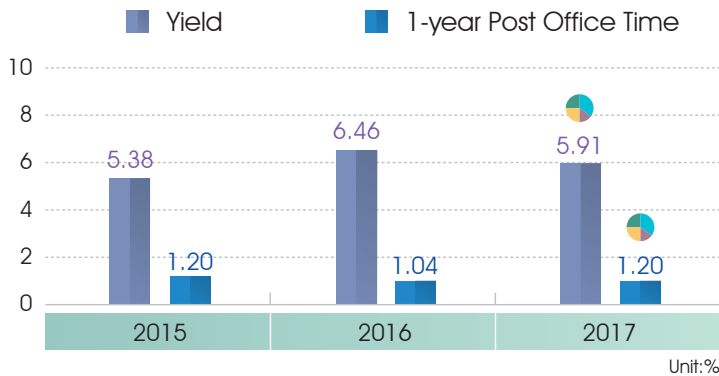
### Issued Dividends Per Share



### Average Market Price Per Share



### Yield & 1-year Post Office Time



## 1.3 Corporate Risk Management

### Operational Risk Evaluation

An enterprise's perpetual business operation must consider various potential risk issues and operational assessments. Each department has its own risk management unit, planning and evaluating the probability of risk issues in the Company's operations and the degree of impact after the occurrence. Risk review unit will plan relevant emergency measures.

Risk Evaluation Items	Risk Management Unit	Risk Review	Responding Methods
1. Interest Rate, Fluctuation in Foreign Exchange Rate, and Inflation	President's Office, Accounting Department, Finance Department, Group Administration of Formosa Plastics Corp.	Board of Directors, Auditing Office, Computer Audit and Regular autonomous Inspection, Joint Meeting of Finance Supervisors	<p>1. Interest Rate: For the long-term liabilities of floating interest rates, the financial market situation is carefully evaluated, and the interest rate swap contracts are signed with several internationally renowned banks when interest rates are relatively low.</p> <p>2. Fluctuation in Exchange: Regarding insufficient portions of foreign exchange funds for daily operations, we purchase demand or support with forward exchange.</p> <p>3. Inflation Status: According to Directorate of Budget, Accounting and Statistics, Executive Yuan, the annual growth rate of consumer prices in 2017 was 1.22%, and the annual growth rate of core consumer prices was 1.04%. The inflation risk was low and had no significant influence on the Company's profit and loss.</p>

Risk Evaluation Items	Risk Management Unit	Risk Review	Responding Methods
2. High-risk, High Leverage Investments, Lending of Capital, Endorsement, and Derivative Product Transactions	President's Office, Finance Department, FPC Group Administration	Board of Directors, Auditing Office, Computer Audit and Regular autonomous Inspection, Joint Meeting of Finance Supervisors	<p>1. High risk, High Leverage Investment: The petrochemical industry is mature and stable with low risks. The Company has always been robust financially without high leverage investment.</p> <p>2. Lending of Capital According to the relevant laws and regulations, the object, amount, period and interest-bearing method are implemented after being approved by Audit Committee and Board of Directors and reviewed regularly. The purpose of lending is mostly short-term fund procurement. The lending objects are financially sound and the operation is robust. No bad debt losses have ever occurred.</p> <p>3. Endorsement: Generally, the endorsement objectives are parent-subsidiary corporations or enterprises with business association. The endorsement items are mostly financing and import duties guarantee. As guarantee objects have sound finance and robust operation, there has never been any loss due to endorsement.</p> <p>4. Derivative Product Transactions All derivative product transactions are for the purpose of evading market risks and are not used for arbitrage and speculation.</p>
3. R&D Plan	President's Office, Manager's Office of Each Business Department, and FPC Group Administration	Board of Directors, Auditing Office, Production and Sales Conference, and Business Performance Conference	There is no such risk after evaluation.
4. Important Policy and Legal Changes at Home and Abroad	President's Office, FPC Group Administration, and Legal Affairs Office	Board of Directors and Auditing Office	The Company usually pays close attention to political and economic situation at home and abroad, material policy formulation and legal changes, and arranges personnel to receive professional training as needed.
5. Technology Changes	President's Office, Manager's Office of Each Business Department, and FPC Group Administration	Board of Directors, Auditing Office, Production and Sales Conference, and Business Performance Conference	The petrochemical industry is a technologically mature industry with no significant impact from technological changes.



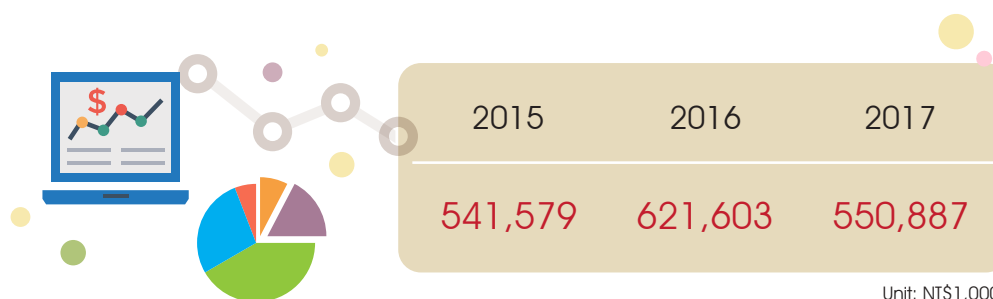
Risk Evaluation Items	Risk Management Unit	Risk Review	Responding Methods
6. Changes in Corporate Image	President's Office, FPC Group Administration	Board of Directors and Auditing Office	FPCC adheres to the business philosophy of "Diligence, Perseverance, Frugality and Trustworthiness, To Aim at the Sovereign Good, Perpetual Business Operation, and Dedication to the Society" and establishes a good corporate image. In the future, it will continue to implement the concept, strive for excellence, and make greater contributions to society.
7. M&A or Re-investment	President's Office, Manager's Office of Each Business Department, and FPC Group Administration	Board of Directors, Auditing Office, Production and Sales Conference, and Business Performance Conference	The Company did not conduct any M&A affairs. In addition to re-investment, the detailed investment plan was determined beforehand and a complete evaluation was carried out. The evaluation result was submitted to Audit Committee and Board of Directors for approval before the formal investment was made.
8. Expansion of Plants	President's Office, Manager's Office of Each Business Department, and FPC Group Administration	Board of Directors, Auditing Office, Production and Sales Conference, and Business Performance Conference	There is no such risk after evaluation.
9. Purchase or Turnover Concentration	President's Office, Manager's Office of Each Business Unit, FPCC Group Administration, and Purchase Department	Board of Directors, Auditing Office, Production and Sales Conference, and Business Performance Conference	<p>1. Purchase:</p> <p>The main raw material sources for refineries and naphtha crackers are from various major oil producing countries in the Middle East. Occasionally, the region is a risk of supply disruption due to unrest, which further affects the production of oil-producing countries. Due to the excellent refining technology and the flexibility of the process, the Company's long-term contract risk spreading with foreign suppliers can properly prevent the instability of raw material supply and control the cost of purchasing materials.</p> <p>2. Turnover:</p> <p>The domestic and foreign sales in 2017 accounted for 60.93% and 39.07%, respectively. The main customers of domestic sales oil products signed sales contracts with stable sales. The export was based on the production and sales of refineries and the international oil market and sold in Southeast Asia, Korea, Australia, Europe, and the United States. Petrochemical products are mainly sold to companies in Mailiao plants where the risk is lower.</p>

Risk Evaluation Items	Risk Management Unit	Risk Review	Responding Methods
10. Directors and Supervisors and Substantial Shareholder Equity Transfer	President's Office, Finance Department, Stock Transfer Office, Legal Affairs Office, FPCC Group Administration	Board of Directors and Auditing Office	There is no such risk after evaluation.
11. Changes in Operation Right	President's Office, Finance Department, Stock Transfer Office, Legal Affairs Office, FPCC Group Administration	Board of Directors and Auditing Office	There is no such risk after evaluation.
12. Litigation and Non-contentious Cases	President's Office, Manager's Office of Each Business Unit, and Legal Affairs Office	Board of Directors, Auditing Office, Production and Sales Conference, and Business Performance Conference	FPCC's litigation case will not have a significant influence on stockholders' equity or securities' prices after evaluation.
13. Climate Change	President's Office, Manager's Office of Each Business Department, and FPC Group Administration	Board of Directors and Auditing Office	The Company will actively respond to changes caused by climate change in agreements such as GHG reductions and environmental regulation changes. The Company will also reduce environmental impact adjust the process with the best feasibility technology.

## Innovative Thinking, Integrated R&D, and Risk Reduction

Each of FPCC plants has a process improvement department, which prepares professional chemical technicians to carry out research on process improvement, and develops projects for stable production, increasing production, reducing costs, increasing output value, reducing energy consumption and reducing pollution emissions to improve technology and reduce business risk.

### R&D Expenses in the Last Three Years



Unit: NT\$1,000



## 1.4 Customer and Supply Chain Relationship Maintenance

### Customer Relationship and Satisfaction Survey

Establishing a benign partnership has always been an important issue of concern for FPCC. We continue to innovate to assist our customers in obtaining high-quality and competitive products, and strive to become a business partner that customers trust and grow with customers. The Business Department also visits customers regularly, establishes an interactive and timely communication channel, and absorbs customer response matters into the Company's important reference for operations and future improvements.



FPC 95+ unleaded gasoline with stable quality and good fuel consumption is loved by domestic taxi drivers. (Report from China Times, June 12, 2017)

In the past, the opponent became an ally. Sheng Feng Gao Station in Taoyuan was changed into franchising FPCC in 2017 because FPC is good at "social contact". (Report from China Times, October 19, 2017)



Report of Gas Station Customer and Fulong Station Staff's Returning Lost Money (Report from China Times, May 11, 2017)



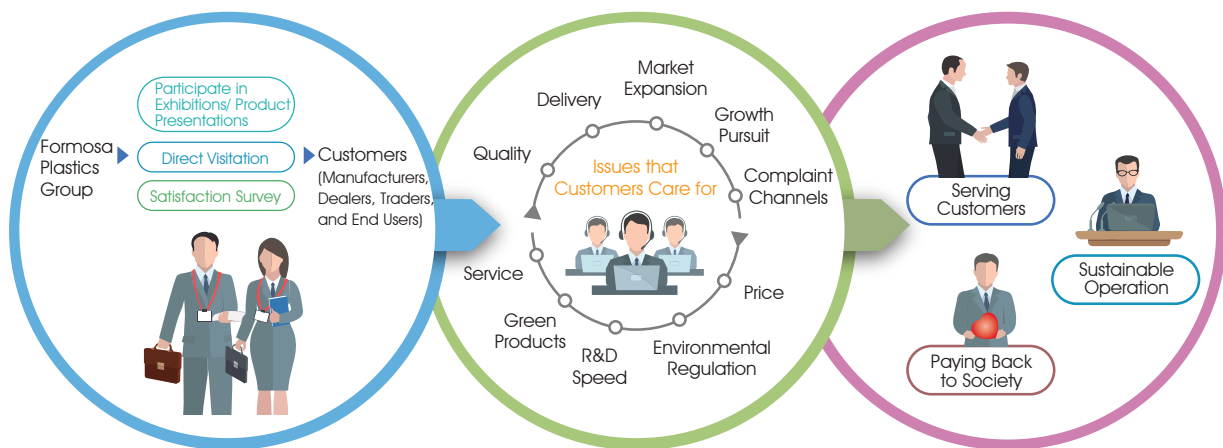
### Product Information Disclosure

The "Products & Services" section on the FPCC's website (<http://www.fpcc.com.tw/tc/products1.php>) provides "Product Specification Sheet" and "Safety Data Sheet" for various oil products as well as the latest oil price information for customers to inquire conveniently.



## Customer Feedback and Handling

In order to understand the valuable opinions of our customers, we have clearly defined the customer complaints channel, changing or refunding of goods, and indemnity application procedures. Customers can directly utilize the multi-channel through "Customer Response Form," service line on the website, and E-mail address to express opinions. We summarize the issues of interest to customers on a regular basis according to their materiality and timeliness to classify and analyze and define the priority of improvement. The product complaints are handled by the salesperson to fill out the "Customer Complaint Handling Form" and absorb the processing progress into computer for regulatory control. In terms of customer feedback channels, we did not receive complaints about privacy violations and data leakage in 2017.



## Customer Satisfaction Survey

In order to improve customer satisfaction, we collect opinions and suggestions from customers on various products and services provided by FPCC. At the same time, we are in compliance with ISO 9001's quality commitment to customer and the spirit of customer satisfaction. At present, we target at domestic and foreign sales' customer satisfaction survey at least once a year. The questionnaire includes the eight major themes such as product features, product quality, product delivery, product price, service attitude, technical service, brand image, and overall satisfaction. The questions of the questionnaire will be revised according to the customers' concerned issues.

Year	Product Features	Product Quality	Product Delivery	Product Price	Service Attitude	Technical Service	Brand Image	Overall Satisfaction	Average
2015	4.4	4.4	4.4	4.1	4.6	4.4	4.4	4.4	4.4
2016	4.5	4.5	4.6	4.2	4.6	4.5	4.5	4.6	4.5
2017	4.6	4.5	4.6	4.3	4.6	4.5	4.5	4.6	4.5

Note: 5 points stands for very satisfied, 4 points stands for satisfactory, 3 points stands for no comment, 2 points stands for dissatisfied, and 1 point stands for very dissatisfied.

According to the results of 2017 customer satisfaction survey, the performance is higher than the "satisfactory" and are better than that of the previous year. According to the customer's suggestion, FPCC will continue to absorb operating policy improvement to meet the public's expectations.

## Supplier and Contractor Partnership

FPCC maintains a good relationship with all partners in the industry value chain. The types of suppliers and contractors mainly include "manufacturers", "distributors" or "dealers", and "project contractors" (engineering construction and outsourcing design, etc.).

### Management Policy

Regarding management policy for suppliers and contractors, in addition to quality and industry safety requirements, based on the principle of fair dealing, the Company works on requiring manufacturers to meet environmental, industry safety and human rights needs. If they do not comply with the regulations, they will be rejected and the record will be put in the manufacturers' assessment work. We hope to focus and reduce the impact on the environment during the operation with the value chain, encourage and move towards the road of sustainability with each other.

### Sustainability Issues

Each purchase requires the upstream supplier to comply with standard conditions such as industry safety qualification of the relevant national laws, ISO certification, the accompanying labeling hazard declaration and the icons. The manufacturers need to properly recycle the used container or load the auxiliary equipment, etc. The "Price Order" and "Subscription Notification" require suppliers to comply with the regulations and stick to the spirit of perpetual business operation.

### Firm Evaluation

Suppliers are required to pass a written evaluation. If necessary, they need to conduct on-the-spot evaluation. After passing the qualification, they can be absorbed into the cooperative manufacturers to select high-quality partner companies suitable for long-term cooperation, and implement the contractor's ranking management system, educational training, and construction safety management.

### Transportation Safety Counseling

In order to ensure the safety of oil transportation, the Company has Formosa Petrochemical Transportation Corp. as its main transportation partners, and has got hold of its vehicle arrangement, driver dispatch and various management systems. Each vehicle is equipped with a GPS positioning system and a warning device for convenient dispatch control. Regular vehicle safety external audit of the partner transport contractor is also executed. The Company requires the drivers to pass the alcohol test, blood pressure and heartbeat test before driving to ensure the safety of the vehicle transportation process and jointly create a win-win situation.



## Assistance in Elevating Business Partners' Operational Management Effectiveness

- ✎ We proactively install POS software and hardware equipment for long-term cooperation franchise stations to help dealers strengthen management to reduce operating costs, and use information flow to expand common marketing effects to jointly improve operational performance.
- ✎ We guide the franchise station in operating the local special gas station, combined with its own products, local features or neighboring scenic spots and other advantageous resources to make flexible use in order to attract consumers to the station to refuel, and promote the related sideline revenue.
- ✎ By cooperating with banks to jointly market and continuously develop self-service refueling systems, we help the franchise station to streamline manpower and reduce operating costs.



Spring Festival Scratchers Event



Gas Station Customer Held by FORMOSA TAFFETA Co., Ltd. "Change into VIP Chip Card Charity Love" Activity



Yilan International Children's Folklore & Folkgame Festival Combined with Gas Station "Care for Car, Care for Play, and Care for Appetite" Activity





Formosa Co-branded Card Refueling Promotion Activity



Formosa Oil Gas Station "TK Back Home for Environmental Activities"




"2017 BMW X3 CLUB Assembly" FPC Involvement



Assistance in Setting up Self-service Gas Station Systems to Enhance Operational Competitiveness

### FPC Seeking Change and Innovation to Create New Gas Station Layout:

In order to provide better service and feedback for domestic consumers, the Company has successively held announcement campaigns for new station layout in Taipei Fu-hua Station, Sure Shihlin Station, Kaohsiung Sure Huaxia Station, and Pingtung Ligang Station since August 2017. The Company specially hired SEIHO, a professional design team from Singapore, to renovate the gas stations, and used Japan Railway (JR) station interior construction materials - new plastic aluminum plate as the main building materials. The overall design and building material use both attend to environmental protection and safety functions. At the same time, the designing color and streamlined transformation of the new stations presents innovation and liveliness, making consumers feel FPC's "Starting from Heart, Making Surprising Move" from the inside out.

 The building materials are fully upgraded and the environmental protection requirements are taken into account - the new materials used are quality materials also used in the construction of JR stations - plastic aluminum plate. Its lightweight, stable and durable installation method can resist the climate factors of Taiwan's damp heat, multiple typhoons, and earthquakes, and it is not easy to loosen and drop so that the safety of gas station staff, pedestrians and vehicles can be guaranteed. In addition, the insulation effect of plastic aluminum panels is excellent, saving the electricity cost in summer and greener for the gas stations.





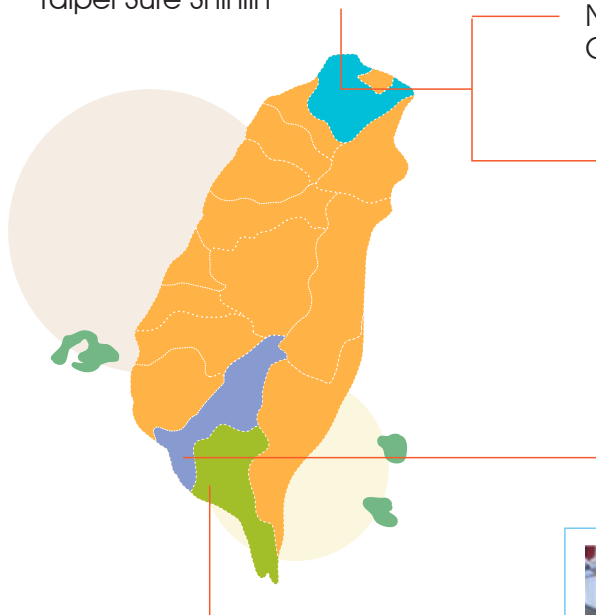
Streamlined Island Pump Design The refueling line is clear at a glance - the island pump adopts a streamlined column design with a conspicuous "Digital Sign" indicating the lane and the tanker. The day and night refueling lines are very clear, and the transparent glass design of the checkout island house makes the refueling checkout clearer and more relieving. At the same time, the whole station adopts LED lighting equipment, in addition to improving the brightness of the gas station, it also has the environmental protection concept of energy conservation and power saving.



New Station Introduction - Taipei Sure Shihlin



New Station Layout Announcement Campaign - Taipei Sure Shihlin



New Station Layout Introduction - Taipei Fu-hua Station



New Station Layout Introduction - Pingtung Sanduoli Ligang Station



New Station Layout Introduction - Kaohsiung Sure Huaxia Station



### Certification as an Authorized Economic Operator (AEO)

AEO authentication represents the government's approved dealers and their upstream and downstream manufacturers' overall supply chain security and the standards of quality enterprises which the trade security measures meet. It is the future international trade clearance trend and is also the key policy promoted by the country's customs.

The Company has started AEO authentication since June 2013, and completed all verification items in less than half a year. It obtained the AEO authentication qualification in December of the same year, the largest AEO verification company in Taichung when it comes to customs over the years. Obtaining AEO authentication entitles the Company's import and export of goods to have discounts such as the minimum inspection rate and paid import duties on a monthly basis.



### Transport Fleet "Refueling"

In order to relieve the taxi drivers' painstaking and help them reduce the cost of driving fuel, we issue TAXI card to allow taxis to have refueling discounts by the card and have economic benefits. Additionally, we continue to issue cards to individual taxis through gas stations to allow more taxi drivers to come to enjoy refueling discounts. The total number of issued TAXI cards in 2017 has reached 50,930, an increase by 16.7% compared with the previous year.



Moreover, we combine gas stations with the FPC business cards to provide more convenient refueling services for large freight fleets. The invoices settlement is at the end of the month, as a simpler reimbursement procedure compared with issuing invoices by vehicles. We also provide e-commerce inquiries and transaction details for downloading to help customers manage fuel consumption and improve fuel-saving effectiveness. After we cooperated with the gas station to obtain long-term cooperation with the neighboring freight fleet and civil service agency's service cars, we have had long-term use of large freight fleets such as Goldsun Group and King Car Logistics Co., Ltd, and Chiayi County Bus Service Administration's service cars for long-term use.



### Lubricant Distributor Assembly

In order to understand the actual operation situation of lubricant distributors to achieve the goals of improving performance, increasing sales and improving the visibility of FPC lubricants in the market, FPC lubricant general agency holds distributor assembly to invite lubricant distributors of the province to participate to help distributors enhance their competitiveness in the market, create a more advantageous business environment, and recognize outstanding distributors.



Distributors' Group Photos



Excellent Distributors Prize-giving



Auto+ FPC Lubricant Taoyuan Brand Flagship Store  
Chang-li Auto Refit Opening



Auto+ FPC Lubricant Taoyuan Brand Flagship Store  
Chang-li Auto Refit Opening

## Outstanding Achievement

### 2017 Awards



In 2017, Olefin Plant I was awarded as an excellent GHG reductions supplier.



In 2017, the Company won the "Corporate Sustainability Report Award - Energy Industry - Gold Award" organized by TAISE.



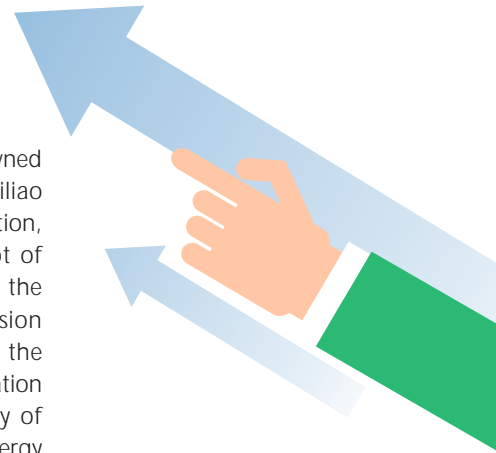
# 2

## Green Navigation: Proceeding

- Relevant stakeholders:  
environmental groups, government agencies, experts and scholars, and residents of the operational bases.
- Material Issues: Greenhouse Gas Emissions:  
energy management and carbon issues, air pollution control, water resources, waste management, and wastewater treatment.

## Chapter Summary

99% of the energy of R.O.C are imported from abroad. The self-owned resources are seriously insufficient. Since the establishment of Mailliao Industrial Complex in 1999, the FPCC has promoted energy conservation, emission reduction and environmental protection with the concept of the ecological industrial park and circular economy. In 2006, after the completion of mass production in the fourth phase of the expansion of the sixth Naphtha Cracker project, in order to further improve the efficiency of energy use, we set up a special unit for energy conservation and carbon reduction to vigorously promote the circular economy of cross-plant and cross-company in raw materials, water resources, energy and waste to move forward to the goals of energy saving, carbon emission reduction, resource integration, and zero waste.



The United Nations Sustainable Development Goals (SDGs)



### Strategy

- ✦ Effective management of the four aspects such as greenhouse gases, air pollution control, water resources management, and waste management
  - Reinforcement of industry-academic cooperation
  - Green event promotion
  - Promotion of circular economy across plants and companies

### Medium-term and Long-term Visions

- ✦ Energy saving, resource integration, and zero waste are the targets.

2017 Targets	2017 Performance	2018 Targets
Greenhouse gases		
<ul style="list-style-type: none"> <li>✦ Participation in the "Audit on Voluntary Emission Reduction of Industrial Greenhouse Gases" of the Industrial Development Bureau, Ministry of Economic Affairs in 2017.</li> <li>✦ Promotion of various energy conservation measures for 2017.</li> <li>✦ Promotion of greenhouse gas emission reductions for 2017.</li> </ul>	<ul style="list-style-type: none"> <li>✦ Reduction of greenhouse gas emission by 91,093 tons in response to the Industrial Development Bureau, Ministry of Economic Affairs' "Audit on Voluntary Emission Reduction of Industrial Greenhouse Gases" in 2017.</li> <li>✦ Reduction of CO2e by 232,000 tons by energy saving measures.</li> <li>✦ Reduction of greenhouse gas emission by 5% in 2016 compared with 2015.</li> </ul>	<ul style="list-style-type: none"> <li>✦ Continuous response to the government's "Audit on Emission Reduction of Industrial Greenhouse Gas" in 2018.</li> <li>✦ Promotion of various energy conservation measures for 2018.</li> <li>✦ Promotion of greenhouse gas exchange project (waste heat recovery).</li> <li>✦ Planning of publishing carbon footprint inventory reports on products (sulfur solution).</li> </ul>

2017 Targets	2017 Performance	2018 Targets
Air Pollution Prevention		
<ul style="list-style-type: none"> <li>🏢 Establishment of an automatic monitoring system for air quality of discharge pipes available for public inquiry.</li> <li>🏢 Promotion of the reduction of sulfur oxides and nitrogen oxides emissions of unit product for 2017.</li> </ul> <p>Industry-academic Cooperation</p> <ul style="list-style-type: none"> <li>🏢 Promotion of the evaluation management strategic plan (three-year period) on PM2.5 of coal-fired boilers with National Taiwan University.</li> </ul>	<ul style="list-style-type: none"> <li>🏢 [Completed establishment] automatic monitoring system for air quality of discharge pipes.</li> <li>🏢 Average reduction of nitrogen oxides and sulfur oxides emissions of unit product by 15.98% and 12.66% in 2017 compared with the past five years.</li> </ul> <p>Industry-academic Cooperation</p> <ul style="list-style-type: none"> <li>🏢 Through "Meteorological, Mass Air Quality Model Simulation" and "PM2.5 Detection on Discharge Pipes of Coal-fired / Petroleum Coke Unit" and other methods, air quality simulation data has been established to understand the impact of the change in the Company's air pollutant emissions on Taiwan's air quality (ozone and particulate matter included).</li> </ul>	<ul style="list-style-type: none"> <li>💡 Promotion of the reduction of sulfur oxides and nitrogen oxides emissions of unit product for 2018.</li> <li>💡 Addition of air pollution reduction equipment (Media Gas-Gas Heater(MGGH)), ultra low nitrogen oxide burner, wet electrostatic precipitator (WESP), oil and gas recovery system, and second exhaust gas recovery system.</li> <li>💡 Use of low sulfur fuels in process planning.</li> <li>💡 Promotion of oil quality improvement plan.</li> </ul> <p>Industry-academic Cooperation</p> <ul style="list-style-type: none"> <li>💡 Invitation of National Taiwan University to simulate the effect of PM2.5 reduction in Yunlin-Jiayi-Nantou region after the replacement of coal-fired units with gas units based on air quality mode.</li> </ul>
Management of Water Resources		
<ul style="list-style-type: none"> <li>🏢 Establishment of relevant content of water pollution prevention licenses available for public inquiry.</li> <li>🏢 Promotion of water consumption reduction and various water-saving measures for 2017.</li> <li>🏢 In 2017, the water quality automatic connection facility had an efficient monitoring rate of over 80%.</li> <li>🏢 Improvement of the utilization of harvested rainwater in 2017.</li> </ul>	<ul style="list-style-type: none"> <li>🏢 [Completed Establishment] Water pollution prevention license related content.</li> <li>🏢 Reduction of water consumption of unit product by 1.5% in 2017 compared with 2016, a reduction of 2,124 tons in total by water-saving measures.</li> <li>🏢 In 2017, the effective monitoring rate of water quality automatic connection facilities in each quarter reached over 99%.</li> <li>🏢 The annual utilization of harvested rainwater reached 71.8% in 2017.</li> </ul>	<ul style="list-style-type: none"> <li>💡 Promotion of water consumption reduction and various water-saving measures for 2018.</li> <li>💡 Acquisition of Environmental Impact Assessment (EIA) documents of desalinator.</li> <li>💡 In 2018, the water quality automatic connection facility has an efficient monitoring rate of over 85%.</li> <li>💡 Improvement of the utilization of harvested rainwater in 2018.</li> </ul> <p>Industry-academic Cooperation</p> <ul style="list-style-type: none"> <li>💡 Execution of "Research on Development of the Microorganism for Wastewater" with Academia Sinica.</li> </ul>
Management of Waste		
<ul style="list-style-type: none"> <li>🏢 Promotion of waste reduction in 2017.</li> <li>🏢 Handling of trial plan for reuse of sandblasting waste.</li> </ul>	<ul style="list-style-type: none"> <li>🏢 Reduction of waste generated by 2% in 2017 compared with 2016.</li> <li>🏢 Acquisition of performance appraisal of sandblasting waste reuse trial plan.</li> </ul>	<ul style="list-style-type: none"> <li>💡 Promotion of waste reduction in 2018.</li> <li>💡 Handling of waste (sandblasting waste, bottom ash, and fly ash) reuse application and inorganic sludge for gypsum product manufacturing.</li> </ul>

## 2.1 Environmental Protection Strategy and Policy

FPCC aims to achieve a win-win situation of "Industry Safety Environmental Protection and Economy" to establish and maintain a safety, health and environmental management system, and established a safety, health and environmental policy in 2003: strict compliance with regulations, enhanced communication, pollution prevention, plant waste reduction, hazard identification, risk control, the participation of all staff members, and continuous improvement. The 8 principles are thoroughly implemented to achieve the Company's perpetual business operation objectives.

We believe that pollution prevention is also an important part of energy conservation and carbon reduction. We must vigorously promote air pollution and greenhouse gas management, water resources and wastewater management, and source reduction of waste to ensure the normal operation of production equipment and surrounding environmental quality. In addition, it can decrease the waste of resources and energy, reduce operating costs, and achieve multiple benefits of energy saving and carbon reduction.

In order to practice the commitment to environmental protection and pollution prevention, FPCC adopts the most advanced process equipment and technology and management methods:

### Safety, Health, and Environmental Policy



**Air Pollution and Greenhouse Gas Management**

BACT is adopted comprehensively. Each production unit is equipped with a continuous automatic monitoring system and is connected to the environmental protection agency for monitoring and control.

**Water Resources and Wastewater Management**

Wastewater collection adopts decontamination and sewage diversion system. Wastewater treatment plant is set up to deal with industrial area wastewater; after treatment, the discharged water can still breed ornamental fish. The wastewater recycling is continued to reduce the water resources load.

**Waste Management**

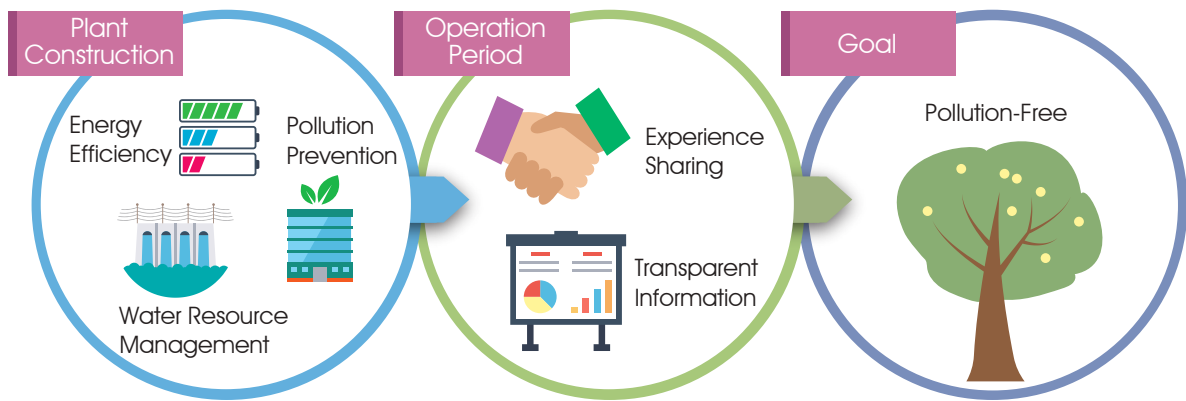
We conduct thorough implementation of classified recycling, use Enterprise Resource Planning (ERP) system and online declaration system to control storage, removal and processing operations, and comprehensively track flow direction.

## Green Environmental Protection Policy

The basic upstream raw materials in the early stage of the petrochemical industry in Taiwan were produced and supplied by CPC Corporation, Taiwan. Due to the inability to meet domestic demand, in order to solve this problem, FPG launched the project of the development of the sixth Naphtha Cracker Plant in Mailiao to build a vertically integrated petrochemical industrial zone.

### Targets

Environmental issues such as greenhouse gases, air pollution, wastewater, and waste at the site are concerned with zero pollution as the goal.



### Construction Phase

At the time of designing the plant, FPCC adopted the most advanced and energy-efficient pollution prevention equipment with the concept of Best Available Technology (BAT) and Best Available Control Technology (BACT). After the operation started, it strictly controlled the consumption of water resources and energy, and continuously reviewed and improved.

### During the Operation

We actively promoted various environmental protection improvements, set KPI performance indicators and annual targets, regularly monitored the execution process of various indicators, reviewed the progress of the targets, and strengthened the guidance for the plants with poor performance, and encouraged the plants with good performance to enhance employee involvement and sense of achievement.

#### Experience Sharing:

Based on the concept of the global village, we held seminars on energy conservation, carbon reduction and pollution prevention promotion, and shared experiences with all walks of life.



### Transparent Information:

For environmental protection issues concerned by external parties, we continue commissioning impartial professional organizations to conduct investigations, and through issued CSR reports and the transparency of environmental automatic monitoring data (please refer to the website: <http://www.epa.gov.tw/np.asp?ctNode=32970&mp=epa>), etc., clarify and explain the improvement and execution process.

## Environmental Risk Management

FPCC environmental risk management is implemented in a variety of ways. In addition to complying with environmental protection regulations, it also enhances the identification and support of neighboring residents through technology development, industry-academic cooperation, and information disclosure. The Company cooperates with professional teams of colleges and universities for continuous improvement of environmental protection work through the development of waste gas, wastewater and waste reuse technology and integration of energy resources across plants to improve reutilization of plant resources and strive for energy conservation and emission reduction.

In order to effectively grasp the environmental risk profile of the plant, FPCC has set up environmental management regulations and checklists for greenhouse gas, air pollution, wastewater, waste, etc., and conducted daily environmental inspection operations to protect the health of employees and neighboring residents. At the same time, in order to maintain communication with neighboring residents of the plant, we publicly disclose information such as waste gas, wastewater, noise, soil, groundwater, seawater and adjacent sea area ecology for the public to view. The plant also has guides and spaces for visiting groups to get to know plant process and environmental protection control measures to strengthen the channel of two-way communication.

## Green Production and Environmental Accounting



### Green Energy Practice

In addition to actively reducing energy consumption and greenhouse gas emissions, FPCC is also committed to the development and realization of clean energy. At present, the Enterprise has invested NT\$30 million to set up four wind power generation units with a capacity of 660KW in Mailiao Industrial Complex. These units have a total annual power generation of about 7 million kWh for use in the plant.



### Green Transport

FPCC mainly replaced long-distance pipeline transportation with long-distance transportation of oil tank trucks, effectively achieving the purposes of energy-saving and carbon-reduction. There are four long-distance pipelines (each one with the length of 12 inches) in total for oil storage and transportation, which are buried from Mailiao Plant along West Coast Highway to the Taipei storage and transportation station within the Port of Taipei in Bali. The overall length is about 229 kilometers. Unleaded petrol, aviation fuel, diesel and other oils are delivered respectively.

Segment	Length	Oil product
Mailiao Plant to Changhua Coastal Station	48km	
Changhua Coastal Station to Taoyuan Station	146km	Unleaded gasoline, Diesel, Aviation fuel
Taoyuan Station to Taipei Station	35km	
Total	229km	
Branch to Taiwan Taoyuan International Airport	5km	Aviation fuel

### Industry Safety Management of Long-distance Pipelines

In order to ensure the transportation safety of long-distance pipeline outside the plant, we conduct pipeline inspections every day and also implement the electric potential detection on cathodic corrosion prevention every quarter to effectively protect pipelines from corrosion and leakage. Besides, we commissioned professional companies to do Pipeline Current Mapping (PCM) or Close-Interval Potential Surveys (CIPS) for the integrity inspection of underground pipeline cladding, and the use of smart PIG (Pipeline Inspection Gauge) to detect the thickness of the pipeline. We also set up monitoring systems in the important facilities along with the transportation and storage monitoring system to control the transport operations.

### Environmental Cost Expenses and Benefits:

The environmental cost accounting system was introduced in 2009 and began to implement in 2010, including the direct environmental benefit information into the environmental accounting system, bringing the environmental protection into one of the operational consideration factors, enabling the Company to outline the overall business policy in diverse ways and shows the Company's determination and ability in perpetual business operation.

#### Environmental Cost Statement over the Past Three Years

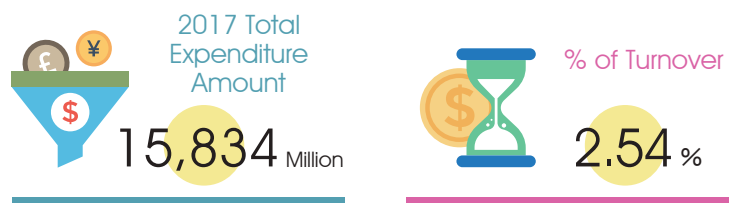
Unit: NT\$1 Million

Items	2015	2016	2017
Enterprise Operating Cost	13,961	13,219	14,131
Upstream and Downstream Relevant Costs of Suppliers and Customers	16	24	26
Management Activity Costs	271	343	456
R&D Costs	18	7	10
Social Activity Costs	146	144	148

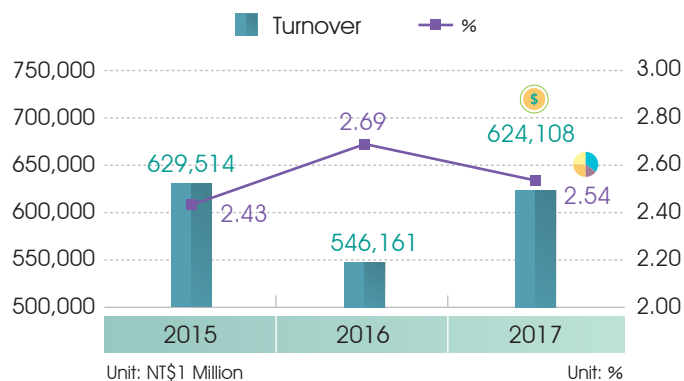
Items	2015	2016	2017
Losses and Reimbursement Costs	1	7	17
Other Fees such as Processing Fee Taxation and Energy Taxes	866	947	1,046
<b>Total</b>	<b>15,279</b>	<b>14,691</b>	<b>15,834</b>

Note: The "Enterprise Operating Cost" in the table includes expenditures such as green procurement derivative fees, recycling and remanufacturing expenses for manufacturing or sales of products, and derivative fees for the provision of product service in promotion of environmental protection.

The promotion of the environmental accounting system can help clearly record the financial information of environmental activities such as investment, maintenance, research and development, and fees for environmental equipment, so that the Company can conduct business decision analysis from the perspective of environmental protection, which will help to raise the Company's competitiveness: in 2017, the total amount of environmental cost expenditure was NT\$15,834 million, accounting for 2.54% of the turnover of NT\$624,108 million.



Change in the Ratio of Environmental Cost to the Turnover



### Environmental Protection Violations

In 2017, the Company had a total of 15 environmental protection penalty tickets, of which only four were material abnormal environmental protection violations (the disclosure of material events of over NT\$100 million based on the Market Observation Post System). The increase in the number of penalty tickets, was mainly due to the declaration abnormality of air pollution charges incurred from the construction and the abnormal fugitive emission of equipment components. The Company has strengthened the education and training on air pollution fee declaration due to the construction, and continued to do a good job in equipment component management mechanism; the analysis of the increase in the amount of fine was mainly due to the argument in the definition of waste storage. The regulator followed regulations in a stricter way and we have already filed an administrative remedy request according to the law.

Loss and punishment for environmental pollution in the recent years:

	2015	2016	2017
Air Pollution	4 Cases / NT\$400,000	6 Cases / NT\$600,000	9 Cases / NT\$1 Million
Water Pollution	0 Case / NT\$0	0 Case / NT\$0	1 Case / NT\$108.9
Waste Pollution	1 Case / NT\$144.156 Million	1 Case / NT\$2.142 Million	5 Cases / NT\$9.174 Million
Others	1 Case / NT\$100,000	1 Case / NT\$600,000	0 Case / NT\$0

## 2.2 Greenhouse Gas Emissions and Energy Management



Corresponding to GRI Standards: Energy and Emissions



Since 2005, FPCC has been carrying out the inventory and verification of greenhouse gas emissions in accordance with ISO 14064-1, and has been commissioning British Standard Institution (BSI), Taiwan to conduct seven gas-related verifications such as CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub> to ensure the correctness of greenhouse gas emissions, and promote various energy-saving projects, such as process improvement and energy management with a view to continuously reducing greenhouse gas emissions.

Greenhouse Gas Management Structure Chart





## Status of Greenhouse Gas Emission

Unit: Metric Tons (CO<sub>2</sub>e)

	2014	2015	2016
Scope 1	29,766,908	29,114,312	27,915,537
Scope 2	141,928	129,452	108,824
Total emissions (Scope 1 + Scope 2)	29,908,837	29,354,764	28,024,361

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

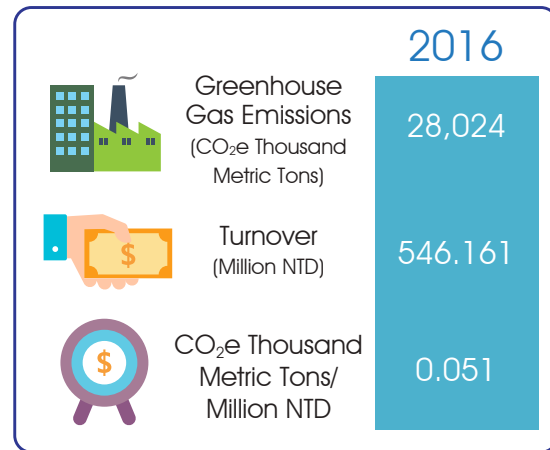
Note 2: Scope 2 refers to indirect emissions of greenhouse gases.

Note 3: Global warming potential (GWP) in 2014 and 2015 adopted the second assessment report of IPCC in 1995. In 2016, the GWP adopted the fourth assessment report of IPCC in 2007. The power and steam emission coefficients were derived from the plant coefficient and verified by the verification agency.

Note 4: During the publication of this year's report, the 2017 greenhouse gas emission data has not been verified by the verification agency, so the information will be disclosed the next year.

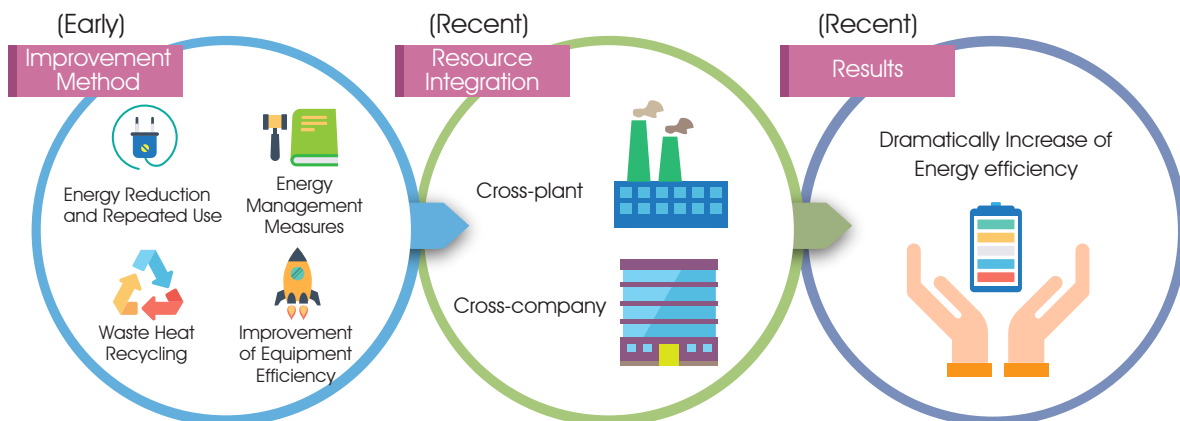
In 2016, the greenhouse gas emissions per unit of turnover was 0.051 (CO<sub>2</sub>e Thousand Metric Tons / Million NTD). In line with the national greenhouse gas inventory regulations, the GWP in 2016 was changed to adopt the fourth assessment report of IPCC in 2007, different from GWP adopted in 2015, so the difference analysis could not be performed.

### Analysis of Greenhouse Gas Emission

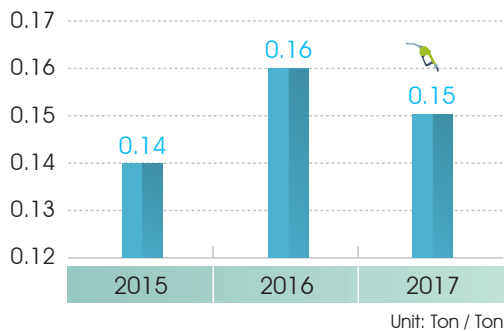


Note: Data Source: FPG Computer Database on Greenhouse Gas Inventory

## Energy Management

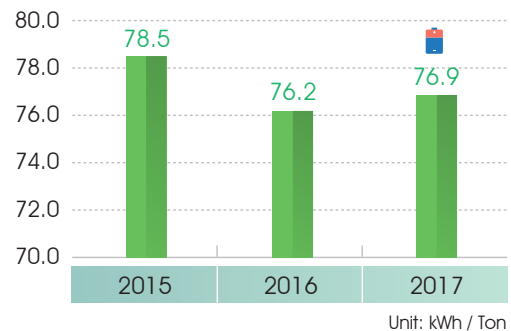


### FPCC Steam Consumption of Unit Product over the Years



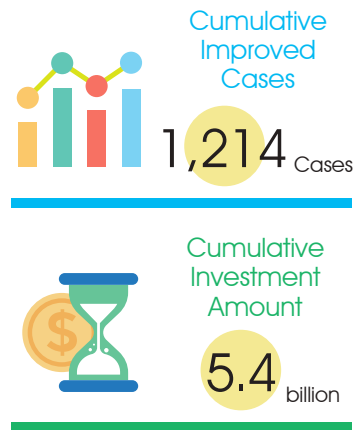
Note: Data Source: FPG Business Intelligence (BI) System Database

### FPCC Electricity Consumption of Unit Product over the Years



Note: Data Source: FPG Business Intelligence (BI) System Database

From 1999 to 2017, the cumulative number of improvement cases was 1,214 in total. The investment amount accumulated up to NT\$5.4 billion. The Company used 5,213.5 thousand tons of steam throughout the year with an average hourly steam consumption of 595.1 tons. The conversion unit of steam consumption was 0.15 tons/ton. The annual electricity consumption was 2,600 million kWh. The average hourly electricity consumption was 296,860 kWh, and the electricity consumption of a unit 76.9 kWh/ton, controlled within a reasonable range. Currently, no renewable energy is used.



### FPCC Energy-saving Implementation over the Years

	Cumulative Amount (1999~2016)	2017	Cumulative Amount (1999~2017)	Ongoing	Total
Improved Cases	981	233	1,214	379	1,593
Saved Steam (Ton/ Hour)	778.6	42.5	821.1	107.9	929.0
Saved Electricity (kWh/Hour)	119.9	7.8	127.7	19.0	146.7
Saved Fuel (Ton/ Hour)	82.2	3.9	86.1	1.6	87.7
CO2e Reduction (10,000 Tons / Year)	433.2	23.2	456.4	41.2	497.7
Investment Amount (NT\$100 million)	49.3	4.7	54.0	21.5	75.5

Note: Data Source: FPG Computer Database on Environmental Protection Improvement Management



## 2.3 Air Pollution Prevention



### Responding to GRI Standards: Emissions and Local Communities



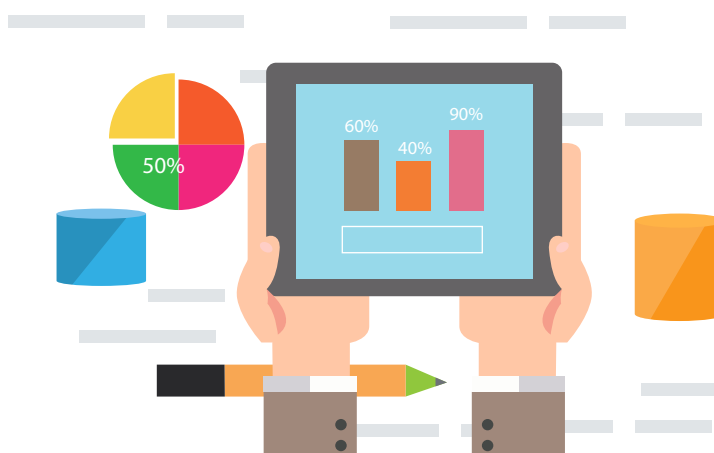
Best Available Control Technology (BACT) is adopted comprehensively and each production unit is equipped with a continuous automatic monitoring system (25 in total). It is connected to the environmental protection agency for monitoring and control to perform the detection on various pollutants. In addition to complying with the laws and regulations, we actively carry out related reduction and odor control operations. The Company has further established the "Evaluation and Advisory Committee of Mailiao Industrial Complex's Impact on Air Quality", conducting a comprehensive research and analysis on air pollution issues" to reduce the impact on the environment to achieve the Company's perpetual business operation objectives.

### Air Quality Impact Assessment and Advisory Committee

In view of the concern that air pollutant emission of Mailiao Industrial Complex is affecting the air quality in Yunlin-Jiayi-Nantou region, we have established "Evaluation and Advisory Committee of Mailiao Industrial Complex's Impact on Air Quality". The study found out that the air quality in the towns near Mailiao Industrial Complex is better than that in the other western counties and cities of Taiwan, showing that Mailiao Industrial Complex has limited impact on local air quality. In addition, Douliu, Puli, and Chiayi which are the inland areas have had serious bad air quality for a long time. After the analysis of the data, it shows that Mailiao Industrial Complex is located on the west coast and the impact of its emissions is minimal.

### Air Pollution and Waste Gas Management:

In addition to implementing the environmental monitoring and the health risk assessment of neighboring townships and constantly understanding the impact of emissions on the environment and public health, we also introduced various world-class process improvement and pollution prevention technologies to reduce greenhouse gas emissions for climate change issues to ensure maximum effectiveness and to be in line with the spirit of perpetual business operation.



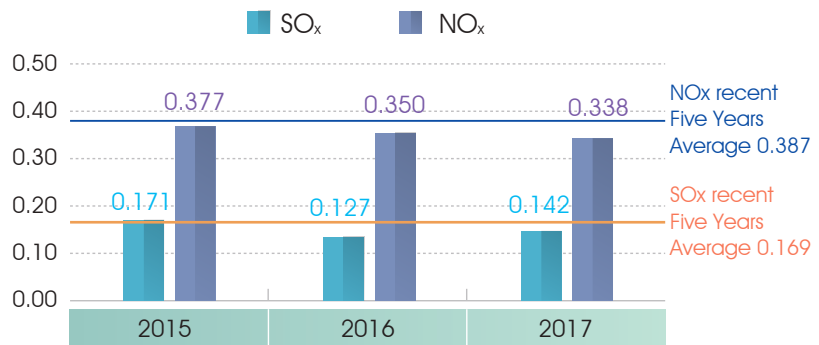


Since the establishment of the FPCC in 1992, FPCC has been in line with the international standards and cooperated with the government to implement the policy based on "Montreal Protocol on Substances that Deplete the Ozone Layer". It has completely banned the ozone-depleting substances such as Halons, CFC-11 and CFC-12. The currently used refrigerants are mostly R-134a, R-401a and R-410a. Gasoline and diesel products with sulfur and benzene strictly comply with EU regulations.

Type	Ingredient	Domestic Market		Export Market	
		Specifications	Actual Value	Specifications	Actual Value
Gasoline	Benzene	1.0 vol%,max	0.62	1.5 vol%,max	1.21
	Lead	0.013 g/l,max	<0.003	0.01 g/l,max	<0.003
	Sulfur	10ppm, max	6.50	250ppm, max	117
Diesel	Sulfur	10ppm, max	7.50	10ppm, max	7.50
				500ppm, max	348

In order to implement air pollution prevention, the best pollution prevention equipment was adopted. In 2017, Sulfur oxides (SO<sub>x</sub>) emitted by the unit product was 0.142 kg/ton and Nitrogen oxides (NO<sub>x</sub>) was 0.338 kg/ton, a reduction of 15.98% and 12.66% respectively compared with the average of 0.169 kg/ton and 0.387 kg/ton over the past five years. In the future, the emission reduction of sulfur oxides, nitrogen oxides and particulate pollutants of unit product will continue to be promoted. Air pollutant emission reduction equipment will be added [MGGH, ultra-low NO<sub>x</sub> burners and WESP] and the use of low-sulfur fuels in process planning.

FPC Unit Product SO<sub>x</sub> and NO<sub>x</sub> Emissions



Note: Data Source: Report on the total amount of air pollutant discharges declared quarterly by each plant of FPC.

Air Quality Assessment on the Industrial Complex

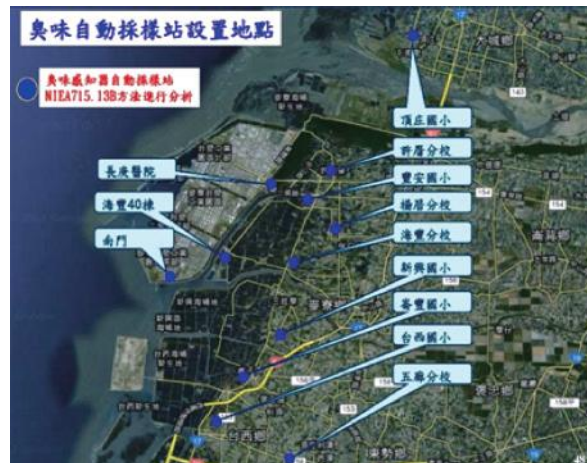
In order to grasp all environmental indicators in real time, a comprehensive environmental monitoring network is built under the overall planning of the enterprise, and eight layers of intensive monitoring and control operations are taken from inside to outside, including 8,109 fixed gas detectors, 39 GasFindIR (gas imaging leak detectors) for US military use, 34 sets of Continuous Emission Monitoring Systems (CEMs) for fixed pollutant, 39 sets of FLARE CEMs, 6 sets of mobile Fourier Transform Infrared Spectrometer (FTIR) monitoring systems, 8 sets of fixed FTIR monitoring systems. One VOC monitoring station in the neighboring town outside the plant, 10 photochemical assessment monitoring stations, 12 automatic odor sampling stations, 10 fixed air quality monitoring stations and one air quality monitoring vehicle to track the sources of emissions as quickly as possible to ensure local air quality.

Map of Eight-story Environmental Monitoring Network of the sixth Naphtha Cracker Plant



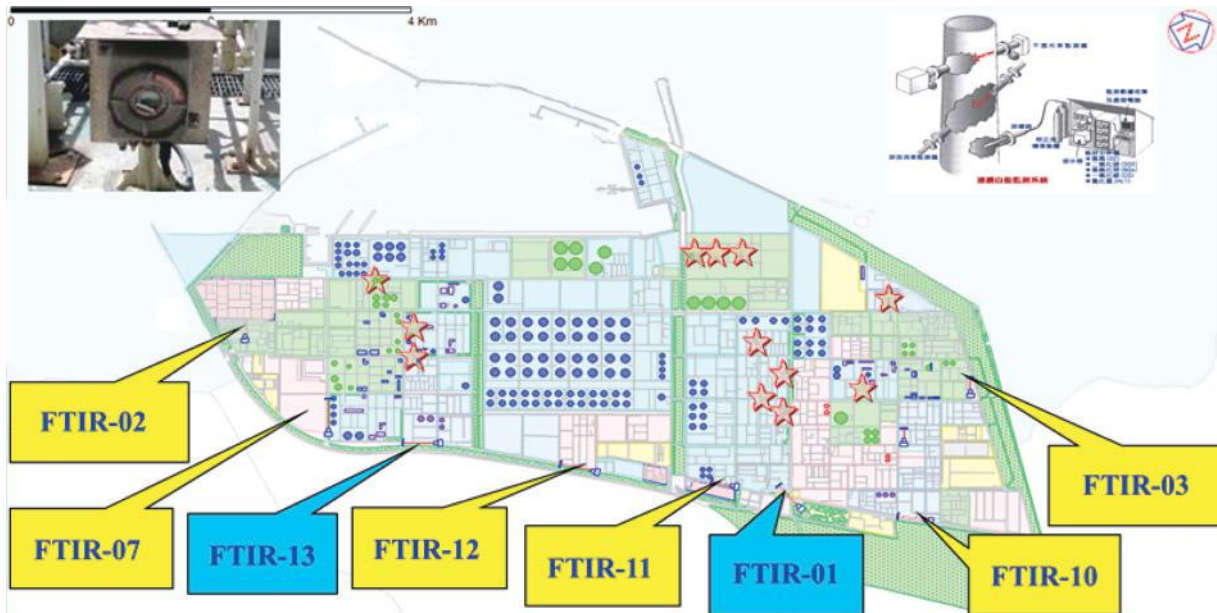
Air Quality Monitoring Station in the sixth Naphtha Cracker Plant and Air Quality Monitoring Station of Environmental Protection Administration, Executive Yuan

Location of the Automatic Odor Sampling Station



Right: Location of the Automatic Odor Sampling Station (Analysis by NIEA A715.13B Method)

## Location of Monitoring Equipment in the Plant



1. We set 8 sets of fixed FTIR monitoring stations surrounding the plant with 6 sets of mobile FTIR in the plant to effectively monitor the fugitive VOC emission inside and outside the plant.
2. We set up 8,109 gas detectors in the process area of the plant which are able to immediately send out the alert when the abnormality occurs, controlling the leakage at source.
3. The plant's 34 large-scale discharge pipes are equipped with CEMS which is connected with the Environmental Protection Bureau to provide real-time monitoring data to effectively control.

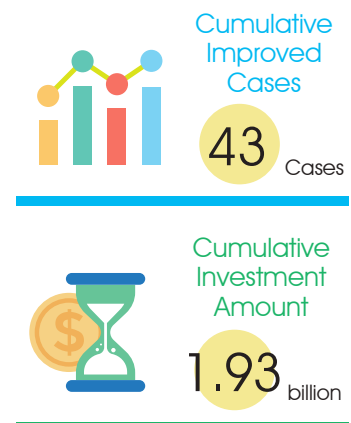


## Odor Control Promotion and VOCs Reduction

Mailiao Industrial Complex is the first industrial park in Taiwan to implement the control of the total quantity. In addition to the various pollutants that have met the requirements of EIA, it continues to actively promote reduction and improvement of various volatile organic compounds (VOCs). Under the normal pressure, the substance is the volatile organic chemical. FPCC has made improvements of a total of 43 cases in 2017 with an investment of NT\$1.93 billion.

Regarding weekly odor inspection of process equipment components, we set up the effective life cycle (lifetime) of each type of component. For example, replacement with the low fugitive emission material of the control valve gasket, replacement of small diameter connector with low fugitive emission one and removal of unnecessary equipment components. Effective prevention and repair are conducted to reduce the leakage.

In addition, the open aeration tanks of the wastewater treatment plant in which the fugitive emission of VOCs and odors are more likely to occur are capped. The pipelines are allocated to collect the emission and the emission is then sent to the activated sludge aeration tank for biological treatment to remove the odor of the exhaust gas and prevent VOCs from escaping.





Wastewater Treatment Plant (Before improvement)



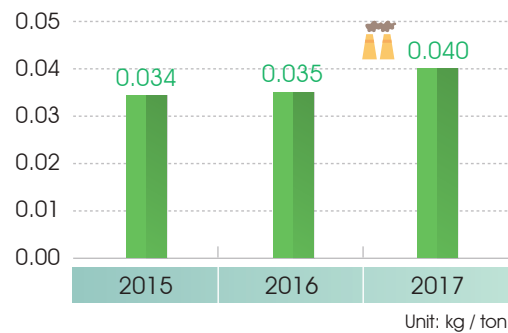
Wastewater Treatment Plant (After improvement)



### Volatile Organic Emissions Management

The main sources of VOCs are the process (discharge of discharge pipes), the fugitive emission of the storage tank, loading operations, the fugitive emission from the wastewater treatment plant/oil-water separation tank/gas flare and equipment component, etc. In 2017, the total amount of VOCs emissions was 1,358 tons and the unit product was 0.040 kg/ton, only an increase of 0.005 kg/ton compared with last year. The difference was very small, mainly due to the increase of the VOCs declaration in such as the more regular inspections in the annual plant maintenance, cooling water tank, and storage tank cleaning in 2017, leading to an increase in emissions. The follow-up will be continued promoting the reduction of VOCs emissions from unit product and the addition of air pollution reduction equipment (oil and gas recovery systems and second exhaust gas recovery systems, etc.).

FCC Unit Product VOCs Emissions



Note: Data Source: Report on the total amount of air pollutant discharges declared quarterly by each plant of FCC.

In order to further prevent the escape of VOCs, to reduce the leakage of raw materials, product leakage and the odor complaint from the public, FCC has purchased 14 infrared GasFindIRs and two FTIRs to identify the source of leakage more quickly and improve it immediately, maintaining local air quality.



Monitoring the ingredients and concentration of emissions of VOC around the plant with OP-FTIR and implementing improvement methods for foul odor and leakage.



Inspecting each device in the plant and VOC pipelines emission with GFIR and implementing improvement methods for foul odor and leakage.

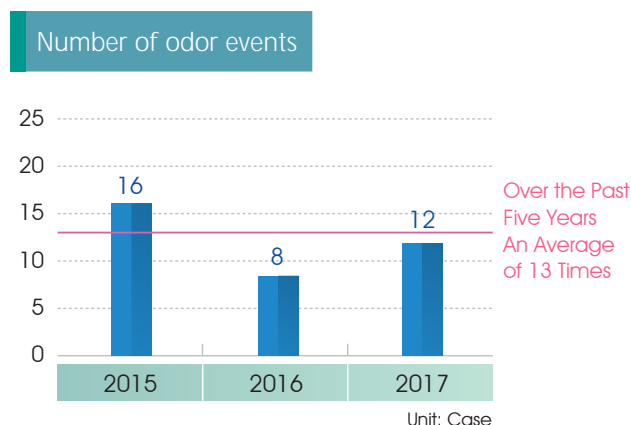


## Execution Process of FPCC Improvement on VOCs Reduction over the Years

Items \ Year	2015	2016	2017	Cumulative Amount 1999-2017
Improved Cases	5	2	2 (Ongoing)	43
Discharge Pipe (Ton/Year)	1.83	2.28	10.06	28.90
Equipment Components (Ton/Year)	3.40	0	0	5.25
Storage Tank (Ton/Year)	0	0	13.99	36.63
Loading Facilities (Ton/Year)	0	0	0	0.31
Total (Ton/Year)	5.23	2.28	0	47.04
Investment Amount (Thousand NTD)	193,680	640,908	335,000	1,939,179

Note: Data Source: FPG Computer Database on Environmental Protection Improvement Management

From 2012 to 2016, 73 among 77 cases had been improved, and 4 are being improved. Since 2014, the improvement project was promoted to trace odor source in the process, leading to increased number of odor found in the detection significantly. After strict inspection and improvement of odor sources, the number of odor occurrences has dropped. The number of occurrences in 2017 was 12, a decrease of 7.69% lower than the average of 13 times over the past five years. The overall odor control has achieved remarkable results.



## Industry-academic Cooperation

FPCC and National Taiwan University implemented the "Evaluation management strategic plan (three-year period) on PM2.5 by FPCC and Mailiao Power Corporation" (3-year term) in an industry-academic cooperation manner. Through "Meteorological, Mass Air Quality Model Simulation" and "PM2.5 Detection on Discharge Pipeline of Coal-fired / Petroleum Coke Unit" to establish air quality simulation data. The current progress of the project is as follows. It is expected to understand the impact of the change in the Company and Mailiao Power's air pollutant emissions on Taiwan's air quality (ozone and particulate matter included) after the completion of the project, which will also give the Company appropriate regulatory advice.



1. Planning of "meteorological, mass air quality model simulation".
2. Planning of "PM<sub>2.5</sub> Detection on Discharge Pipeline of Coal-fired / Petroleum Coke Unit".
3. Planning of "PM<sub>2.5</sub> Detection by the Monitoring Stations around Mailiao Industrial Complex".



1. Using "Meteorological, Mass Air Quality Model Simulation" to estimate the effect of 10%, 20% and 40% reduction of PM<sub>2.5</sub> in the coal-fired/petroleum coke unit in Mailiao Industrial Complex during the period of poor air quality.
2. Completion of "PM<sub>2.5</sub> Detection on Discharge Pipeline of Coal-fired / Petroleum Coke Unit"
3. Completion of "PM<sub>2.5</sub> Detection by the Monitoring Stations around Mailiao Industrial Complex".



We simulated the impact of the Company's replacement of the coal-fired unit with the gas one on the air quality in the regions in the whole of Taiwan, Yunlin-Jiayi-Nantou, Changhua-Taichung-Nantou, and Douliu.



## 2.4 Water Resources, Wastewater and Waste Management



Responding to GRI Standards: Water, Wastewater and Waste

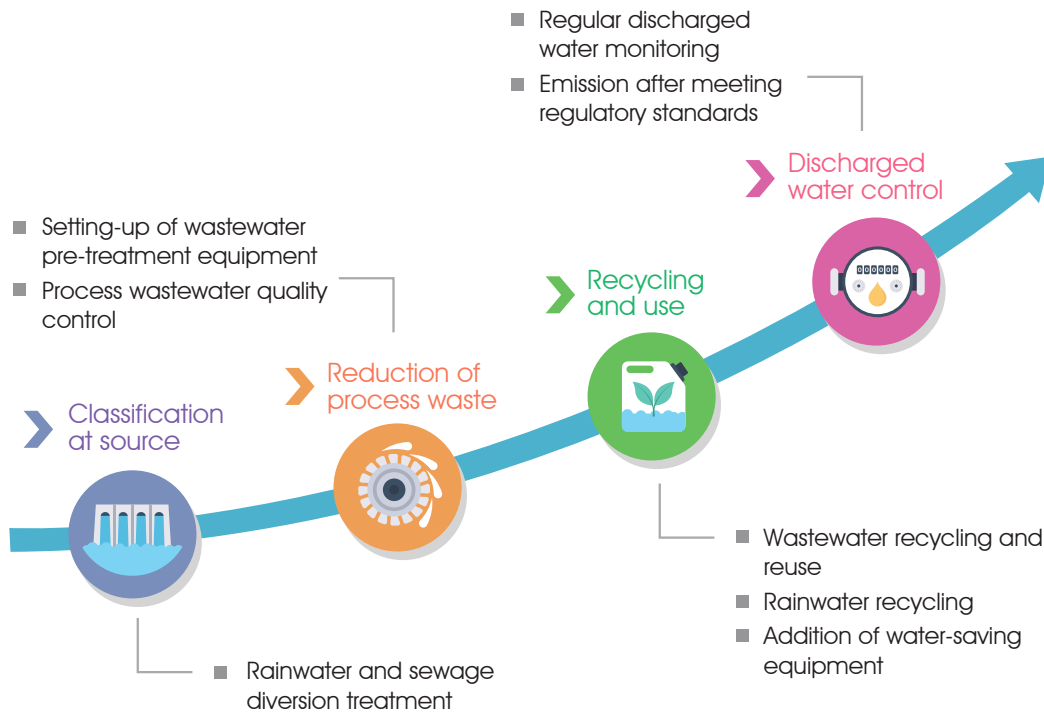


When it comes to MA of water resources and waste dyeing, it is in accordance with the principle of source management, process waste reduction and terminal control. First, the resource reuse is strengthened by the means of source management, the process is speeded up, and waste is reduced with the process to alleviate the load on the treatment facility. After the resources which are unable to be reused are decontaminated with the treatment facilities, the terminal control method is used to confirm the compliance with regulatory standards to minimize environmental impact.

### Water Resources and Wastewater Management

The water sources of the FPCC plant can be mainly divided into groundwater (surface water) and tap water. In order to effectively use water resources, we decrease water consumption, implement water-saving management and reduce evaporation losses by optimizing the process. On one hand, it can reduce water demand, and on the other hand, it can enhance the effectiveness of water resources use.

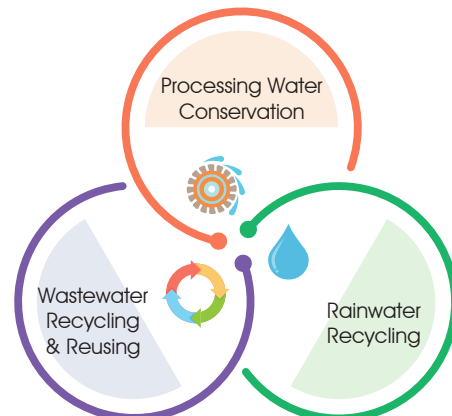




## Management of Water Resources

According to the Central Region Water Resources Office, Water Resources Agency, Ministry of Economic Affairs' "Monthly report on the amount of the industry and public water in Jiji Dam allocated for agricultural purposes", the annual average inflow of Jiji Dam over the past five years (2013–2017) was 4,536.68 million tons. As to the industrial water supply among it, the annual average was 101.3 million tons, which only accounts for 2.2% of the inflow of Jiji Dam. However, in order to enable the coordination of domestic water use to be more flexible, and take into account the Company's perpetual business operation, the Company has actively planned to establish a desalinator with the capacity of 100,000 tons/day to replace the industrial water use. Besides, it continued to promote wastewater recycling and reuse measures. It also comprehensively strengthened the rainwater collection from various plants to increase the rainwater collection area. The rainwater storage tank is set up for proper storage and utilization. These methods will help store and use rainwater effectively. From 1999 to 2017, the number of water-saving improvement projects was 370 in total with a cumulative investment of NT\$9.37 billion. The total of water saving was 89,485 tons/day.

- (1) Promotion of various water-saving plans.
- (2) Promotion of wastewater recycling reuse plans.
- (3) Promotion of rainwater recycling reuse plans.
- (4) Promotion of the establishment of a desalinator with the capacity of 100,000 tons/day.



## Water Resources Reuse in the Industrial Complex

In 2017, we found out that the water consumption of FPCG had been declining year by year. The average daily water consumption was about 97,000 tons and the amount of rainwater reused was 7,742 tons. The amount of rainwater reused was equivalent to the domestic water consumption for 29,000 people per day <sup>(Note)</sup>.

Note: The daily domestic water consumption per person in 2016 was 0.265 tons (Data Source: Taiwan Water Corporation)



Daily Rainwater Reuse in

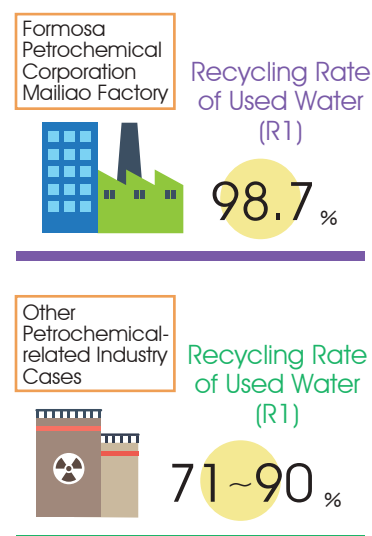
**2017**

► Equivalent to daily domestic water required by 29,000 people

**7,742**  
Tons

In 2017, we continued to optimize the process to reduce water consumption, implement water-saving management and reduce evaporation losses. The water consumption of unit product decreased by 0.016 tons/ton compared with the last year, reaching 1.046 tons/ton. According to the Ministry of Economic Affairs' announcement, based on the calculation of water use index regulated by "Directions for Application Review on Proposal of Water Usage", the water recovery rate (R1) of Mailiao Industrial Complex was 98.7% (Note). Compared with the cases collected by the Ministry of Economic Affairs, indicating that the water recovery rate (R1) in the other domestic petrochemical related industries was around 71~90%, our water recovery rate is obviously better.

Note:  $R1 = \frac{\text{repeated recycling water volume}}{\text{total water drawn} + \text{repeated recycling water volume}}$



#### Overview of FPCC Water Saving over the Years

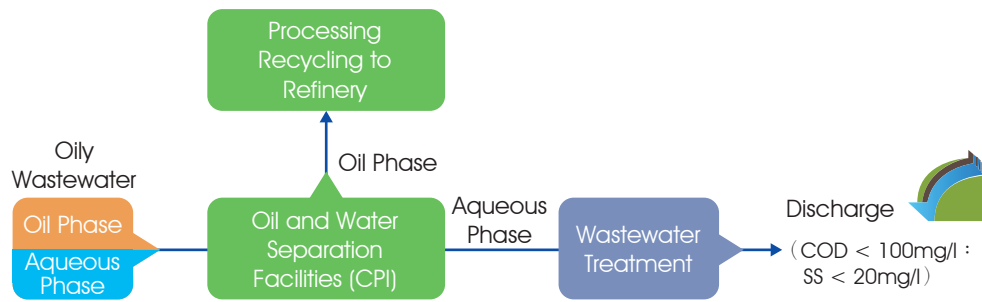
Items \ Year	Cumulative Amount (1999~2016)	2017	Cumulative Amount (1999~2017)	Ongoing	Total
Improved Cases	307	63	370	99	469
Water Conservation Amount (Ton/Day)	80,601	2,124	82,725	6,760	89,485
Investment Amount (NT\$100 Million)	88	0.4	88.4	5.3	93.7
Improved Effectiveness (NT\$100 Million/Year)	35	0.4	35.4	1.3	36.7

Note: Data Source: FPG Computer Database on Water Saving and Energy Saving Improvement Control



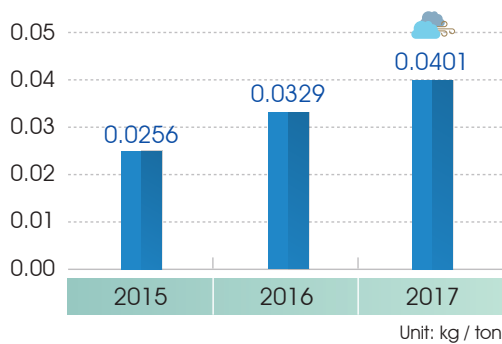
### Water Pollution Prevention Measures and Wastewater Management

For the wastewater generated by each plant, FPCC firstly performs oil-water separation through Corrugated Plate Interceptor (CPI). After separation, the waste oil is partly introduced into the refinery department process for refining treatment, and the wastewater is discharged to the low-salt treatment system of the wastewater field for processing. The treatment procedure includes adjusting water quality by surge tank, removing suspended solids (SS) by sedimentation or floating, then decomposing the organic compound in the water through the aeration tank, and detecting chemical oxygen demand (COD) and SS of discharged water with the frequency of 1 time/day to ensure that the COD is less than 100 mg/l and SS is less than 20 mg/l, which can help reduce the environmental impact from the discharged water.



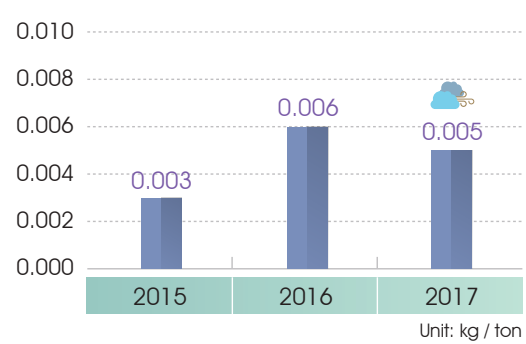
In 2017, the COD emissions of unit product was 0.0401 kg/ton and the SS emission of unit product was 0.005 kg/ton. The COD emission was slightly higher than that of 2016. Based on the analysis, it should be due to the capping of the aeration tank in the wastewater treatment plant (odor control) and the impact of the equipment replacement on the wastewater treatment efficiency. It is expected that after the completion of the equipment replacement project in 2019, the water quality of the discharged water can be further improved. During the transition period, the operation of the wastewater treatment will be adjusted to improve the wastewater treatment efficiency to ensure compliance with regulatory standards.

FPCC COD Emissions of Unit Product



Note: Data Source: FPG Computer Database on Water Pollution Prevention Management

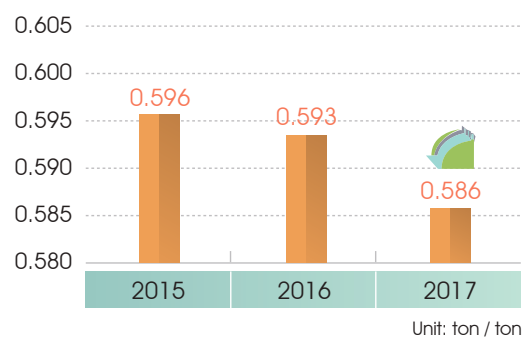
FPCC SS Emissions of Unit Product



Note: Data Source: FPG Computer Database on Water Pollution Prevention Management

In 2017, the average daily discharged water volume of FPCC Mailiao Industrial Complex was 54,300 tons. The water quality of the discharged water to the Taiwan Strait was consistent with the discharged water standard. In 2017, the discharged water of unit capacity was 1.2%, less than the previous year to 0.586 tons/ton.

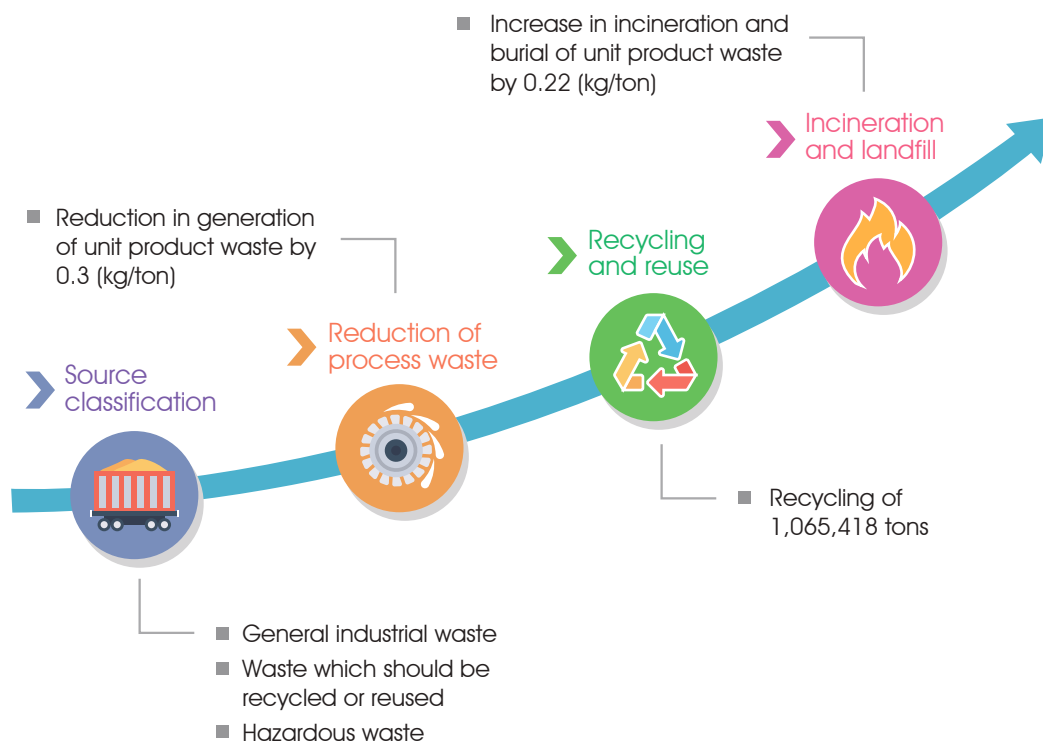
FPCC Unit Product Discharged Wastewater



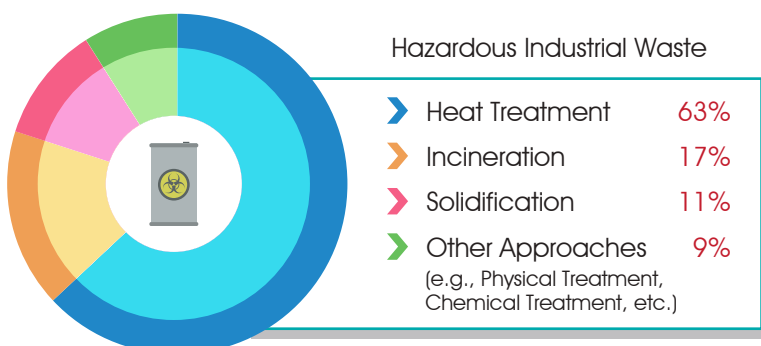
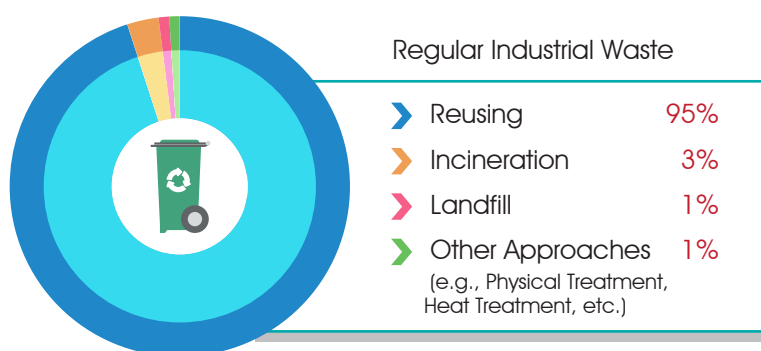
Note: Data Source: FPG Computer Database on Water Pollution Prevention Management

## Waste Management

Waste management is divided into four stages: operations such as classification at sources, process-waste reduction and recycling and reusing to reduce the waste amount for incineration and landfill, and to achieve zero waste and zero landfill as positive goals.



Reuse is a priority in waste outsourcing disposal, followed by incineration and landfill. In 2017, a total of 1,118,554 tons of industrial wastes were collected (including coal ash stored in ash ponds), of which 1,118,138 tons of general industrial wastes and 416 tons of hazardous industrial wastes were sent to legal disposal agencies for proper disposal. 95% (1,065,418 tons) of general industrial waste was reused, 3% (31,198 tons) was incinerated, 1% (13,676 tons) was buried, 1% (7,846 tons) was treated by other ways (such as physical treatment,



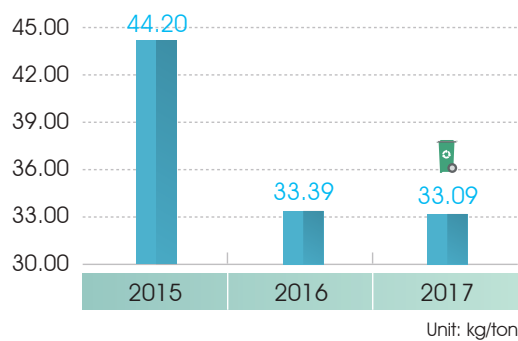
heat treatment, etc.), 63% (260 tons) of hazardous wastes adopted heat treatment, 17% (72 tons) adopted incineration, 11% (47 tons) adopted solidification, and 9% (37 tons) adopted other treatments (such as physical treatment and chemical treatment, etc.). Compared with the last year's reduction of 2% process waste, the amount of generated waste of unit product decreased by 0.30kg/ton; the waste of incineration and burial increased by 16% compared with the last year, and the incineration and burial of unit product waste increased by 0.22kg/ton.

### Overview of FPCC Waste Management

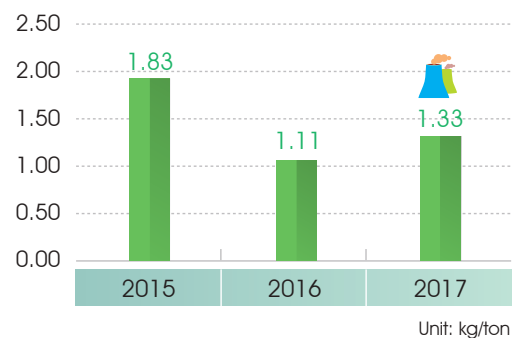
	2015	2016	2017
Generated Waste (Tons)	1,259,273	1,138,484	1,118,554
Products (Tons)	33,834,040	34,100,586	33,807,030
Generation of Unit Product Waste (kg/ton)	37.22	33.39	33.09
Incineration and Landfill (kg)	45,210,908	37,945,880	44,945,390
Incineration and Landfill of Unit Product Waste (kg/ton)	1.34	1.11	1.33

Note: Data Source: FPG Computer Database on Waste Management

### Generation of Unit Product Waste



### Incineration and Landfill of Unit Product Waste



## Concerns from External Parties

1. For certain media's disclosure of an article mentioning, "Don't let daily fog keep polluting lunbei"

Regarding United Daily News Group's published article of "Don't Let Daily Fog Keep Polluting Lunbei" on October 16, the director of Environmental Protection Bureau of Yunlin County and Nantou County pointed out that the poor air quality was related to the emission of the Company's Mailiao Industrial Complex. The Enterprise's analysis of the monitoring data from the Environmental Protection Administration, Executive Yuan between 2013 to 2016, we considered that the doubts of the directors of Environmental Protection Bureau in these two Counties did not reflect the truth. The Enterprise's clarification is as follows:

After analyzing the data from all of the air quality monitoring stations of Environmental Protection Administration, Executive Yuan across Taiwan, we found out that the number of bad days at Lunbei Station was indeed the highest, but 90% of them occurred in the strong northeast monsoon season (from January to April and from October to December, as shown in the following table). This is also a common phenomenon throughout Taiwan.

Observation Station of Environmental Protection Administration, Executive Yuan	Erlin	Lunbei	Puzi	Mailiao	Taixi	Puli
Days of Poor Air Quality from January to April and from October to December in 2016	54	91	73	71	66	34
Days of Poor Air Quality from May to September in 2016	3	11	6	7	7	10

According to the director of Environmental Protection Bureau in Yunlin County, Lunbei was covered by pollutants from the sixth Naphtha Cracker Plant which was brought by sea and land breezes. If it had been really caused by sea and land breezes, the number of bad days of Mailiao and Taisi, the nearest townships to the sixth Naphtha Cracker Plant, should have been more than the farther Lunbei. However, it can be seen that from the above table, it is not the case.

After analyzing the monitoring data from 2013 to 2016, the number of bad days at Lunbei Station decreased year by year, indicating that the relevant units' effective remediation of raising dust along the coast of Jhuoshuei River.

Lunbei Station	2013	2014	2015	2016
Days of Poor Air Quality throughout the Year	159	135	121	102

The statement of the director of Environmental Protection Bureau in Nantou County indicated that the pollutants of the six Naphtha Cracker Plant spread to Puli and Jhushan with the wind. According to the thesis of the Chinese Institute of Environmental Engineering in 2014, the detected PM2.5 value was in Nantou higher. This was because the northeast monsoon brought pollutants of the Taichung Mountain Line and the north to the funnel-shaped terrain (Taichung Basin and Nantou-Mingjian Longitudinal Valley), and then the pollutants concentrated in the Nantou area.

In summary, according to the monitoring data of Environmental Protection Administration, Executive Yuan over the years, relevant unit research reports and the Company's monitoring results of the implementation, it shows that PM2.5 of Lunbei Station was significantly affected by the dust of Jhuoshuei River and the burning of local agricultural waste. It is unfair to attribute the pollution to the Enterprise's Mailiao Industrial Complex emissions. FPG has always been based on the business philosophy of doing its best in social responsibility. Under the consideration of economic growth and environmental protection,



we maintain and create a good living environment for local residents. We welcome people from all walks of life to come to Mailiao Industrial Complex for real experience.

Detailed Press Release Content <http://www.fpg.com.tw/j2fpg/portal/News/5IM12A1SB4I>



# 3

## Deepening Industrial Safety: Security

- Relevant stakeholders:  
employees, customers, residents in the operational bases, environmental protection groups, government agencies, experts and scholars
- Material issues:  
industry and public safety, occupational health and safety

## Chapter Summary

Since the establishment of the Company, we have inquired into the root of the matter in the spirit of improving to establish a safety and health management system. In addition to complying with the basic requirements of the law, it also promotes hazard prevention and risk control. Besides, it implements responsibility and care system to lead the industry to the development of safety and health.



The United Nations Sustainable Development Goals (SDGs)



- Reinforcement of risk control and safety responsibility for all employees and cooperation between industry and academia
- Implementation of safety and health management at all levels
- Shaping the Company's safety and health culture

Target "Zero Disaster".

2017 Targets	2017 Performance	2018 Targets
Establishment of Industry Safety Culture		
<ul style="list-style-type: none"> <li> Implementation of safety and health self-management operations and establishment of industry safety culture and a consensus among the staff members.</li> <li> Reinforcement of occupational safety and health management at all levels and establish an active intervention and independent risk management concept.</li> <li> Reinforcement of cross-functional operating systems and procedures to accelerate the elimination of site risks.</li> </ul>	<ul style="list-style-type: none"> <li> There was one contingency and the death rate (per thousand) due to material occupational disasters was 0; the disabling injury frequency rate was 0.10; the disabling injury severity rate was 5.8, which was lower than that of 2016.</li> <li> 235 people's participation in the 7 sessions safety culture consensus camp.</li> </ul>	<ul style="list-style-type: none"> <li> Learning in the Accident: Implementation of 10 improvement plans developed due to the contingency in 2017 in order to eliminate the root cause of the accident and prevent accidents.</li> <li> Handling one session of safety culture consensus camp for management supervisors.</li> <li> Completion of the self-inspection electronic system and integration of the process and maintenance-related inspection functions to improve the operational efficiency of employees.</li> </ul>

2017 Targets	2017 Performance	2018 Targets
<b>Industry Safety Risk Management</b>		
<ul style="list-style-type: none"> <li>📌 Compliance with the laws and regulations, ensuring that the management measures are consistent with the on-site conditions to prevent the regulator from auditing the abnormalities, and gradually improving the quality of chemicals management operations of all units.</li> <li>📌 Reinforcement of the safety and health responsibilities and concepts of employees and contractors to establish a safety and healthy line of defense.</li> </ul>	<ul style="list-style-type: none"> <li>📌 There were no process safety incidents in 2017.</li> <li>📌 Employees' proactive care for the responsibility area and the achievement rate of the implementation of strengthening self-management in high-risk engineering at 90%.</li> <li>📌 The average of abnormalities from the compliance audit per month was 0.96 cases/plant.</li> <li>📌 Declaration of 196 priority chemicals and 0 controlled chemicals (currently not operational).</li> <li>📌 The employee statutory safety and health training included 14 types, and 32 sessions with 1,003 trainees; safety, health and environmental (SHE) propaganda and training included 1,211 rounds and 47,859 trainees.</li> <li>📌 The safety and health training of two access control for contractors consisted of 720 rounds, 2,494 vendors and 31,482 participants (headcount). The total number of employees obtaining safety and health management certificates was 399 people, and 2,176 people obtained professional technical certificates.</li> </ul>	<ul style="list-style-type: none"> <li>📌 Establishment of a near miss management platform and integration of the contingency database to strengthen accident prevention management.</li> <li>📌 Consultation for contractors to manage themselves, establish 14 JSA templates and implement checkpoints.</li> <li>📌 Improvement of the employees' quality of SOP/JSA operations.</li> <li>📌 Supervision of the implementation of chemical assessment, classification management and hazard general plan to avoid chemical hazard exposure in the operating environment.</li> </ul>
<b>Occupational Health Management</b>		
<ul style="list-style-type: none"> <li>📌 Requiring the staff who demands for medical care to regularly return to the hospital and regularly take medicines to effectively control health risks.</li> <li>📌 Monitoring job type and exposure to reduce occupational risk.</li> <li>📌 Proactive identification of employees with high-risk disease for early control and prevent morbidity.</li> <li>📌 Establishment of adequate health-related knowledge and skills for employees to achieve their own health management goals.</li> </ul>	<ul style="list-style-type: none"> <li>📌 Proactive follow-up of 117 staff members with chronic diseases but poor control and working with supervisors to carry out workplace care to check the health of employees.</li> <li>📌 The attendance rate in the special health check was 100% and the abnormal proportion was 0.42%, 0.14% higher than that of previous years. The operation environment monitoring continued in order to fully understand the health risks and the exposure of employees.</li> <li>📌 Doctors' consultation for 227 people in the plant.</li> <li>📌 Reduction of the risk of cardio-cerebrovascular diseases triggered by workload from 1.74% to 1.06%.</li> <li>📌 Proactive identification of 115 employees with hyperlipidemia and 182 with abnormal blood pressure and provision of the follow-up and treatment management in advance for concerned employees.</li> <li>📌 Completion of the self-developed human engineering E-system test.</li> <li>📌 Set-up of 21 sets of i-medical health apparatus to provide employees with independent health management.</li> </ul>	<ul style="list-style-type: none"> <li>📌 Attendance rate in the general or special health check of employees at 100%.</li> <li>📌 Reduction of the abnormal rate of the special health check to 0.35%.</li> <li>📌 Completion of independent blood pressure measurement activities by 60% of the colleagues.</li> <li>📌 Establishment of a referral mechanism with Chang Gung Memorial Hospital in Yunlin to track high-risk staff's medical care and reduce the risk of occupational diseases and health hazards.</li> <li>📌 Application of the i-medical health management E-system to effectively manage employees at high risk for health problems.</li> <li>📌 Continuous promotion of health activities to improve the occurrence rate of employee's industrial injury and sick leaves to achieve self-health management goals.</li> </ul>

## 3.1 Establishment of Industry Safety Culture

### Promotion of Industry Safety Culture

We understand that the Company's perpetual business operation must rely on consistent and stable production performance, and a quality safety culture is an indispensable element in maintaining stable production. In 2003, FPCC set the Company's safety and health policy and established the industry safety culture. The meaning not merely indicates the Company's performance in occupational safety and health, but also the safety performance and atmosphere in all employees' minds, deeds, and corporate environment.



#### Establishment and Focus of Safety Culture Consensus

While we are working hard to promote various Occupational Health and Safety Assessment Specifications (OHSAS 18001) and Process Safety Management (PSM) systems, we would like to fully understand the current status of safety culture. In 2011 and 2016, we conducted two safety culture assessments to explore latent inferiorities and improve for advancement. In order to move further forward, we continue to handle issues and establish consensus at all levels:



According to the annual assessments from 2016 to 2017, 10 issues were selected for further optimization. In order to carry out the operation of the next stage, "Focus and Promotion of Advanced Safety Culture", seven sessions of "Consensus Camp for Building a Safety Culture" were conducted to collect specific opinions from grassroots workers, supervisors, and employees from production, maintenance and transportation/storage departments and practical countermeasures were also discussed.

According to the conclusion of consensus camps, all of the personnel of different sessions agreed that priority should be given to the issue, "Organizational Manpower and Working Stress", in which "Excessive Auditing" and "Complicated Forms of Documents" have been focused. At the current stage, we are reviewing with the on-site personnel to understand the root cause, and then improve in the way of work integration or revision of the system as the direction of the next stage, "Focus and Promotion of Advanced Safety Culture".



## Occupational Injury Statistics, Prevention, Practice, and Follow-up

In 2017, the death rate (per thousand) due to material occupational disasters was 0, the disabling injury frequency rate was 0.10, the disabling injury severity rate was 5.8 and the frequency-severity indicator was 0.02. Compared with the previous year, the number of accidents, the death rate (per thousand) due to material occupational disasters and disabling injury severity rate have all declined, while the frequency-severity indicator was lower than the other similar industries.

Table of Staff Injury Rate over the Past Three Years

Year	Average Annual Labor Force			Total Working Hours and Days		Number of Incidents (Merge)	Total Lost Day	Disabling Injury Frequency Rate	Disabling Injury Severity Rate	Frequency-Severely Indicator
	Male Worker	Female Worker	Total	Total Workdays	Total Working Hours					
2015	4,543	348	4,891	1,210,441	9,994,536	1	6,000	0.10	600	0.25
2016	4,592	374	4,966	1,211,953	10,118,292	2	251	0.20	25	0.07
2017	4,594	379	4,973	1,233,714	10,226,585	1	59	0.10	5.8	0.02

\* SR = (Total Lost Day x 10<sup>6</sup>)/Total Working Hours

\* FR = (Number of Injuries × 10<sup>6</sup>)/Total Working Hours

\* Frequency-Severely Indicator = ((FR\*SR)/1,000)<sup>1/2</sup>

\* Over the past three years, there were all male injury accidents in Mailiao Industrial Complex in Yunlin County. In 2017, the number of people injured at work was one (scald).

\* The statistical staff is FPCC formal personnel.

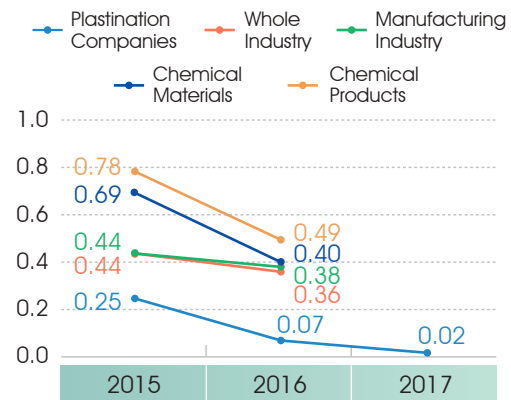


Table of Labor Absence Statistics over the Past Three Years

Year	Labor Absence Data				
	Absence Hours		Total Working Hours	Absence Rate	
	Male	Female		Male	Female
2015	26,715	2,460	9,994,536	0.27%	0.02%
2016	28,728	1,961	10,118,292	0.28%	0.02%
2017	36,879	2,667	10,226,585	0.36%	0.03%

The number of absence hours includes: the total number of hours of public injury leave, hospitalization, sick leave, and non-hospitalized sick leave.

Frequency-Severity Indicator Comparison between FPCC and the Industry from 2015 to 2017



Since the Ministry of Labor has not announced the data of 2017, there is no 2017 industry data.

Table of 2017 Contractor Injury Rate

Year	Total Working Hours and Days		Number of Incidents (Merge)	Total Lost Day	Disabling Injury Frequency Rate (Merge)	Disabling Injury Severity Rate (Merge)	Frequency-Severity Indicator
	Total Workdays	Total Working Hours					
2017	1,703,850	13,630,797	7	89	0.51	6	0.06

- \*  $SR = (Total\ Lost\ Day \times 10^6) / Total\ Working\ Hours$
- \*  $FR = (Number\ of\ Injuries \times 10^6) / Total\ Working\ Hours$
- \*  $Frequency-Severity\ Indicator = ((FR * SR) / 1,000)^{1/2}$
- \* The statistics is for FPCC contractors.

### Occupational Injury Prevention

For each accident, we carefully explore the root cause and develop improvement measures to eliminate the possibility of accident recurrence.

In 2017, there was one employee's occupational injury, in which the operator was accidentally scalded by condensed water when he was working on the abnormal blocked pipe. Through the accident investigation, the reanalysis of hazard factors such as people, materials, equipment and environment revealed that the lack of personnel safety awareness and failure to comply with the standard operating procedures for unblocking the pipeline were the root causes of the accident. Afterwards, the safety promotion has been strengthened to require relevant personnel to comply with the safety regulations.

In 2017, seven occupational injuries from contractors resulted in seven people with disabling injuries, including falling (four people), being struck by flying objects (two people), collision (one person) respectively. We strengthened the safety itself and reduced risks through monthly safety, health and environmental (SHE) notifications, designated trainings, adjustment of operating procedures and experiences sharing.



## Traffic Accident Prevention

The traffic accidents on the way to and from work have always been the main reason for the absence of our employees. As to accident prevention, in addition to the propaganda of accident cases and defensive driving on the industry safety environmental protection day to raise staff's safety awareness, if an accident occurs, except the supervisor's care, materiality of traffic safety with the experience of involved parties will be shared. According to the statistics, there were 21 employee traffic accidents in total in 2017. The number of lost days was 157 days, the lowest over the past three years. It is expected that the traffic accident rate will continue to be reduced under the efforts of all employees.



Experience shared by parties involved in traffic accidents



Propaganda of industry safety environmental protection day

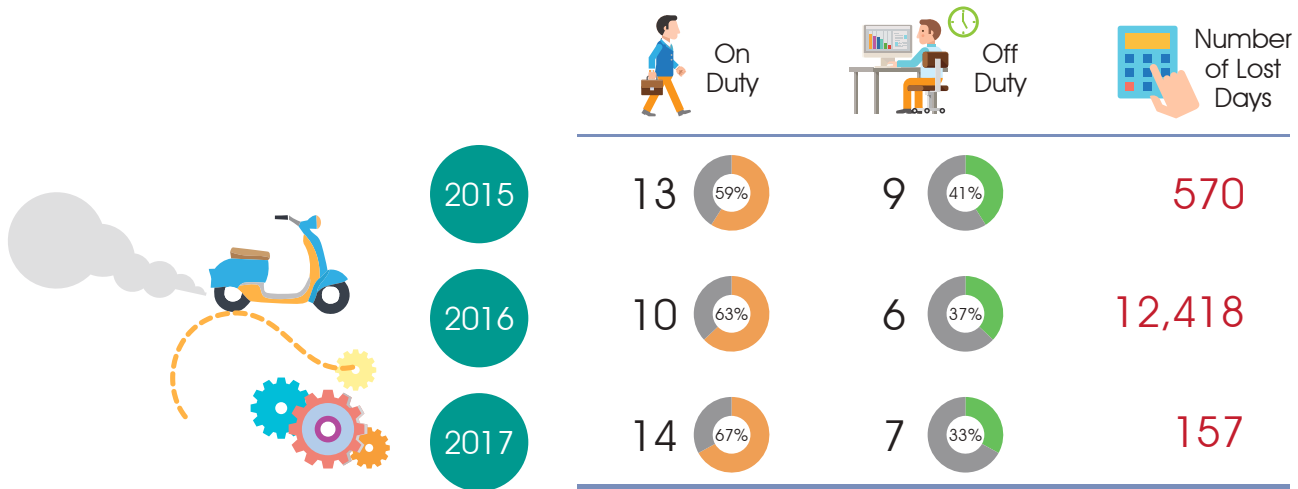


Traffic safety reminder posted on vehicles



Posting traffic safety propaganda poster

Accidents and Loss Days of Employees Commuting to and from Work over the Past Three Years



### 3.2 Industry Safety Risk Management

Responding to GRI Standards: Occupational Safety and Health



Through the training and introduction of international norms, techniques and professionals, we integrate various operational systems and procedures to establish the concept of risk management, implement the classification management of process, equipment and personnel risk, accelerating the elimination of on-site risk.



#### Process Safety Management

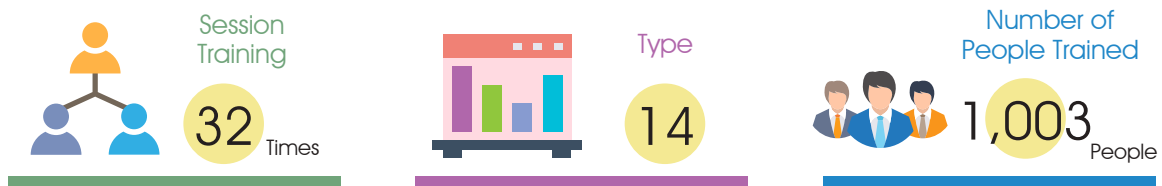
In addition to complying with relevant government laws and regulations, the production process, equipment and personnel management are carried out under the concept of "Risk Management". Reference is also made to the relevant technical documents published by the Occupational Safety and Health Administration (OSHA), American Institute of Chemical Engineers (AIChE), Center for Chemical Process Safety (AIChE) to establish norms.

For process safety incidents in 2015-2017 where there were no operational activities, such as process safety incidents. We had a team of experts from various fields to confirm the truth and the reasons, as well as bringing up all levels of improvement measures for hardware (equipment, maintenance, etc.) and software (personnel training, technical improvement, etc.). At the same time, the various measures were carried out in all plants and we tracked until the completion of the improvement.

## Professional Training and Certification of Employees and Contractors

### Staff Statutory Safety and Health Training

The Company regularly commissions training institutions approved by the Central Authorities to organize statutory safety and health trainings, aimed at strengthening employees' awareness of industrial safety, including occupational safety and health supervisors and grassroots operators. This ensures that our employees have professional knowledge and skills and are able to proactively explore potential hazards while operating and prevents them in advance to reduce operational risks. From 2015 to 2017, 32 sessions of trainings covered 14 categories with a total of 1,003 trainees.



### Employee Safety, Health, and Environmental (SHE) Propaganda and Training



In 2017, a total of 1,211 rounds were conducted for corporate/company rules and regulations, occupational safety and health related laws, hazard general education, personal protection/first-aid equipment operation, traffic safety, contingency cases, emergency response drills, health lectures, etc. The number of trainees was 47,859 people.



### Employee Professional Certification

In order to improve the professional ability of employees, the technical training center of the general administration division organized seven major categories of operation certification, including process operators, mechanical engineers, safety and health management personnel, environmental protection management personnel, pollution prevention personnel, firefighting management personnel, and process safety management personnel. In 2017, the number of certified people was 602.



### Training Programs for Contractors

Before the contractor's construction personnel enters the plant, they must pass the safety and health training and test (one access control) organized by the enterprise. If they want to enter the construction area of the Company (two access controls), they need to pass "Safety and Health Training" organized by various business departments, which allows them to obtain official construction qualification.

In 2017, 720 rounds of trainings in two access controls were held with a total of 2,494 contractors and a total of 31,482 participants.



### Contractor Certification

#### 1. Safety and Health Management Personnel Certification

In order to strengthen the self-management of the safety and health management personnel of the contractor, the Enterprise's technical training center has organized certification programs since September 2013. 399 trainees completed the training and were certified in 2017.





## 2. Professional Technical Certification

In order to improve the professional skills and standards of the contractor's construction, the Enterprise's technical training center has handled professional technical certification programs such as scaffolding set-up/removal, general machine disassembly/assembly for moving to another production line, bolt disassembly/assembly, control valve repairs/maintenance, electrical panel repairs and maintenance, general instrument calibration, connecting lead repairs and maintenance, painting, electric welding, insulation, steel, piping, etc. 2,176 people were certified in 2017.

## With reference to Japanese experiences to build the Company's case database.

In order to improve the operation safety of front-line employees, two books titled, "Simple and Easy to Understand Production Site Safety Management -128 Key Words for Safety and Stability" and "Key Words for Safety and Stability PLUS 101" were introduced from The High Pressure Gas Safety Institute of Japan in 2013 and 2015 respectively for various departments' training. We referred to the experiences and sharings from Japan and the United States' Center for Chemical Process Safety (CCPS) and Process Safety Beacon, we completed the Company's 122 training materials for occupational injuries, material anomalies and near miss, from 2010 to 2017, and placed at the Company's internal sharing platform for trainings at any time.

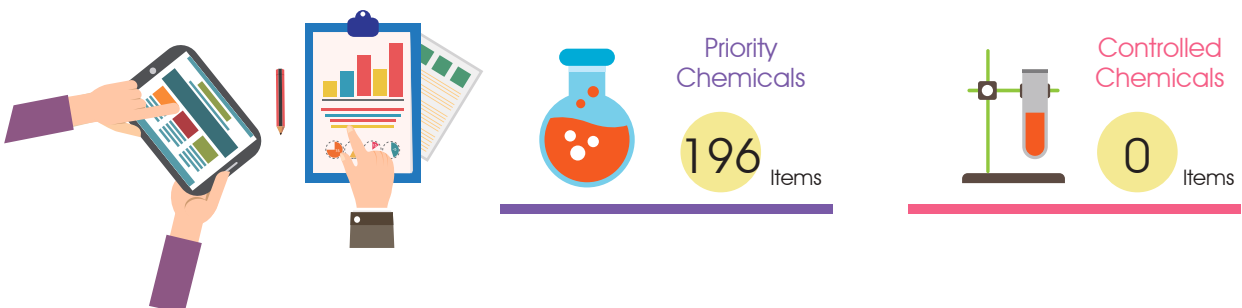
### Hazard Identification and Prevention




災害 原因	加工機系統表若基礎四腳螺絲鬆動，可調整的止取螺絲成垂直
事故 描述	10名/10名人員因取螺絲口位過快，導致V-600自平衡加工機螺絲加工機工後螺絲鬆動，螺絲鬆動後螺絲脫落，造成加工機傾倒，有3名操作人員受傷
改善 措施	1. 改進所有加工機工後，表若基礎四腳螺絲工作取螺絲，五螺絲，表後物管理，螺絲螺絲口位人員出入螺絲檢查等。
學習 建議	1. 加工機工後後，改進有人員應會同取螺絲口位取螺絲，應再有人檢查螺絲，螺絲檢查。

## Management of Chemicals

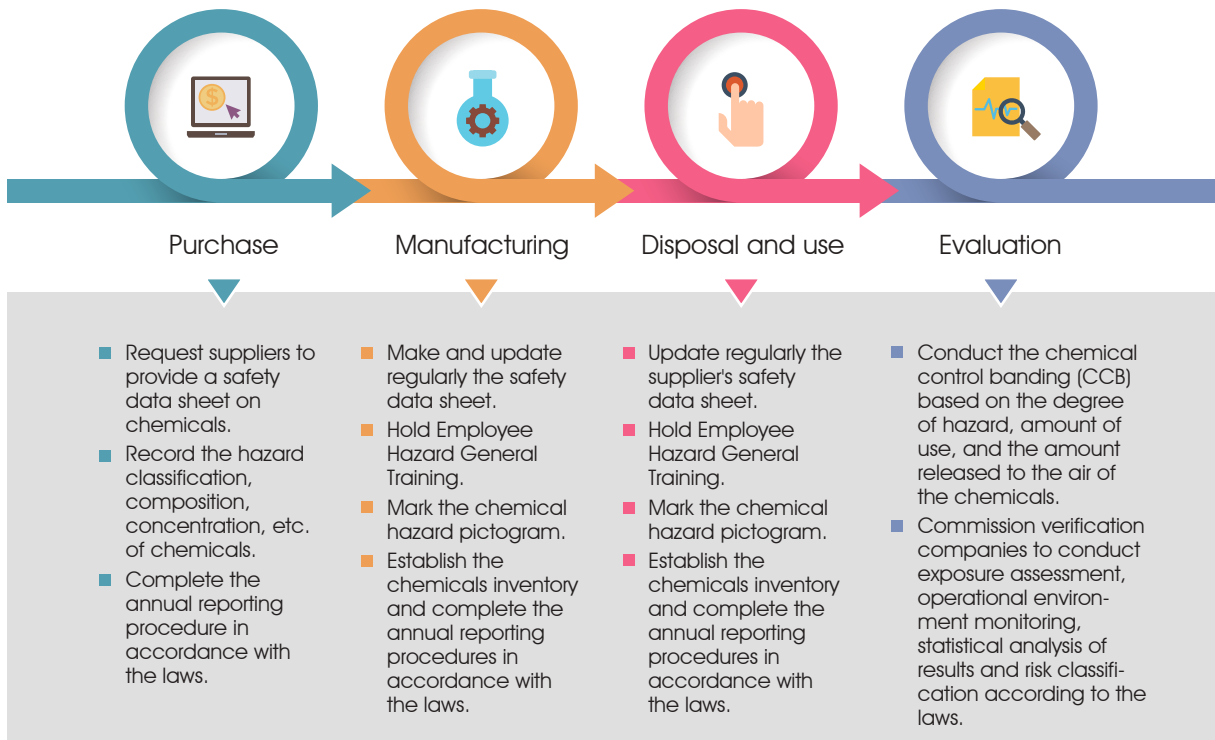
### Purchase, Manufacture, Disposal and Use of Chemicals



Priority Chemicals: 196 Items

Controlled Chemicals: 0 Items





## Transportation Safety

### Statistical Analysis on Accident

As to the statistics of transportation accidents over the past three years, from 2015 to 2017, the number of accidents was 1, 2, and 0 respectively. In addition, the number of accidents per million kilometers was 0.11, 0.23 and 0. The number of accidents in transportation companies was lower than that in Taiwan.

	Number of Accidents	Number of Accidents Per Million Kilometers <sup>1</sup>	
		Transportation Company	Taiwan
2015	1	0.11	3.69
2016	2	0.23	3.66
2017	0	0	3.33

According to the statistics announced by Department of Statistics, Ministry of Transportation and Communications, we multiplied the number of road accidents by the ratio of the number of large trucks to the number of vehicles registered, and then divided by millions of kilometers travelled by vehicles to get the number of accidents per million kilometers in Taiwan.



## Promotion of Driving Safety Improvement Measures

In order to ensure road traffic safety and reduce the number of accidents, we require our transportation company (Sixth Naphtha Cracker Transport) to improve personnel training and equipment upgrades. We hope to maintain zero accidents, reduce the risk of harm to passersby and fulfill social responsibilities.

Personnel Training: We organized propagandas on traffic regulations, accident case study and emergency response drills to expect that drivers maintain a high level of safety awareness, create a friendly atmosphere and provide correct cognition through interactions with the public during activities.



Observation activities on the transportation safety of hazardous goods



Emergency response drills for tank truck accidents

Equipment Upgrade: In order to enhance the emergency response capability, the Sixth Naphtha Cracker Transport introduced two new road rescue vehicles from OMARS, Italy with malfunction towing and crane functions, shorten the emergency response time and help the transportation industry.



Participation in national toxic chemical substance disaster prevention drills

## Self-management

### Self-management of Employee Responsibility Area

In order to assist colleagues in implementing self-inspection of the personal responsibility area, we promoted the establishment of self-inspection PDA intelligent patrol management system, integrated different functions to inspect and record the inspection process, reduced the equipment for repeated recording of completed inspection, and let colleagues have more spare time to focus on other tasks. On the other hand, by electronically patrolling records, it is convenient for supervisors to understand the progress of improvement, arrange the schedule for the equipment that needs repair in priority sequence, and plan the repair period early to reduce the risk of failure.



## Contractor Operation Self-management

In order to strengthen the contractor's self-management ability and promote the professional reinforcement of full-time safety and health management personnel in high-risk engineering, in addition to obtaining the relevant licenses of statutory industry safety, it is also necessary to obtain the certification of Enterprise's technical training center and wear the identification vest.



In order to encourage contractors' construction personnel to pay attention to the operation safety, in addition to promoting the immediate rewards for the excellent performers during the regular inspection, the plant directors publicly praise and award the rewards to excellent colleagues at the toolbox meeting to stimulate morale and improve construction safety.



## Self-management of Employee Operation

We promoted the on-site inspection of the inspectors. Inspectors took the initiative to care about the safety of the construction work in the responsibility area. If it is found that contractors' construction personnel have unsafe behaviors or violations, the inspectors will immediately take the initiative to intervene and correct them, so as to urge the contractors to implement self-management and gradually establish the safety culture across the Company and the plant.



## Operational Safety Management

### Promotion of Contractors' Full-time Safety and Health Management Personnel in High-risk Engineering

For high-risk projects such as tower troughs/heat exchanger demolition, tank cleaning, catalyst loading and unloading, and equipment pipelines in flame operation, the representative of the contractor is required to designate the HSE staff who has relevant industrial safety licenses, accepted industrial safety trainings organized by the Enterprise and passed the certification exam to station at the site during the construction period to conduct safety and health operation supervision and management, ensuring the safety of the construction personnel.



The Company also audits its execution process of the operation content, the degree of hazard and self-examination, and interviews the personnel who found the abnormality to help improve the safety and health management capabilities. In 2017, there were 117 audited cases with 11 abnormalities found. The execution compliance rate was 90.6%.



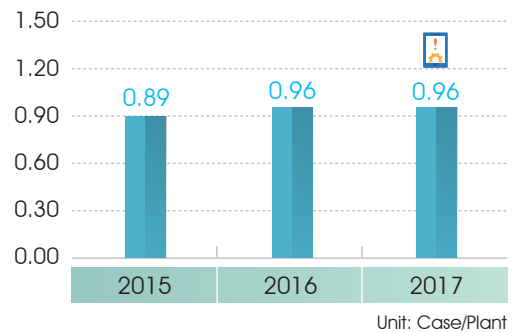
### Compliance Auditing

Through monthly, semi-annual or irregular audits, the Company confirms the implementation effectiveness and compliance of all units in safety and health systems (eg. OHSAS18001), process safety management, contingency investigation, general safety and health management, automatic inspection, workplaces, equipment, safety protection and hazard management of the hazardous machinery and equipment, contractors, chemicals, and operational environment management.

1. Monthly Compliance Audit: Regarding on-site safety management of each unit, the average number of audited anomalies in 2017 was 0.96 cases/factory, and the average number of audited abnormalities over the past 3 years was 0.93 cases/plant.

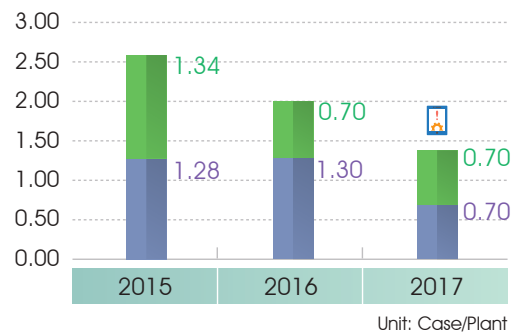
Year	2015	2016	2017	Total
Number of Anomalies	40	44	43	127
Number of Entry into Plant	45	46	45	136
Number of Anomalies / Plant	0.89	0.96	0.96	0.93

Number of abnormalities / Plant



2. Compliance Audit Every Six Months: The number of abnormalities in the implementation of the management system in 2017 was 0.7 cases/plant and on-site operation management abnormalities was 0.7 cases/plant, which has been decreasing compared with the previous two years.

Year	Case / Plant		
	2015	2016	2017
Number of Abnormalities In The Implementation of the Management System	1.28	1.3	0.7
Number of Abnormalities in On-site Operation Management	1.34	0.7	0.7
Total	2.62	2	1.4

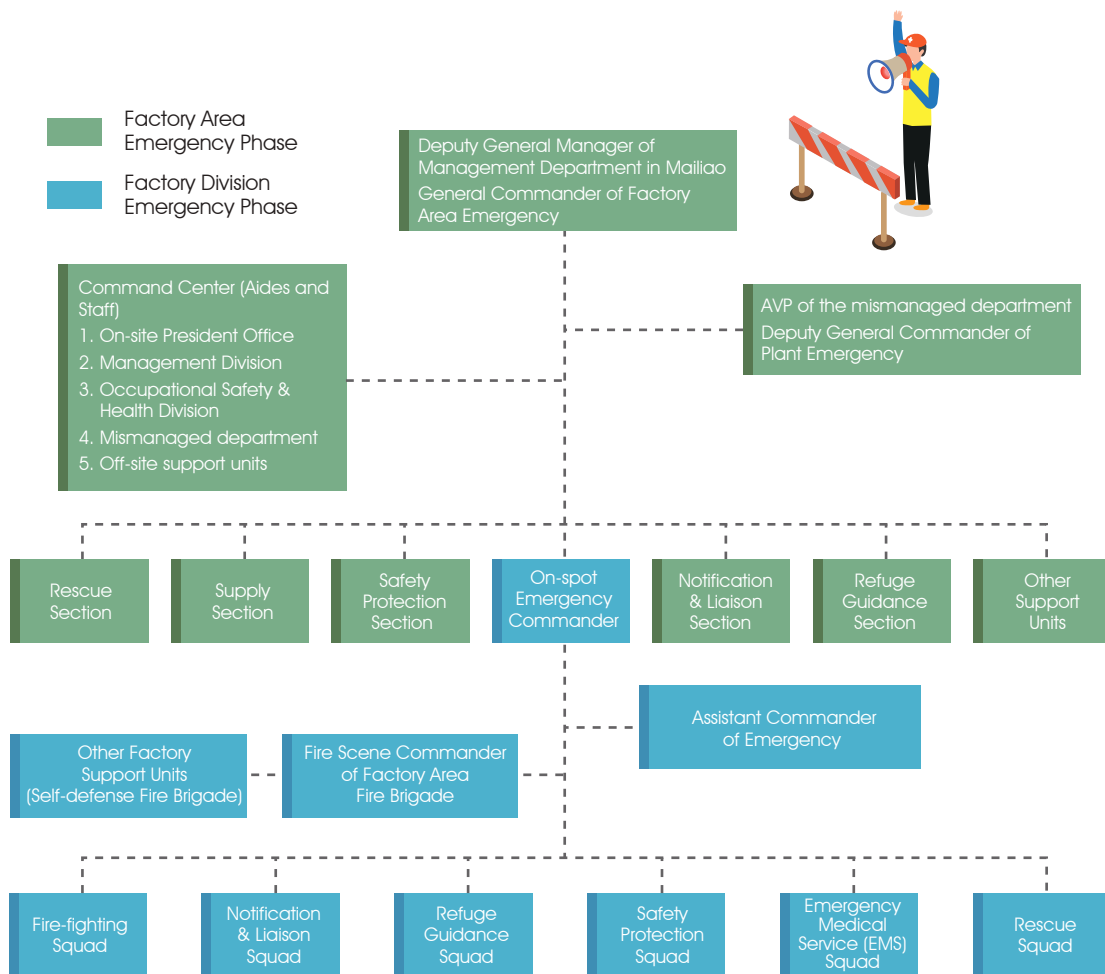


### 3.3 Emergency Response and Drills

#### Emergency Response Management System

We ensure that the emergency can be disposed quickly and effectively, so that the damage caused to the personnel, property and environment by the emergency is minimized, and the various response operations are performed at two stages.

Organization Chart for Factory Area Emergency Measures

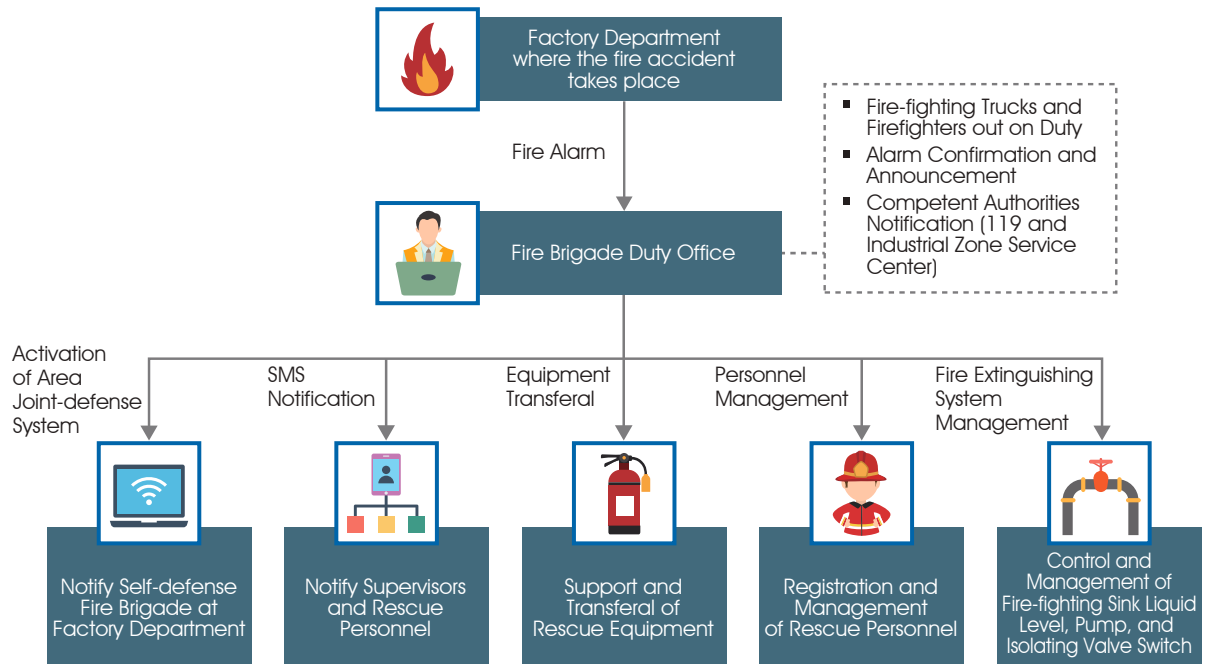


#### Plant Area Joint Defense Organization

FPCC has divided the plant into four regional joint defense responsibility zones according to the regional and plant differences. Each zone has a self-defense fire brigade with a total of 424 people. If the process plant encounters an emergency, they can immediately activate "Fire Fighting Zone Joint Defense Computer Notification System" to inform the self-defense firefighters in the corresponding area to follow the command of the designated fire brigade of the plant and participate in the disaster relief work.



In order to respond to emergency situations and management, all control rooms of each plant are equipped with "Fire Fighting Zone Joint Defense Computer Notification System", which can issue fire alarms and call for disaster relief supports from various plants. The functions are as follows: fire alarm release, self-defense fire brigade personnel convention, briefing notification, disaster relief equipment support, disaster relief personnel management, fire pump notification and management.



### Shift System of Emergency Response Group

If an emergency situation happens, operators on duty can perform response operation within the shortest time. At shift handover at each plant, the supervisor on duty will assign the operator to be in charge of any response organization work according to the manpower demand for the emergency first response and include them into the shift handover working items to implement response grouping and get hold of manpower.

### Staff Training

In order to enable the on-site personnel to understand and be familiar with the steps, methods, techniques and disposal measures of emergency response, the training content at all levels will be scheduled, and the on-site response ability will be continuously improved from the shallower to the deeper.

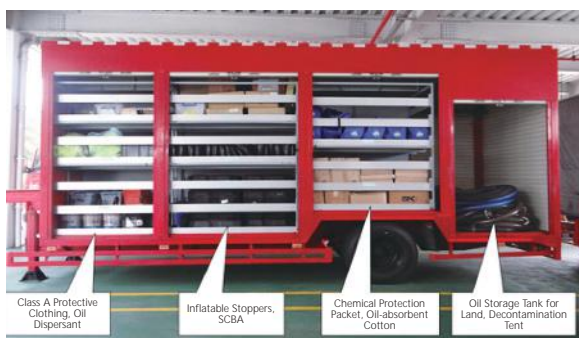
Category of training	Training items	Training objects	Training frequency
Level 1 General level	Basic concepts of firefighting and notification measures	New employees	Report on duty

Category of training		Training items	Training objects	Training frequency
Level 2	Operational level	Portable fire extinguisher and smoke room training	Direct employees	Once every two years
			Indirect employees	Once every four years
Level 3	Technical level	Self-defense fire brigade training (including fire hose, mobile turret wading operation, etc.)	Self-defense fire brigade personnel trainees	Once every half year
		Self-defense fire brigade regular training (various equipment and large flow turret equipment operation, etc.)	Current personnel of the self-defense fire brigade	Once every quarter
Level 4	Professional level	Professional training in various firefighting equipment and vehicle operations	Full-time fire brigade	Once every month
Level 5	Response commander level	Various emergency response command operation training	Full-time fire brigade cadres and on-site supervisors at all levels	Irregular

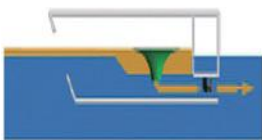
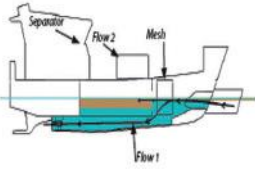
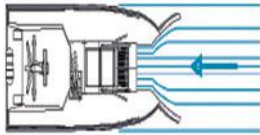
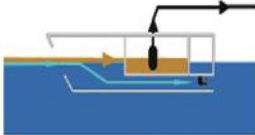




## Fire Fighting Vehicles and Disaster Relief Equipment

There is plant fire brigade in the industrial complex, and a total of various 30 firefighting rescue vehicles, foam liquid and various disaster relief equipment are prepared. It contains large-flow turret equipment per minute to effectively extinguish large tank fire. 10,000 gallon.

In addition, there are chemical disaster-resistant vehicles equipped with various chemical protection equipment, (Class A protective clothing, Class C protective clothing, chemical protective bags, etc.), decontamination equipment (decontamination sheds, onshore oil storage tanks, etc.), and leakage prevention equipment and so on, which can be used by on-site response personnel.



In addition, in response to marine pollution, the Company purchased "Mailiao Ocean", the first decontamination ship in Taiwan and was manufactured by French (ECOCEANE) shipyard. The decontamination ship is made of aluminum alloy, lighter compared to the steel structure. It also has the characteristics of non-sparking collision, superior in safety. Additionally, the patented water flow tunnel system technology is used to draw the oil from the sea surface into the ship and physically separate the oil and water to replace the traditional oil skimmer.

1.Pollution removal theory	2.Pollution action	3.Floating arm	4.Oil storage and transportation
			
<ul style="list-style-type: none"> <li>■ The hull and waterflow tunnel design may allow oil, water flow in the ship automatically</li> <li>■ Collect recyclable oil with purification 99% without emulsification</li> </ul>	<ul style="list-style-type: none"> <li>■ The floating oil on sea may flow in the ship as driven by the turbine.</li> <li>■ There is grid filtering hurdle in front of tank to block the solid waste                             <ul style="list-style-type: none"> <li>● Flow 1: clean water flow underneath</li> <li>● Flow 2: floating oil on top flow in the recycling oil tank (tank size is 150m<sup>3</sup>)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ The floating arm may swing freely along the wave, and the pollutant on surface may easily be rolled in the ship by two arms. The recycling width may reach 6.5m                             <ul style="list-style-type: none"> <li>● The ship speed may reach 4-5knot in operation</li> <li>● The operation may resist wind under Beaufort Scale 6</li> <li>● Recycle volume per hour: 120m<sup>3</sup></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ To improve the continues working effect of oil removal ship, the floating oil may be pumped directly to the oil transportation vessel for storage without treatment after the oil tank is filled.</li> </ul>
			

## Emergency Response Drill Plan

"Emergency Response" is the last line of defense of safety. FPCC attaches importance to every drill and plans emergency response drills with rigorous attitudes beyond the regulations. In addition to the emergency response drills conducted by each plant every half year, Mailiao Industrial Complex handles joint drills, poisoning disaster drills, public area pipe rack drills, safety promotion association joint expansion drills, marine pollution drills and irregular drills in line with relevant drills organized by government agencies. In 2017, a total of 199 emergency response drills were conducted.

Drill type	Statutory frequency (annual)	Actual execution frequency (per year)	Remark
Marine pollution drill	3	9	The industrial port of Mailiao Industrial Complex jointly conducted regular drills with the government disaster relief units annually.
Safety promotion association's joint expansion drill	No regulation	2	The emergency response drills jointly handled by the joint defense organizations of Mailiao Industrial Complex will provide a tacit understanding of mutual support and disaster relief among various joint defense organizations.

Drill type	Statutory frequency (annual)	Actual execution frequency (per year)	Remark
Public area pipe rack drill	No regulation	4	For the joint drill of the public area pipe racks in Mailiao Industrial Complex, the pipeline owners and neighboring plants cooperate with one another and respond.
Poisoning disaster response drill	8	24	The response drills handled by toxic chemicals operation plant mainly strengthen on-site poisoning disaster response process training, including notification, hazardous area division, environmental concentration monitoring, and personnel decontamination.
Plant emergency response drill	46	160	Emergency response drills are held every six months according to the laws. The focuses of the drills include initial response, evacuation of unrelated personnel, accident rescue, and injury rescue to enhance the on-site response abilities.
Total		199	

### Marine pollution drill



2017 Yunlin County toxic chemical substance disaster Response and Mailiao Industrial Complex safety promotion association's joint expansion drill

Pipe rack drill in public area

### 3.4 Occupational Health Management



#### Responding to GRI Standards: Occupational Safety and Health

In compliance with the requirements of the occupational safety law, we use the results of scientific health risk evaluation to implement case management and tracking, and work in a systematic manner through cross-department cooperation to promote cardio-cerebrovascular diseases prevention, improvement of human-factors engineering assessment, epidemic prevention, first-aid and many other occupational health management projects.

### Employee Occupational Disease Prevention and Management

#### Special Hazardous Operations

The Company's statutory special workplaces include 13 items: high temperature, noise, ionizing radiation, carbon disulfide, dimethylformamide, n-hexane, etc., and physicians regularly go to the plant with supervisors, colleagues, nurses and safety and health personnel to conduct assessment of the relevance between the health of employees doing special operation and the workplace. We made preventive work adjustments or proceeded competency assessments for 64 people, depending on the situation. A total of 163 people accepted general sick/injury consultation and trainings. In addition, registered nurses conducted classification management and tracked 593 people according to the results of the examination.

Due to the familiarity of colleagues in the doctors' service and their raising awareness of self-health management, the number of people who has accepted the service has increased year by year since 2013. In 2017, the abnormality of special health check increased by 0.14 compared with the previous year. We continue to prevent the possibility of occupational diseases through health check tracking, personal health care and environmental monitoring. Among them, the fourth-level management personnel (related to work) are all colleagues engaged in noise operations. We introduced new personal protective device (3M Peltor cap-type headphones with communication function and soundproof earmuffs integrated with MOTOROLA connector) to reduce the hazard caused when the personnel remove traditional earmuffs due to the communication. The hazard control is to reduce the exposure probability of four-level administrative staff. By 2017, the attendance rate in special health check for colleagues is 100%. So far, no occupational disease cases have occurred.

Items		2015	2016	2017
On-site physician service	Number of people under preventive work adjustments or competency assessment	24	54	64
	Number of people involved in general sick/injury consultation and trainings	52	153	163



Items	2015	2016	2017
The registered nurse conducted classification management and the number of people tracked according to the results of examination (abnormalities found in special health check).	658	540	593
Total number of annual special health check	1,367	1,443	1,413
Number of people in the first level management	709	903	814
Number of people in the second level management	653	536	593
Number of people in the fourth level management	5	4	6
Ratio of abnormalities in special health check (number of people in the fourth level / total number of people)	0.37%	0.28%	0.42%

## Prevention and management of cardio-cerebrovascular diseases due to work

Since 2014, there has been analysis data for a total of 6,288 people for 4 years. In 2015, the E-evaluation system was completed. Colleagues could receive their own health risk evaluation report and professional advice from registered nurses. In 2017, we continued to track people who are subject to high-risk diseases caused by workload through one-on-one consultation with occupational medicine doctors and health education, and managed cases by adjusting work style based on situations. After re-evaluation, the high-risk personnel are currently reduced from 1.74% to 0.98%. Through continuous case management and health promotion activities, employees' cardio-cerebrovascular disease risk was reduced.

Low Risk ■ Medium Risk ■ High Risk ■ Unit: Personnel (%)

Cardio-cerebrovascular diseases triggered by work		Workload		
		Low load	Medium load	High load
Occurrence rate of cardio-cerebrovascular disease within ten years	< 10%	739(56%)	246(19%)	56(4%)
	10~20%	191(15%)	42(3%)	11(0.83%)
	≥ 20%	29(2%)	2(0.15%)	0

## Other first-aid, health education and health promotion plans:

### Emerging infectious epidemic prevention and health education

We proactively cooperated with local health clinics and the Mailiao office, the third branch of Centers for Disease Control to carry out a series of activities such as the prevention of emerging infectious diseases prevention and control of dengue vector mosquitoes in the Company. Besides monthly notification of safety and health, and regular and irregular infectious disease prevention and health education propaganda in employee health care center, in 2017 we cooperated with "I-medical Health Network" of Formosa Biomedical Technology Corporation to introduce audio-visual preventive medicine knowledge.





 **Regularly Retraining for First-Aid Personnel**

In order to grasp the golden hour of emergency, we have 511 EMT-1 in Mailiao Industrial Complex, in addition to assigning one statutory first-aid personnel out of every 50 employees according to occupational safety laws. To maintain the validity of professional licenses and first-aid professional skills, each person is required to complete 8 hours of rescue retrainings every year to guard the lives of employees and contractors.

In addition, we have 31 sets of Automated External Defibrillator (AED) and all staff completed Cardiopulmonary Resuscitation (CPR) and AED operation training. In 2017, 37 CPR and AED retraining courses were continued. We also prepared hydrogen sulfide antidote with a total of 276 absorbers and 23 groups of injections on site and in adjacent hospitals with chemical disaster first-aid capabilities.



CPR and AED training



CPR and AED training



Emergency medical technician training level 1



Emergency medical technician training level 1

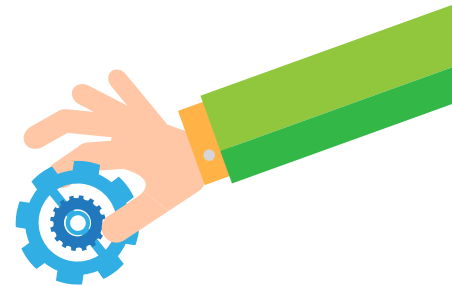
# 4

## Local Cultivation: Practice

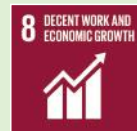
- Relevant stakeholders:  
employees, residents of operational bases,  
and government agencies
- Material issues:  
employee profiles and benefits,  
occupational health and safety,  
development and communication of local  
communities

## Chapter Summary

FPCC has always spared no effort in employee care, local community feedback and ecological conservation. In addition to providing employees with good salary and benefits, education and training, communication channels and friendly measures, we further care for employees' physical and mental health and provide assistance while strengthening the construction of care protection network for employees to create a healthy and happy caring culture. On the other hand, it provides local residents with health promotion, traffic improvement and environmental education, and substantially subsidizes local public welfare activities to increase the participation rate of residents to achieve the vision of a family in a plant.



The United Nations Sustainable Development Goals (SDGs)



- ✚ Employee health promotion and construction of care protection network.
- ✚ Expansion of social participation and enhancement of living environment standard of residents.

- 🏠 Friendly Workplace.
- 🏠 A Family in a Plant.

2017 Targets	2017 Performance	2018 Targets
Consolidation of internal relationship		
<ul style="list-style-type: none"> <li>🏠 Improvement of workplace environment                             <ul style="list-style-type: none"> <li>➤ New-built employee dormitory with 966 additional bedrooms for the staff.</li> <li>➤ Addition of an indoor activity center and gym.</li> </ul> </li> <li>🏠 Employee health life challenge competition.                             <ul style="list-style-type: none"> <li>➤ 95% participation rate of employees meeting the obesity criteria.</li> <li>➤ Reduction in the number of employees with abnormal blood pressure by 10%.</li> </ul> </li> <li>🏠 Employee turnover is below 3%.</li> </ul>	<ul style="list-style-type: none"> <li>🏠 Improvement of workplace environment                             <ul style="list-style-type: none"> <li>➤ Groundbreaking in 2017.</li> <li>➤ Groundbreaking in 2017.</li> </ul> </li> <li>🏠 Employee health life challenge competition.                             <ul style="list-style-type: none"> <li>➤ 83% participation rate of employees meeting the obesity criteria (Not Achieved).</li> <li>➤ Reduction in the number of employees with abnormal blood pressure by 39% (Achieved).</li> </ul> </li> <li>🏠 Employee turnover was 1.92% (Achieved) .</li> </ul>	<ul style="list-style-type: none"> <li>🏠 Improvement of Workplace Environment                             <ul style="list-style-type: none"> <li>➤ Under construction, it is expected to be completed by 2020.</li> <li>➤ Under construction, it is expected to be completed by 2020.</li> </ul> </li> <li>🏠 Employee health life challenge competition.                             <ul style="list-style-type: none"> <li>➤ 95% participation rate of employees meeting the obesity criteria.</li> <li>➤ Reduction in the number of employees with abnormal blood pressure by 40%.</li> </ul> </li> <li>🏠 Employee turnover is below 3%.</li> </ul>

2017 Targets	2017 Performance	2018 Targets
Improvement of external relationship		
<ul style="list-style-type: none"> <li>Preparation of Mailiao education park (library and activity center).</li> <li>9,500 villagers' free health check (headcount).</li> </ul>	<ul style="list-style-type: none"> <li>Under planning.</li> <li>9,928 villagers' free health check (headcount).</li> </ul>	<ul style="list-style-type: none"> <li>Groundbreaking in 2018; it is expected to be completed by 2020.</li> <li>9,500 villagers' free health check (headcount).</li> </ul>

## 4.1 Employee Composition and Structure



### Structure of Manpower

In 2017, the number of FPCC employees was 5,179 with an average age of 40. Due to its industrial characteristics, the proportion of men and women was about 12:1, of which employees at the age between 40 to 49 were the most common and employees with a college degree or above were around 66%. Employees' positions below grassroots supervisor and those who work in central Taiwan accounted for about 80% respectively with an average of 12.2 years of seniority, showing the trust from employees in FPCC and their willingness to grow with the Company. We let senior colleagues play the role of carrying on the past heritage and opening up the future and continue to include the new blood as the source of organizational innovation, practicing the Company's perpetual business operation from the structure of manpower.

In 2017, the regular staff accounted for 96.6%, non-regular staff (such as consultants, contract staff, work-study students, and directors) accounted for 3.4%, and the number of employed regular staff increased year by year, in which 100% of employees were nationals.

#### Ratio of regular to non-regular staff over the past three years

Unit: People

Personnel	2015			2016			2017		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Regular staff (A)	4,543	348	4,891	4,592	374	4,966	4,616	386	5,002
Consultant	12	2	14	10	2	12	8		8
Contract staff	137	35	172	120	27	147	110	22	132
Work-study student	16	11	27	16	4	20	26	4	30
Director	7	1	8	7	1	8	6	1	7
Subtotal of Non-regular Staff (B)	172	49	221	153	34	187	150	27	177
Total (C=A+B)	4,715	397	5,112	4,745	408	5,153	4,766	413	5,179
Regular Staff Ratio (A/C)	95.7%			96.4%			96.6%		

The Company continued to carry out innovative organizational management and streamlined composition and structure. In 2017, 96 regular employees resigned from their positions (including 23 retirees) and the turnover was 1.92%. Over the past three years, the turnover of the regular staff maintained below 3%. Compared with the other enterprises within the petrochemical industry, it is significantly lower, showing the effectiveness of our commitment to personnel care and job security, as well as the trust and recognition of the personnel in the Company.

#### The age distribution of FPCC former regular staff

The age distribution of FPCC former regular staff						Average turnover of the industry in Taiwan
Year	Age group	Male		Female		Petroleum and coal product manufacturing
		Number of people	The ratio of the number of people to the total number of people	Number of people	The ratio of the number of people to the total number of people	
2015	Below 29 years old	28	0.57%	3	0.06%	12.2%
	30-39 years old	41	0.84%	11	0.22%	
	40-59 years old	20	0.41%	0	0%	
	Over 60 years old	30	0.61%	0	0%	
	Subtotal	119	2.43%	14	0.29%	
2016	Below 29 years old	24	0.48%	6	0.12%	8.7%
	30-39 years old	28	0.56%	7	0.14%	
	40-59 years old	19	0.38%	0	0.00%	
	Over 60 years old	20	0.40%	0	0.00%	
	Subtotal	91	1.83%	13	0.26%	
2017	Below 29 years old	31	0.62%	3	0.06%	7.9%
	30-39 years old	23	0.46%	6	0.12%	
	40-59 years old	16	0.32%	0	0%	
	Over 60 years old	17	0.34%	0	0%	
	Subtotal	87	1.74%	9	0.18%	

Note: Source of industry data: Directorate General of Budget, Accounting and Statistics (time series data inquiry - exit rate)

The recruitment of FPCC has always been based on the principles of fairness, impartiality and openness, and has never employed child labors to work. Enrollment sources are expanded through multiple channels, and candidates are selected according to performance without differential treatment based on factors like age, ethnicity, gender, sexual orientation, religion, partisanship, birthplace, marriage, appearance, physical and mental disabilities or past union membership. In 2017, a total of 131 new regular staff members accounted for 2.62% of the total number of people. The age of newcomers was mostly below 29, accounting for 2.10%.



## Age distribution of new regular staff in 2017

Type	Group	Male		Female	
		Number of People	The ratio of the number of people to the total number of people	Number of People	The ratio of the number of people to the total number of people
Age	Below 29 years old	94	1.88%	11	0.22%
	30-39 years old	20	0.40%	5	0.10%
	Over 40 years old	1	0.02%	0	0%
	Subtotal	115	2.30%	16	0.32%

After the recruitment, all employees' promotion, evaluation, training, rewards and punishments, etc. are clearly regulated for them to enjoy fair play. In 2017, there was no incident of discrimination or violation of human rights and forced labor. Over the past 3 years, the proportions of the employment of disabled colleagues had been in line with People with Disabilities Rights Protection Act, which must not be less than 1% of the total number of employees.

## Parental Leave

In line with government policies and the principle of caring for the employees, we promote parental leave project. For the implementation of the concept of a happy workplace, we set up a nursery room in the plant to create a friendly office environment to provide colleagues with the need of breast feeding or milk collection during working hours. We also provide nurturing leave according to the law. Eligible employees may adjust their working hours based on their needs of nurture. In 2017, the rate of reinstatement was 100%, and the retention rate was 100%.

Unit: Person

Handling Status	2015			2016			2017		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Actual number of applicants for parental leave	4	1	5	3	7	10	3	0	3
Number of employees expected to be reinstated of the year (A)	3	1	4	2	0	2	3	2	5
Number of applicants for reinstatement of the year (B)	1	1	2	2	0	2	3	2	5
Reinstatement rate% (B/A)	33%	100%	50%	100%	-	100%	100%	-	100%
Retention rate	100%	100%	100%	100%	-	100%	100%	-	100%

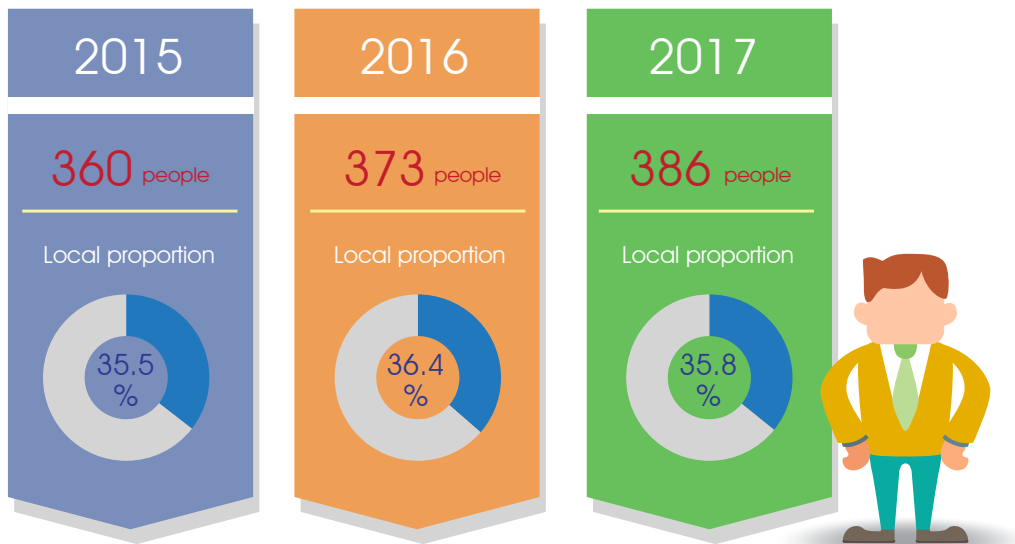
Note: 1. "Retention Rate" refers to the rate of employees whose retention period is over one year after having parental leave without salary and reinstatement.

2. Retention Rate Formula: Number of employees still in service for 12 months after having parental leave / number of employees reinstating after finishing parental leave during the last reporting period x100



## Local Employment

FPCC's recruitment of new grassroots staff is based on the principle of giving back to the local and giving priority to local residents. We also actively train local residents to become excellent administrative cadre. Over the past three years, the proportion of local residents employed as senior executives (secondary supervisors or above) has maintained at over 35%, showing our concern and practical deed on local development.



## Performance Management & Education and Training



### Performance Management

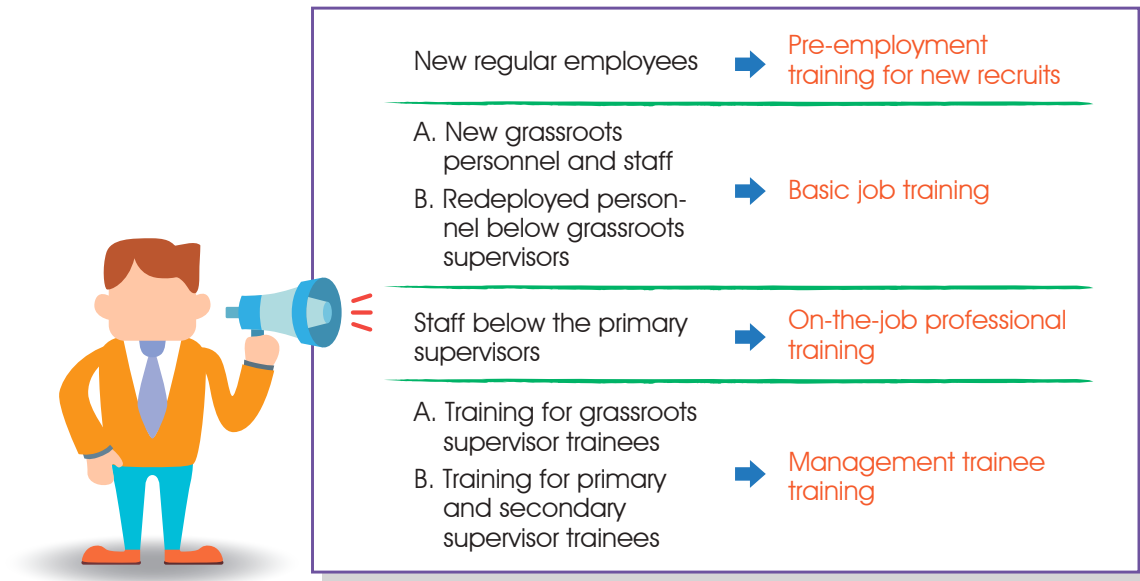
The performance management system allows supervisors and personnel to review annual work performance to set appropriate work targets. Supervisors provide guidance and assistance for employees at any time through ordinary inspections. At the same time, with a complete training system, they provide the knowledge and skills required for positions, and plan a blueprint of the future career for personnel.

The performance evaluation scope includes all the personnel's monthly regular performance appraisal results as the benchmark of the issue of efficiency bonuses, which will be, at the end of the year, summarized as a reference for supervisors' evaluation to ensure the objectivity of performance appraisal. For employees with excellent performance, in addition to providing opportunities and channels for the promotion and salary adjustment each year, we issue year-end bonuses based on the Company's business performance and individual performance rating. Through performance management, supervisors are able to ensure that the personnel follow the Company's goals, review and evaluate personnel's ability, and further create a win-win goal for both the Company and individuals.

## Trainings

Through E-training management system and completion of various training step by step, currently the training system can be divided into pre-employment training for new recruits, basic job training, on-the-job professional training, and management trainee training. We include training courses taken by all personnel and corresponding completion deadlines into computer control. Besides, by reminding all the departments of handling trainings within deadlines through computer, we realize the goal of cultivating personnel in all aspects.

### FPCC Employee Education System



FPCC attaches great importance to personnel's career planning and growth. After new recruits enter the Company, there are arrangements of various pre-employment training and basic job training for them. There are also regular arrangement of job rotation and various professional trainings. All the units must map out an annual training plan, arrange studies of various material laws, new technologies and systems. They also strengthen the arrangement and tutorship for staff to obtain relevant professional licenses, and organize diverse thematic curriculum from time to time, such as "Business English Project Study", "Visual Testing Technology Training" and "Safety Supervision Supervisor Training". Furthermore, with a view to enhancing employees' awareness of human rights and work safety, we also irregularly organize courses such as Occupational Safety and Health, Labor Standards Act, Sexual Harassment Prevention Act and Act of Gender Equality in Employment. In 2017, the Company organized 2,470 training courses, with a total of 66,612 participants (headcount). The number of training sessions per person reached 45.0 hours, of which the average training hours of high-level management were 23.4 hours, and 50.7 hours for the personnel below grassroots supervisors.

Unit: Hour

Year	Senior executive			Staff below grassroots supervisor			Company-wide average hours		
	Male	Female	Subtotal	Male	Female	Subtotal	Male	Female	Subtotal
2015	15.7	12.2	15.5	54.9	11.3	51.6	47.0	11.5	44.4
2016	23.1	11.3	22.4	50.8	13.0	47.8	45.1	12.8	42.7
2017	24.2	11.0	23.4	53.0	25.8	50.7	46.8	23.3	45.0

Note: In 2017, the average number of training hours per male employee was 46.8 hours, and for per female employee, it was about 23.3 hours. Among them, 53% of female employees worked as assistants, requiring fewer professional training items. Senior executives' training hours were fewer than that of staff below grassroots supervisors because they have received most of the required training when assuming positions lower than grassroots supervisors.

### Guard Training

The management of access security of FPCC plants and FPC buildings is handled by the Enterprise's internal security guards. All security guards must accept complete professional course training, including: industrial safety (firefighting, first aid, safety and health), code of security guard work, relevant regulations of entry and exit management, relevant laws and common sense (criminal law and civil law), human rights related trainings, physical trainings, hand to hand fight, driving training such as fire engine. At the same time, we conducted monthly regulation test and physical test to maintain good professional standards and physical fitness. In addition, we also share on-site examples and case studies on duty, including trainings like emergency response handling, telephone etiquette, and duty etiquette to avoid overstepping service codes or violating human rights.

## 4.2 Employee Benefits and Care

Responding to GRI Standards: Occupational Health and Safety, Diversity and Equal Opportunity, Freedom of Assembly, Collective Negotiation, and Market Position



In addition to providing good remuneration, benefits and diverse communication channels, FPCC actively promotes friendly measures superior to the law, such as employee assistance projects by setting up dedicated websites and dedicated line service to care for employees and often organizing health promotion activities, in hope to build a healthy lifestyle, jointly create and become a happy enterprise.

## Remuneration and Benefits

In order to attract and retain outstanding talents, the remuneration is far superior to the statutory basic payroll, above the average of the industry. We regularly participate in the market wage and salary survey every year to maintain salary competitiveness. The remuneration standards for new recruits are determined according to the qualifications such as education and experiences required for the position. There are no different salary standards for men and women. After the recruitment, the salary and promotion are adjusted year by year according to the performance. The corresponding remuneration is given. Take college graduates for an example, the starting salary for entering the Company as basic staff is about 166% of the basic payroll, and the starting salary for clerk is about 124% of the basic payroll. Additionally, "Salary and Remuneration Committee" is set up to regularly review the strategy of salary and remuneration of managerial level and rationality of individual remuneration.



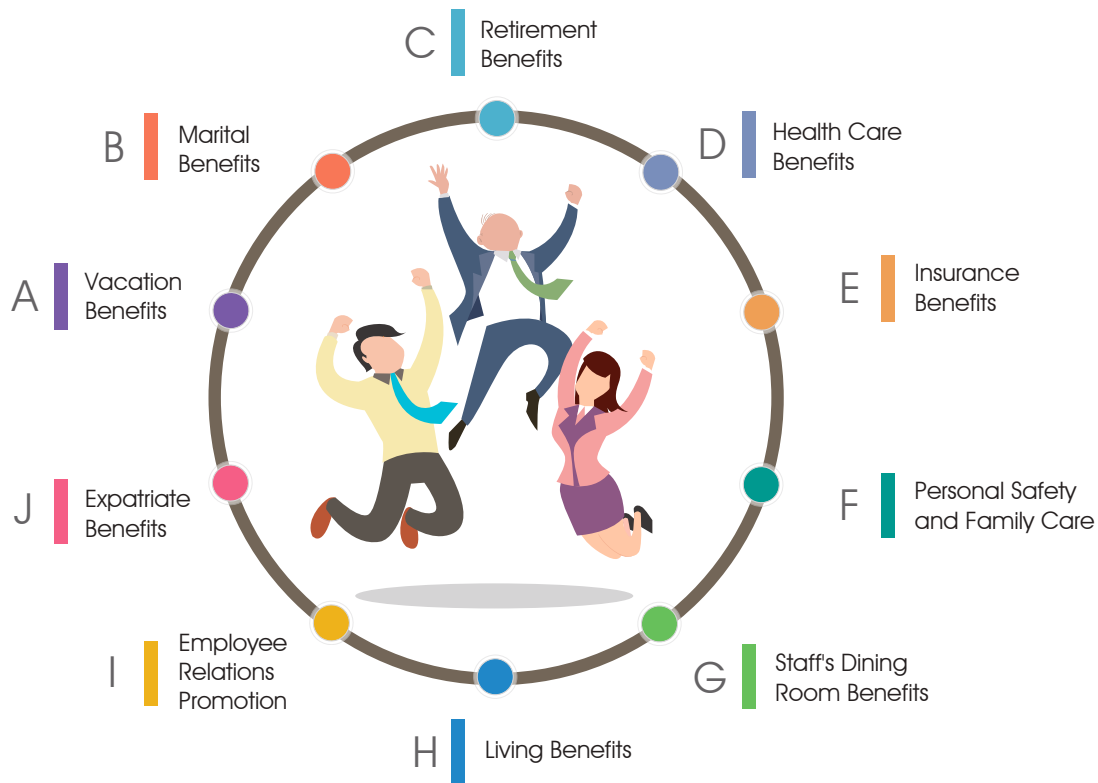
Note: In 2017, the salary of male employees was higher than that of females. Moreover, due to the difference in the seniority among secondary supervisors (included) or above, and men's on-site shifts among grassroots supervisors (included) or below, the shift allowance increased.

### Benefits System

In order to serve and care for all living needs of all personnel, we set a management department in the plant, responsible for logistics support, benefits service, and other relevant business. In addition, we conduct service satisfaction surveys every year to improve service quality. Moreover, the employee welfare committee is organized by both of employees and employers, processing various employee benefits, encouraging association development, organizing activities such as hiking and horticulture and encouraging dependents' participation, which provides employees with a channel to take good care of physical and mental health, as well as going deep into the society and humanistic care.



For detailed benefits system, please refer to the website <http://fpcc-csr.eorz.net/index.php>



### Communication Channel

FPCC adheres to the principle of honesty and transparency. When the Company has significant operational changes, it can process the notification procedures in accordance with Labor Standards Act and other laws to ensure that employees enjoy the guarantee of advance notice. Employees can make recommendations to the Company through regular meetings, such as Welfare Committee, Labor-management Meetings, Union, Occupational Safety and Health Committee, etc., and can also reflect problems through the grievance system.

In 2017, FPCC did not infringe on the human rights incidents of local residents. The number of human rights issues filed through the internal formal grievance mechanisms was also zero. All the Company's personnel were 100% guaranteed by labor-management meetings, or the agreement with the union, such as salary adjustment, year-end bonus, etc. The details are as follows:

Item \ Committee	Welfare Committee		Labor-Management Meetings		Union	Occupational Safety and Health Committee	
Purpose	Promotion of employee benefits		Reinforcement of labor-management relations		Guarantee of labor equity	Implementation in accordance with occupational safety and health management regulations	
Member	Management	Labor	Management	Labor	Member	Management	Labor
Number of People	5	12	9	9	3,377	26	13
Proportion	29%	71%	50%	50%	82%	66.7%	33.3%

Item	Welfare Committee	Labor-Management Meetings	Union	Occupational Safety and Health Committee
Number of Meetings in 2017	Once / 2 months	Once / 2 months	Supervisory Committee Once / 3 months	Once / 3 months
2017 Proposals	69	45	37	0
Completed Items	69	41	34	0
Ongoing	0	4	3	0
Completion Rate of Items	100%	91%	92%	0



### Welfare Committee

Personnel can reflect benefits-related opinions through proposals of Welfare Committee. We also set up a physical suggestion box at the place where personnel often pass by, a network suggestion box on the information system, and "799", a dedicated telephone line for personnel to reflect encountered problems at work or in their lives, and designate personnel to file and handle replies to have smooth communication channels with personnel.



### Labor-Management Meetings

The Labor-management Meeting has nine representatives for both sides respectively. The management's participating representatives are from relevant department supervisors (five management supervisors and four primary supervisors) to fully communicate with the labor's representatives (elected by the union). Regular meetings are held every two months. In 2017, there were 45 issues included in the meeting such as labor's benefits plan, favorable changes to labor conditions, promotion of labor-management cooperation, and enhancement of work efficiency, which mostly could be effectively resolved.



### Union

The union holds supervisory meetings every three months. In 2017, there were 37 proposals, among which the included health and safety issues received preferential response and resolution. In terms of material labor-management issues, the top executives of the Company also negotiate with the union to reach a consensus and ensure the harmonious relationship between labor and management and the Company's sustainable development. There were no labor-management disputes or losses suffered as a result of the disputes in 2017.



### Occupational Safety and Health Committee

The Company set up an Occupational Safety and Health Committee according to the law. Two-thirds of the committee members are composed of the heads of various business departments, occupational safety and health personnel and medical personnel. Another one third of the committee members are labor representatives elected by the union, a total of 39 people. Meetings are held each quarter for reviewing and coordinating the occupational safety and health management affairs.



## Promotion of Employee Care Project

In June 2014, the Company launched "Employee Assistance Project" to establish an assistance platform to continuously promote the Company's employee assistance project through annual publicity activities, lectures, trainings, external organization cooperation, and websites.

### Publicity Activities, Lectures and Dedicated Lines

In 2017, the number of lectures chosen by employees via vote was 34; the number of employees who actively phoned "Taichung Branch Office of Teacher Chang Foundation" was 36 with a maximum of 30-34 years old (22.9%). It was mainly through publicity posters or small cards to inform people of the service channels. Stressed mood and workplace issues were major concerns. A total of 57 people received the services.

In order to impress the employees, we made "FPCC Employee Care Publicity Short Film" for all units to play and publicize at any time.



**Happy**  
邀請您找回  
**快樂表情**

**心有千千結，解鈴還需繫鈴人**

如果您因：人際關係、情緒管理、法律、財務、醫療及管理問題等產生困擾，影響心情、工作與生活。

今年起公司特地委託專業機構台中「張老師中心」，建立專線電話提供您專業、實際且免費的諮詢與諮詢服務，陪伴您一同面對與解決工作、生活上各項困擾，**找回快樂表情，創造幸福生活。**

服務專線 **04-2202-1980** (台塑石化員工專用)  
可同仁撥資，該話內容全程保密

 台塑石化公司

**職場心靈SPA**  
每天都好忙！  
但究竟我們每天都在做什麼？  
工作、家庭、生活、心靈、自我、健康與幸福  
—— 歡迎參加工作與生活講座，與一  
群熱心靈魂！

**2017年四、五月講座**

日期	時間	講者	講題	講師簡歷
4/23	15:00-16:30	公關部陳麗	管理、談判、談判技巧	管理顧問、20年經驗
4/23	16:30-17:30	公關部陳麗	管理、談判、談判技巧	管理顧問、20年經驗
4/26	13:30-15:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/26	15:30-17:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/27	13:30-15:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/27	15:30-17:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/27	17:30-19:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/27	19:30-21:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/28	13:30-15:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/28	15:30-17:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/28	17:30-19:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/28	19:30-21:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/29	13:30-15:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/29	15:30-17:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/29	17:30-19:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/29	19:30-21:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/30	13:30-15:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/30	15:30-17:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/30	17:30-19:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗
4/30	19:30-21:00	張老師中心張老師	情緒管理與心理學	心理師、20年經驗

台塑石化公司、張老師基金會台中分會 聯合主辦

## Employee Health Management and Promotion

We use the abnormal rate and analyze the trend to respectively plan thematic health promotion activities, lectures, doctors' on-site services, consultation, etc. Furthermore, we integrate enterprise resources, and combine the medical treatment with medical center level provided by Chang Gung Memorial Hospital with Formosa Biomedical's professional health care service to promote preventive medicine and disease control and strengthen employees' health awareness to achieve healthy living and promotion goals.



### Establishment of Health Promotion Activities of a Healthy Lifestyle

In 2017, we continued to organize "2th Healthy Life Challenge" and designed two-spindle activities, "Body Shaping" and "Healthy Life" through autonomous exercise points, diet and sports lectures, and cooperated with 18 sports clubs within the Company to enhance a healthy lifestyle to improve the personnel's health.

1,614 personnel proactively attended the event, accounting for a quarter of the Company's personnel. The total weight loss of the participants was 2,618 kg with an average decrease of 1.9 kg per person, a decrease of body fat percentage by 1.0%, a decrease of systolic blood pressure by 2.3 mHg, a decrease of diastolic blood pressure by 0.8 mHg, and a decrease of blood pressure abnormal rate by 10%.

Based on the results of the health check report, we discussed the problems, characteristics and needs based on different business departments with the heads of units to map out health promotion activities, including:

- Healthy Physical Fitness - for middle-aged personnel above 45 years old, a series of physical fitness detection activities with daily office exercise to relieve shoulder, neck and back pains were organized.
- Healthy Diet - We held diet lectures and taught personnel how to end hyperlipidemias in three weeks by a meal of four foods.
- Blood Lipid Test - We went with Formosa Biomedical's i-medical health apparatus to track and manage personnel with abnormal triglyceride level.
- High Intensity Interval Training (HIIT) - It was aimed at enhancing personnel's muscular endurance and reducing body fat by increasing muscle mass for a healthy physique.



Figure Activity posters



Figure Weight loss and sports diet lectures



Figure Healthy physical fitness



Figure Sports lectures

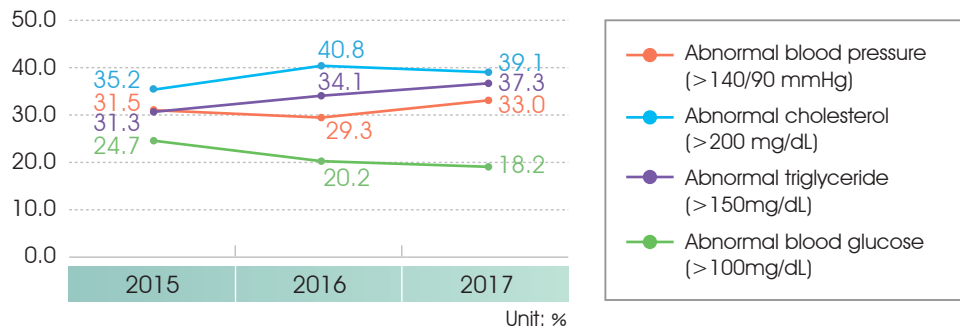


Figure HIIT



Figure Blood lipid test

## Abnormalities in three-hypers rates based on health checkups in Mailiao Industrial Complex over the past years



According to 2017 health check results, the abnormal rates of cholesterol and blood glucose decreased by 1.7% and 2% respectively compared with 2016, but the abnormal rates of blood pressure and triglyceride increased relatively, indicating that employees' blood pressure and blood lipid management should be actively involved in the future.

### Scientized Employee Health Management and Effectiveness

We have fully introduced "All-round i-Medical Health Apparatus" developed by Formosa Biomedical for employee health management. Personnel can measure blood pressure, blood oxygen, electrocardiogram, blood glucose, cholesterol, triglyceride, uric acid and body composition by themselves. Registered nurses monitor by the information system early warning mechanism at any time. We conduct health risk classification through each personnel's health check result and the record of "All-round i-Medical Health Apparatus" to provide individualized health education and tracking.



## 4.3 Local Community Development and Communication

### MA Responding to GRI Standards: Local Community



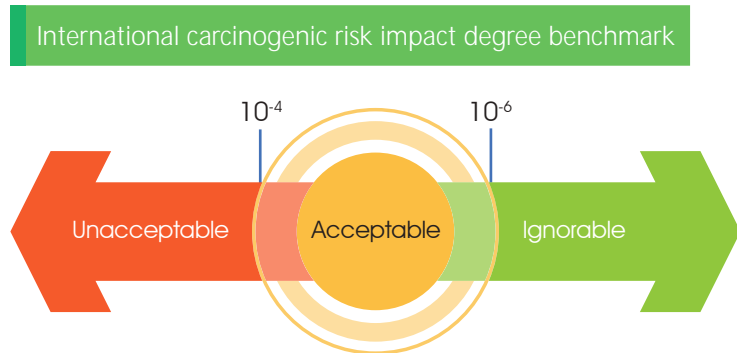
We recruit employees to work as volunteers, and combine the resources of Chang Gung medical system to go deep into the community philosophy to jointly facilitate health promotion and health education of local residents, providing free health check, and improving medical standards and residents' health in coastal areas. At the same time, we improve the living environment such as noise and traffic and engage in the promotion activity of environmental knowledge.



## Resident Health Care

### Health Risk Evaluation

Since 2009, we have commissioned National Cheng Kung University (NCKU) to carry out the evaluation of health risk caused by specific hazardous air pollutants. As of 2017, the health risk evaluation of 64 specific hazardous air pollutants had been completed. The original evaluation scope covered 20km × 20km of the sixth Naphtha Cracker industrial zone, including townships like Mailiao, Taisi, Dongshih, Lunbei, and Baozhong. In order to expand the inspection of the influence of more townships, the simulation context was expanded to 30km × 30km, and Sihu Township and Dacheng Township of Changhua were included completely. The simulated result of average total carcinogenic value-at-risk was  $5.07 \times 10^{-7}$ , and the maximum total carcinogenic value-at-risk was  $6.38 \times 10^{-6}$ , both were between one millionth ( $10^{-6}$ ) and one ten thousandth ( $10^{-4}$ ). The maximum total non-carcinogenic value-at-risk was less than 1, an acceptable risk of the impact on human health.



### Health Promotion

In order to care for the health of local residents, in December 2009, Chang Gung Memorial Hospital in Yunlin was set up to provide comprehensive medical services for local villagers. Since 2010, we have combined with the Chang Gung system's medical education resources to go deep into the community philosophy and jointly facilitate local residents' health promotion and health education in the aspects of hospital, community and school to urge Mailiao to become a model community for health promotion.

#### Promotion Framework of Resident Health in Mailiao

**A Beautiful New World:**  
Promoting a Healthy Model Vision  
for Yunlin's Coastal Communities

Home

School

Hospital

Health administration system

**Maternal, Child, Adolescent, Adult, and Elderly Health Promotion Program**

- ▶ Increase the rate of a balanced diet
- ▶ Increase the rate of regular exercise
- ▶ Increase the rate of stress relief
- ▶ Reduce the rate of tobacco, alcohol, and betel nut use
- ▶ Reduce the rate of obesity
- ▶ Improve the quality of life

- Establishment and Maintenance of Health Database
- Analysis of Health Data
- Sharing of Implementation Results
- Monitoring and Management of Abnormal Health Conditions
- Increasing Re-visitation Rate
- Diagnosis & Treatment
- Annual Tracking of Health Conditions



- Resident Health Trend
- Health Issues of Resident and Society
- Care Promotion Measures

- Medical Quality Improvement
- Resident Health Improvement
- Cooperation with Public & Private Groups to Promote Health Care



Hospital Promotion



Community Promotion



Campus Promotion

## Improvement of Medical Quality

In 2017, the medical team of Chang Gung Memorial Hospital in Yunlin was composed of 260 people and could provide 522 beds available for 23 western medicine and Chinese medicine outpatient services. In 2017, the medical services included 105,525 outpatients (headcount), 14,217 emergency patients (headcount), and 18,935 hospitalized days. The scope and scale of services will successively expand and continue to improve the medical quality of the coastal areas of Yunlin.



Chang Gung Memorial Hospital in Yunlin undertakes the responsibility of 24-hour emergency in the coastal area and enhancement of local medical quality.

## Free Health Checkup for Residents in Mailiao Area

Since 2010, we have commissioned Chang Gung Memorial Hospital in Yunlin to help the residents of Mailiao Township and Taisi Township with health check for free. In 2017, the number of residents from both townships participating in the health check was 9,928. 539 people were diagnosed with abnormalities in health check. This enables residents to understand their health status through health check, identify potential disease threats early, and receive treatment as early as possible.





Results of Health Check

From 2010 to 2017, the results of health check showed that local operations did not have a significant impact on the residents' health.

Lung cancer was diagnosed by lung X-ray. Regarding the initial diagnosis and result of revisitation tracking, no lung cancer cases have been detected over the past years.

The rate of abnormalities found in health check of residents in Mailiao Township and Taisi Township

	2010	Mid-2017
Lung Cancer	0%	0%

Studies have indicated that the rate of abnormalities found in lung and cardiovascular checks affected by PM2.5 showed a downward trend.

The rate of abnormalities found in health check of residents in Mailiao Township and Taisi Township

	2010	Mid-2017
Lung function	Not included	18%
Blood pressure	56%	35%
Metabolic syndrome	26%	25%

The Yunlin County Government has recommended an addition of urine heavy metal test since 2012. There has been no significant difference in the test results over the years.

The rate of abnormalities found in health check of residents in Mailiao Township and Taisi Township

	2012	2017
Copper	0.4%	0.2%
Zinc	6.7%	6.9%
Lead	0.0%	0.0%
Cadmium	5.9%	7.1%
Arsenic	25%	21%
Mercury	0.3%	0.2%

The Yunlin County Government has recommended an addition of lung function check since 2012. An abnormal rate was 21% in 2012.

In order to clarify the impact of the petrochemical plant on the health of local residents, the Yunlin County Government has recommended an addition of urinary metabolite 1-OHP inspection since 2012. Because the item has no international diagnostic reference value, after international studies have been compared, the inspection results among residents of the two townships, Europe and the United States have no significant difference.

Average value based on health check of residents in Mailiao Township and Taisi Township

	2012	Mid-2017
1-OHP (µg/g cre)	0.15	0.15
Average value of European and American residents	0.06~0.52	

## Improvement of Living Environment in Mailiao Area

### Noise Improvement and Performance

The Company regularly appoints qualified inspection institutions in the vicinity of Beiti, Nanti, Mailiao dorm, West Coast Bridge, Chiautou Elementary School, Syucuogong branch school (former site), Fengan Elementary School, Chaotou, and in the vicinity of Haifong to do regular monitoring work. The monitoring results showed that in addition to the influence of human activities such as night market, temple fair, school bell and biological sound sources like chirping of cicada and croak, leading to some of the measured values with occasional high values, the rest of measured values have always been in compliance with the control standards. It is obvious that the operation of Mailiao Industrial Complex has not had a significant impact on local noise.



Note: Location map of noise monitoring establishment in the vicinity of Mailiao Industrial Complex

### Traffic Improvement and Performance

In order to relieve the traffic congestion caused by employees and contractors' vehicles during local rush hours, we separate the employees' and contractors' commuting time, set up employee transportation vehicles, and guide employees and contractors to drive on the exclusive lane for dump truck and Lienyi Road, hire volunteer police to direct traffic near important intersections to maintain good traffic order. Additionally, to ensure pupils' safety on the way to school, we employ school crossing guards to assist Chiautou Elementary School in directing pupils to safely pass the road at the intersections during daily school hours.

In order to maintain the air quality in Yunlin County, diesel vehicles are required to present smoke detection qualified documents when applying for entry certificate if they need to enter and leave Mailiao Industrial Complex. If diesel vehicles' smoke emission is denounced by the regulator, owners of the vehicles shall make their vehicles re-detected and obtain qualified credentials; otherwise, they are forbidden to enter the plant. According to the statistics of diesel vehicle smoke emission detection of Environmental Protection Bureau in Yunlin County in the past, there were 17 stop-and-frisk operations on nearby roads in and out of Mailiao Industrial Complex in 2017. 393 diesel vehicles were intercepted and examined. The unqualified rate was 0%, indicating that it had noticeable performance. The stop-and-frisk results of the recent years are as follows:

Year	Number of traffic flow (Merge) (A)	Number of interception (B)	Number of detection (C)	Number of the unqualified (D)	Unqualified rate of detection (D/C)	Unqualified rate of Interception (D/B)	Unqualified rate of Traffic flow (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 Knowledge Promotion

In order to enable the sixth Naphtha Cracker Plant to promote circular economy and conservation of water and energy, we exchange ideas with the public and promote the certification of environmental education facilities in the Mailiao Industrial Complex. Combining with the regulation that each student under senior high school should conduct at least four hours of environmental education and field trips each year, we invite students everywhere to participate in. After their visit and learning in the Mailiao Industrial Complex, they share it with parents, relatives, and friends, and practice environmental protection, water and energy conservation and ecological preservation in daily lives. This teaches children the importance of environmental protection and ecology from an early age and achieved the goal of "Paying Equal Attention to Environmental Protection and Industrial Development".

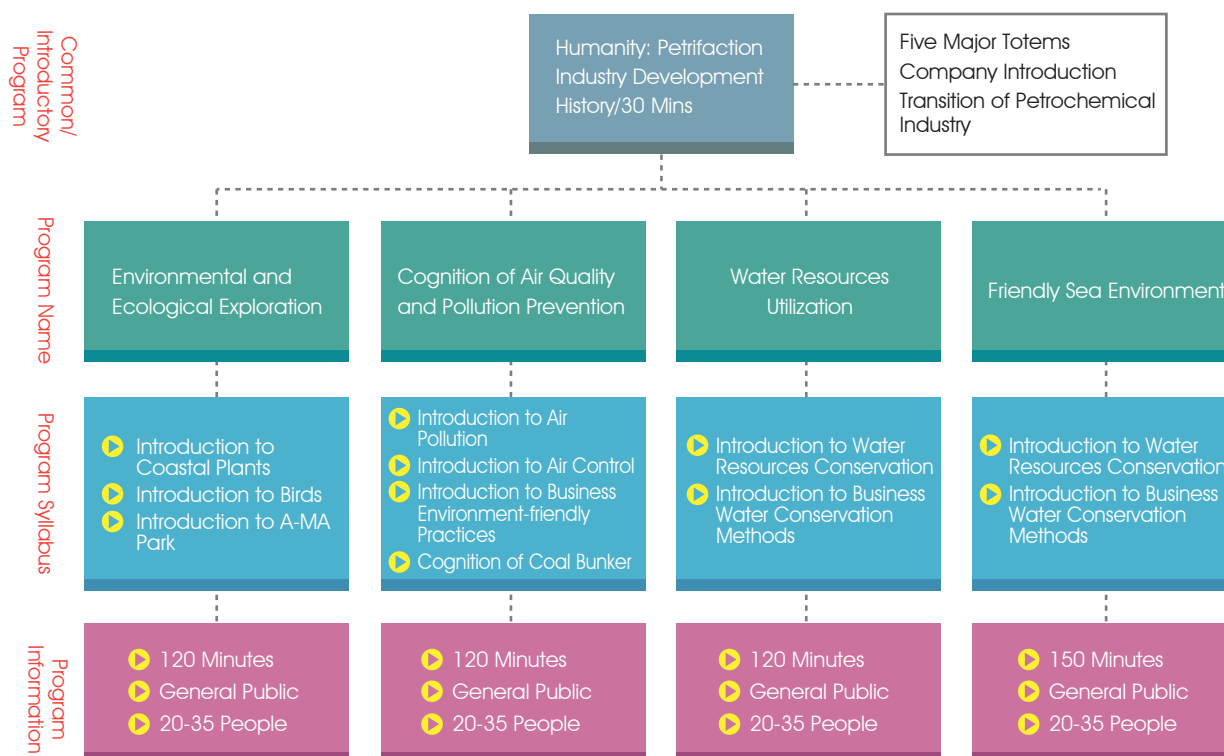
### The Concept of Environmental Education Curriculum in Mailiao Industrial Complex:

The curriculum has a set of common courses and two major courses. The leading course is "Petrochemical Industry Development History". Another two major thematic lesson plans are respectively air quality and water quality and marine environment. The lesson plans are "Humanistic Education: Taiwan Industrial Development History and Materiality of Taiwan Petrochemical Industry", "Introduction to Air Quality and Air Pollution Control", "Utilization of Water Resources and Friendly Marine Environment". In the future, we will also plan for short-term, mid-term and long-term sustainable development. For the short-term development, we have planned "Environment and Ecology Course" as a new course of environmental education in the future.

- (1) Humanistic Education: The leading course is "Petrochemical Industry Development History", illustrating the development and changes of Taiwan petrochemical industry and the materiality and necessity of petrochemical products in the industry. However, industrial development and environmental protection are an issue of dilemma. To make both industrial development and environmental protection equal, we can achieve through government regulations and public supervision.
- (2) Air Quality: The development of the lesson plan is based on the principle of "Introduction to Air Quality and Air Pollution Control". The concept is to enable trainees to understand numerous types of sources of air pollution through the curriculum. It is not enough to rely solely on industrial improvement. It also needs the cooperation with the efforts of various fields and coordination of policy, so that enterprises can take the lead and drive the local and the public to jointly improve the air quality.
- (3) Water Quality and Marine Environment: The content of the course is divided into two parts: water resources utilization and friendly marine environment measures. The concept is to enable students to learn about the current situation of water resources in Taiwan through the course. Although rainfall is abundant in Taiwan, due to the deep terrain, it soon flows into the ocean. Besides, reservoirs are subject to sedimentation, and the industry and commerce develop rapidly; thus, Taiwan has become the 18th water-deficient country in the world, leading to water usage disputes. The reduction of offshore fisheries and marine resources is closely related to the industry, fishermen and climate changes. Through lesson plans, trainees can understand the enterprise's ways of giving back to the society and protecting the environment. Through the course, students can understand that water resources and the marine environment need to be jointly protected.

## Planning of Environmental Education Facilities in Mailiao Industrial Complex:

Taking advantage of the existing facilities like administrative building, environmental monitoring center, environmental protection and ecological laboratory and Mailiao Harbor to cooperate with lesson plans and environmental education personnel and volunteers' guidance to conduct environmental education. The relevant plans are as follows:



## 4.4 Local Ecological Preservation



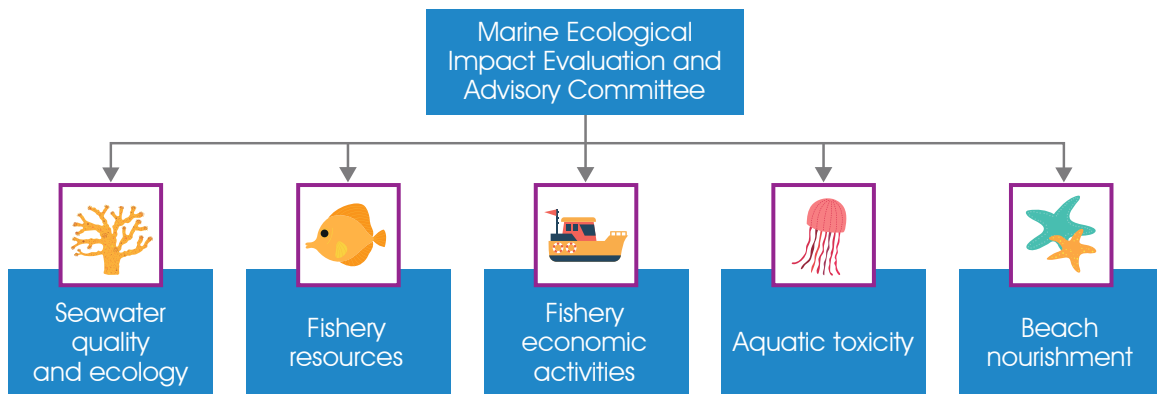
### Marine Ecological Survey



#### Marine Ecological Impact Evaluation and Advisory Committee

Since 2010, we have planned to establish the "Evaluation and Advisory Committee of FPG Mailiao Industrial Complex Discharged Water Impact on Marine Ecology", and invited experts and scholars from home and abroad to review and assist the Company in effectively utilizing scientific argumentation to further clarify the impact of discharged water in Mailiao Industrial Complex on nearby seas.

The committee convenes a meeting every six months. As of the results of the survey in 2017, it was found that Mailiao Industrial Complex did not have any detectable impact on water quality, ecology, fishery breeding period, fishery resources and beach nourishment and sand drift in the nearby waters. The investigation will continue. If the impact is detected, the countermeasures will be developed to mitigate the impact of the marine ecology, ensuring the living environment quality of the local residents and the sustainable development of the marine ecological environment.



## Terrestrial Ecological Impact Evaluation

In order to understand the impact of Mailliao Industrial Complex on the ecological changes and the environment of nearby flora and fauna, we commissioned professional institutions to investigate birds, mammals, amphibians, reptiles, butterflies and plant ecology, and to analyze their species composition, ethnic group dynamics and quantitative changes and other related items in order to understand the current situation of these animals and plants within the survey area, and to assess the impact of the sixth Naphtha Cracker Plant operation on the local environment. According to the survey results over the years, the number of plant species is stable, and the animals are mainly affected by the four seasons. With the steady ups and downs of the seasons, no obvious changes occurred due to the establishment of the plant in Mailliao Industrial Complex.



### EcoPorts - Mailliao Harbor

We internalize the sustainability thinking into the entire industry operation and establish a model of perpetual business operation, the future vision of Mailliao Harbor. Mailliao Harbor will continue to use green management as its development goal, practice the control of various green ports, and implement environmental policies to fulfill CSR, and achieve the goal of leading by example and self-management.

The aquatic ecosystem provides habitats for many species. The sustainable development of ecology has gradually become the focus and goal of international concern. The sustainable development of the global harbor is also the same. As the largest industrial harbor in the country, Mailliao Harbor's annual cargo throughput is more than 70 million tons, which is indeed an important harbor for Taiwan to develop basic industries. It also recognizes the responsibility of harbor environmental protection and safety protection. Environmental friendliness is also the core value.

Mailliao Harbor is actively handling various green port projects. In addition to attaching great importance to economic development, it also invests in the most advanced process technology, continuously promotes energy conservation and carbon reduction, seeks improvement and preventive measures to strengthen pollution control, and cooperates with the development of various low pollution energy and green harbor control as a way to implement the concept value of eco-harbor to achieve the goal of creating green economy and perpetual business operation.

### Mailliao Harbor - Marine Ecology

The creatures of underwater ecosystem of Mailliao Harbor are rich. The recorded species include 6 species of annelids, cnidaria, mollusks, arthropods, echinoderms and chordates. Up to now, there are 6 phyla, 72 families, and 148 species. As the frequency of investigations increases, the cumulative species of creatures also show an upward trend.



Scientific Name: *Chlidonias hybrida*  
Trivial Name: Whiskered tern



Scientific Name: *Nephtea chabrolii*  
Trivial Name: Aloyonacea



Scientific Name: *Percnon planissimum*  
Trivial Name: Flat rock crab

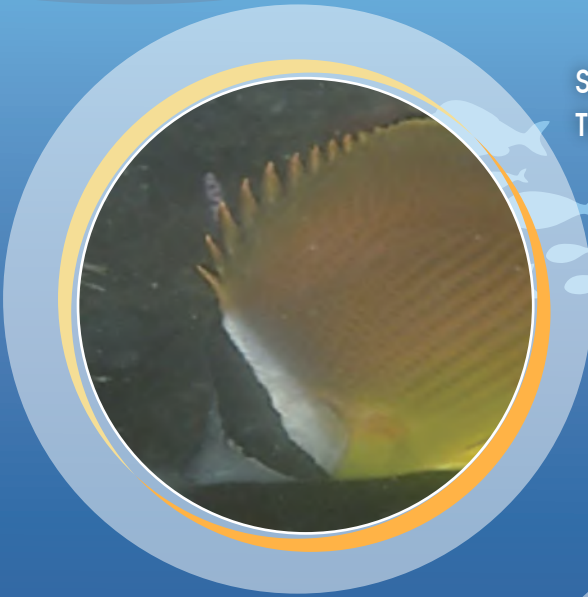




Scientific Name: *Pandion haliaetus*  
Trivial Name: Osprey



Scientific Name: *Chaetodon auripes*  
Trivial Name: Oriental butterflyfish



Scientific Name: *Spondylus* sp.  
Trivial Name: Spondylus barbatus



## Mailiao Harbor – Intertidal and Terrestrial Ecology

- 🌿 Birds: The photography of migratory birds around Mailiao Harbor is listed in the Mailiao Harbor marine ecology and environmental photography project. According to the bird distribution records over the past years, the number of recorded birds is quite rich, totaling 69 species.
- 🌿 Casuarina and Windbreak Forest: Mailiao Harbor has the largest area of Casuarina plantation in Taiwan.
- 🌿 Intertidal Zone: Mailiao Township is by the sea and the area of the intertidal zone is about 47 square kilometers. The coastal shelf is flat and the creatures of seabed are extremely rich. For example, various marine creatures such as fiddler crabs and monk crabs can be seen everywhere. There are also many creatures like resident birds and migratory birds. This also represents the good marine ecological environment around Mailiao Harbor.

## 4.5 Social Feedback Policy

### FPCC Starts from Heart and Makes a New Move

FPCC refurbished four gas stations and cooperated with Sure gas station. The two brands joined hands to do public welfare. During the opening period, NT\$ 200 was donated at every 200 kiloliter of sales to Taipei Orphan Welfare Foundation as subsidization for poor orphans' tuition, rewards, and after-school tutoring. On the day of the reopening of the new stations, the children of Taipei Orphan Welfare Foundation also turned into little station chefs and introduced various facilities to the VIPs on the spot. The scene was warm and lively.



### Combination of local characteristics and AUTO+ FPC Lubricants for Fellow Villagers

In order to combine AUTO+ FPC lubricants with local characteristics, we cooperated with Taiwan Farmer United Logistics Corp to launch “Buy Motor Oil, Get Yunlin Agricultural Specialties Package” offer. In addition to professional staff's providing oil purchase consultation on the spot, there were interactions between beautiful brand representatives and folks!



People participating in the "Share Photo, Get Gifts" activity



Public on the scene unafraid of sunburn and supporting AUTO+ with Actions

## Participation in Local Activities and Giving Back to Neighborhood Community

On April 15, 2017, in order to fulfill CSR and give back to the local, FPG and Kong Fan Temple in Mailiao held a grand event of "Plant and Township as a Family, Ten Thousand People Receiving Matsu", hoping to enhance the amity between the plant and the township. Mailiao Industrial Complex held Matsu procession and carnival, combined with the religious belief of Matsu, local snack culture, and wonderful evening performances and lottery drawing, attracting tens of thousands of folks to visit the plant, and let the folks get to know more about the Company by the enterprise' brief introduction and public welfare activities.

In addition, in order to implement the care for the local residents of Mailiao, FPCC personnel worked as volunteers and participated in the caring activities of 7 neighboring townships (Mailiao Township, Taisi Township, Lunbei Township, Dongshih Township, Baozhong Township, Sihu Township, and Dacheng Township). A total of 150 people was mobilized. The substantive participation and subsidization for local public welfare activities in 2017 are as follows:

1. The subsidization was for vulnerable families of the neighboring 7 townships, a total of 34 schools with a total cost of NT\$3.47 million. The scholarships for children were issued to 1,014 people with a total of NT\$2.8 million.
2. A total of NT\$17.4 million was for the payment of the volunteer police's honoraria, injury and condolences, sponsorship of association activities, and underprivileged meals.
3. The settlement fund (township office) is issued annually: A total of NT\$307.02 million in health insurance and electricity subsidization was distributed this year, benefiting 43,277 residents.
4. Concerned about the health of residents (township office): We provide free health checks for villagers, and actively inform revisitation upon finding abnormalities. There were NT\$108.98 million in health check expenses this year.
5. Responsible for social responsibility (county government): To increase the afforestation area to improve air and green beautification, we voluntarily appropriated NT\$132.3 million for the afforestation, following the government's policy; in order to improve the heavy trucks' pressure and damage on the road, we allocated NT\$60 million as maintenance fund.



6. Promotion of traditional art: By participating in annual folk activities such as Matsu procession to increase the participation rate of local activities, a total of 18 subsidizations of local large-scale activities were subsidized (eight sessions of Ming Hwa Yuan Arts & Cultural Group, six sessions of Paperwindmill Theatre, 3 sessions of If Kids Theatre, and 1 session of Dalongdong Theatre) with a total of NT\$1.92 million of subsidization, attracting 10,000 people.



Mailiao Plant "Plant and Township as a Family" combined with Matsu procession for peace



Carnival attracting tens of thousands folks to enter the plant



Dalongdong Golden Lion Group

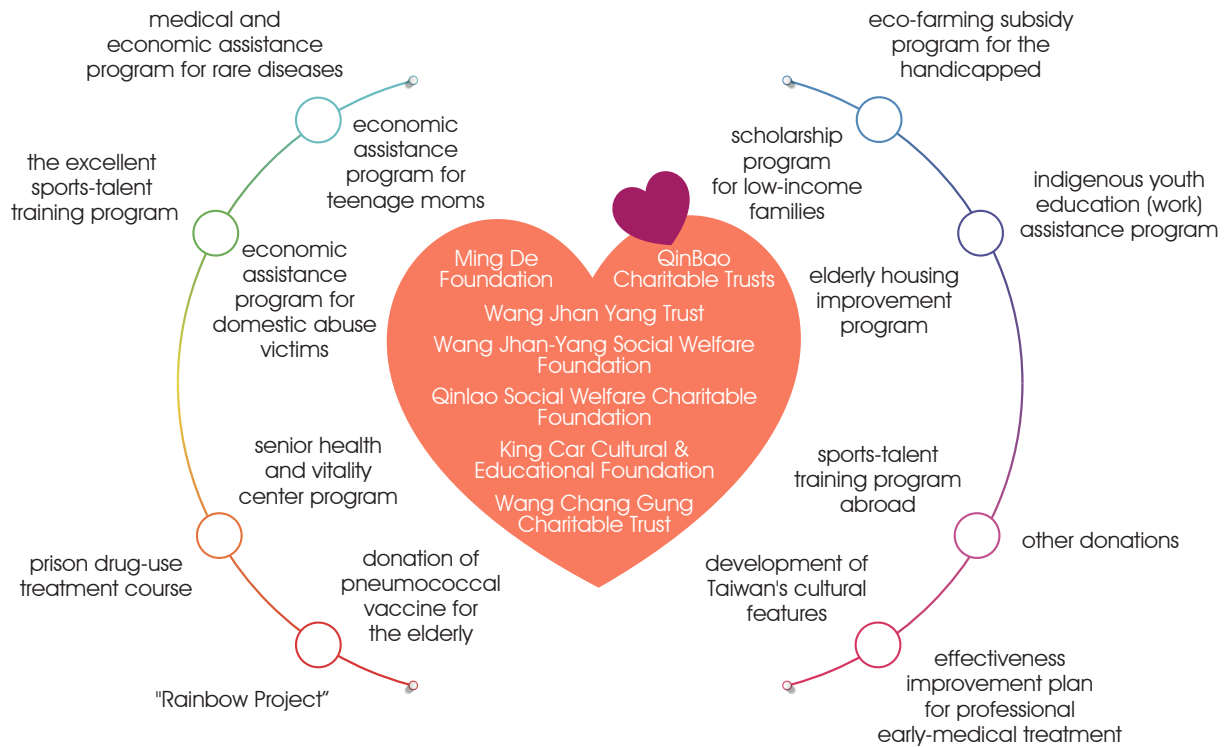


Ming Hwa Yuan Arts & Cultural Group

## FPC Works Together

FPG has established over the past 60 years, and understands the needs of different levels of society. It has established seven foundations and charitable trusts to concentrate appropriation on contributing to underprivileged groups and social benefits institutions, and combined with private professional groups, scholars, and experts. With the planning principle of "Comprehensiveness, Integrity and Systematicness", we continue to promote various public welfare projects, and strive to improve the operational efficiency of the overall public welfare institutions in a gradual and orderly manner, so that investment in resources can generate greater benefits. Each plan is not merely a domestic initiative but also can achieve the goal of comprehensively improving service quality and perpetual business operation. Over the years, it has invested nearly NT\$55.78 billion in social welfare undertakings in education, medical care, and social benefits, and continued to reach out to those in need in the society.

Seven Foundations, Charitable Trusts and Their Implementation Plans



Summary of Corporate Social Care Charity Donations

Unit: NT\$100 million

Year	Type	Contents of Public Interest	Donation Amount
1960 ~ 1980	Education	Establishment Continuous donation to Ming Chi University of Technology	279.3
		Establishment and continuous donation to Chang Gung University	
		Establishment and continuous donation to Chang Gung University of Science and Technology	
	Medical	Establishment of Chang Gung Hospital	28.4
		☀️ Assisting low-income patients to seek medical assistance	

Year	Type	Contents of Public Interest	Donation Amount
1990		Assisting indigenous students to access schooling (work) and other sponsorships	
		☀️ Donation of 822 artificial electronic ears	
	Caring for disadvantaged groups	Improving benefits for institutions that care for the handicapped and the quality of service in other social-care institutions	35.3
		Welfare for the youth and women	
		Donation to the Rainbow Project for AIDS inmates in Yunlin Secondary Prison, Taipei Prison, and Kaohsiung Prison; donation to the Xiangyang Project for drug offenders in Yunlin Secondary Prison and Kaohsiung Prison	
2000 until now	Environmental Care	Kitchen waste recycling	12.6
		Organic vegetable cultivation	
		Afforestation	
	Elderly Care	☀️ Construction of Chang Gung Culture and Health Promotion Village	6.3
		Donation of 1,055,000 doses of pneumococcal vaccine to the elderly, amounting to over 900 million NTD in market value. Other benefit projects include improving elderly housing, delivering meals to the elderly living alone, and managing the senior health and vitality center program.	
	Post-disaster Reconstruction	1. Reconstruction of disaster areas and old dangerous school buildings (76 locations)	47.9
		2. Donation of Typhoon, Earthquakes, and other post-disaster reconstruction appropriation	
	Culture Promotion	Donation for Taiwanese Cultural Troupe	0.8



Year	Type	Contents of Public Interest	Donation Amount
2000 until now	Sports Promotion	Promotion of sports and athlete sponsorship	2.1
	Health Facilitate	Enlist in various health facilitating research and academic research among the three schools	2.2
	Local Contribution	The company's contribution projects to the various branches' neighboring areas	133.7
	Others	Chang Gung Social Welfare Fund and other donations	9.2
Total			557.9

Note: 1. "✿" denotes donations made from the extended profits of Chang Gung Memorial Hospital which are not included in the total donation amount.

2. This table discloses donations made in Taiwan only.



# Appendix



: Complete Disclosure : Partial Disclosure

Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
<b>GRI 102: General Disclosure 2016</b>				
<b>Organization Status</b>				
102-1	Organization Name		1.1 Corporate Governance	
102-2	Events, Brands, Products, and Services		1.2 Sustainable Development Business Model	
102-3	Headquarters Location		1.1 Corporate Governance	
102-4	Operation Location		1.1 Corporate Governance	
102-5	Ownership and Legal Form		1.1 Corporate Governance	
102-6	Market for Services		1.2 Sustainable Development Business Model	
102-7	Organization Scale		1.2 Sustainable Development Business Model 1.1 Corporate Governance	
102-8	Information of Employees and Other Workers		4.1 Employee Structure	
102-9	Supply Chain		1.2 Sustainable Development Business Model	
102-10	Material Changes to Organization and Its Supply Chain		1.2 Sustainable Development Business Model	No Material Changes
102-11	Precautionary Principles or Guidelines		1.5 Corporate Risk Management	
102-12	External Initiatives		Details on This Report 1.1 Corporate Governance	
102-13	Association Membership		1.1 Corporate Governance	
<b>Strategy</b>				
102-14	Decision-maker's Declaration		From the Chairman	
102-15	Key Impact, Risk, and Opportunities.		From the Chairman 1.3 Corporate Risk Management	
<b>Ethics and Integrity</b>				
102-16	Values, Principles, Standards, and Codes of Conduct		1.1 Corporate Governance	
<b>Governance</b>				
102-18	Governance Structure		1.1 Corporate Governance	

Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
Stakeholder Communication				
102-40	Stakeholder Groups		Stakeholder Engagement	
102-41	Group Agreement		4.2 Employee Benefits and Care	
102-42	Identification and Selection of Stakeholder		Stakeholder Engagement	
102-43	Stakeholder Communication Policy		Stakeholder Engagement	
102-44	Proposed Key Themes and Concerns		Stakeholder Engagement	
Reporting Practice				
102-45	Entities Included in Consolidated Financial Statements		Details on This Report	
102-46	Definition of Report Content and Theme Boundary		Stakeholder Engagement	
102-47	Material Theme List		Stakeholder Engagement	
102-48	Information Recompilation		Details on This Report	There is no such case.
102-49	Reporting Changes		Details on This Report	
102-50	Reporting Period		Details on This Report	
102-51	Date of the Last Report		Details on This Report	
102-52	Reporting Cycle		Introduction of Report	
102-53	Contacts Who Can Answer Report-related Questions		Details on This Report	
102-54	Declaration in Accordance with GRI Guidelines		Details on This Report	
102-55	GRI Content Index		Details on This Report	
102-56	External Guarantee/Assurance		Introduction of Report	
GRI 103: Management Policy 2016				
General Requirements for Reporting Management Policy				
103-1	Explanation of Material Themes and Their Boundaries		Introduction of Report	



: Complete Disclosure : Partial Disclosure

Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
<b>GRI 200: Specific Themes Disclosed - Economy 2016</b>				
<b>Economic Performance</b>				
103-2	Management Policy and Its Elements		1.2 Sustainable Development Business Model	
103-3	Management Policy Assessment		1.2 Sustainable Development Business Model	
201-1	Direct Economic Value Generated and Distributed by Organization		1.2 Sustainable Development Business Model	
201-2	Financial Impact along with Other Risk and Opportunities due to Climate Change		1.3 Corporate Risk Management	
201-3	Definition of Benefits Planning Obligation and Other Retirement Plan		4.2 Employee Benefits and Care	
<b>Market Status</b>				
202-1	The Ratio of Standard Wage of Entry-level Staff of Different Genders to Local Minimum Wage		4.2 Employee Benefits and Care	
202-2	Proportion of Senior Executive Hired from Local Residents		4.1 Employee Structure	
<b>Indirect Economic Impact</b>				
203-1	Development and Impact of Infrastructure Investment and Supported Service		1.2 Sustainable Development Business Model	
203-2	Significant Indirect Economic Impact		4.3 Community Development and Communication	
<b>Anti-corruption</b>				
205-1	Operating Sites Where Have Conducted Calculated Risk Taking		1.1 Corporate Governance	
205-2	Communication and Training in Anti-corruption Relevant Policies and Procedures		1.1 Corporate Governance	
205-3	Confirmed Incidents of Corruption and Actions Taken		1.1 Corporate Governance	No Corruption in 2017
<b>Anti-competitive Behavior</b>				
206-1	Legal Actions of Anti-competitive Behavior, Antitrust, and Monopoly Practices			No Relevant Case

Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
GRI 300: Specific Themes Disclosed - Environment 2016				
Energy				
103-2	Management Policy and Its Elements		2.2 Greenhouse Gas Emissions and Energy Management	
103-3	Management Policy Assessment		2.2 Greenhouse Gas Emissions and Energy Management	
302-1	Energy Consumption within Organization		2.2 Greenhouse Gas Emissions and Energy Management	
302-3	Energy Intensity		2.2 Greenhouse Gas Emissions and Energy Management	
302-4	Reduction of Energy Consumption		2.2 Greenhouse Gas Emissions and Energy Management	
302-5	Reduction in Energy Requirements of Products and Services		2.2 Greenhouse Gas Emissions and Energy Management	
Water				
103-2	Management Policy and Its Elements		2.4 Water Resources, Wastewater, and Waste Management	
103-3	Management Policy Assessment		2.4 Water Resources, Wastewater, and Waste Management	
303-1	Water Withdrawal Divided by Sources		2.4 Water Resources, Wastewater, and Waste Management	
303-2	Water Sources Significantly Affected by Water Withdrawal		2.4 Water Resources, Wastewater, and Waste Management	
303-3	Recycled and Reused Water		2.4 Water Resources, Wastewater, and Waste Management	
Biodiversity				
304-1	Operational Sites Owned, Leased, and Managed by the Organization, or Their Neighboring Areas Located in Environmental Protection Areas or Other Areas with High Biodiversity Value		4.4 Local Ecological Conservation	
304-2	Activities, products, and services have significant impact on biodiversity.		4.4 Local Ecological Conservation	
304-3	Protected or Rehabilitated Habitats		4.4 Local Ecological Conservation	
Emission				
103-2	Management Policy and Its Elements		2.2 Greenhouse Gas Emissions and Energy Management	








Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
103-3	Management Policy Assessment		2.2 Greenhouse Gas Emissions and Energy Management	
305-1	Direct (Scope 1) Greenhouse Gas Emissions		2.2 Greenhouse Gas Emissions and Energy Management	
305-2	Energy Indirect (Scope 2) Greenhouse Gas Emissions		2.2 Greenhouse Gas Emissions and Energy Management	
305-4	Greenhouse Gas Emissions Intensity		2.2 Greenhouse Gas Emissions and Energy Management	
305-5	Reduction of Greenhouse Gas Emissions		2.2 Greenhouse Gas Emissions and Energy Management	
305-6	Emissions of Ozone-depleting Substances		2.3 Air Pollution Prevention	
305-7	NOx, SOx, and Other Material Gas Emissions		2.3 Air Pollution Prevention	
Wastewater and Waste				
103-2	Management Policy and Its Elements		2.4 Water Resources, Wastewater, and Waste Management	
103-3	Management Policy Assessment		2.4 Water Resources, Wastewater, and Waste Management	
306-1	Discharged Water Divided by Water Quality and Discharge Destination		2.4 Water Resources, Wastewater, and Waste Management	
306-2	Waste Divided by Type and Disposal Method		2.4 Water Resources, Wastewater, and Waste Management	
306-3	Severe Leakage		2.1 Environmental Protection Strategy and Policy	
306-4	Waste Transportation		2.4 Water Resources, Wastewater, and Waste Management	
306-5	Water Body Affected by Discharged Water and Other Surface Runoff Emissions		2.4 Water Resources, Wastewater, and Waste Management 4.4 Local Ecological Conservation	
Compliance				
307-1	Violation of Environmental Regulations		2.2 Environmental Protection Strategy and Policy	
Supplier Environmental Assessment				
308-1	New Suppliers Screened by Environmental Criteria		1.4 Customer and Supply Chain Relationship Maintenance	Suppliers must be 100% compliant with the Company's supplier and contractor management policies.

Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
308-2	Supply Chain's Negative Impact on Environment the Actions Taken		1.4 Customer and Supply Chain Relationship Maintenance	
GRI 400: Specific Themes Disclosed - Society 2016				
Labor and Capital Relationship				
103-2	Management Policy and Its Elements		4.1 Employee Structure	
103-3	Management Policy Assessment		4.1 Employee Structure	
401-1	New Employees and Employee Turnover		4.1 Employee Structure	
401-2	Benefits Provided to Full-time Employees (Temporary or Part-time Employees Excluded)		4.2 Employee Benefits and Care	
401-3	Parental Leave		4.1 Employee Structure	
Labor/Capital Relationship				
402-1	Minimum Notice Period Regarding Operational Changes		4.2 Employee Benefits and Care	
Occupational Safety and Health				
103-2	Management Policy and Its Elements		3.2 Risk Management of Industrial Safety 3.4 Occupational Health Management 4.2 Employee Benefits and Care	
103-3	Management Policy Assessment		3.2 Risk Management of Industrial Safety 3.4 Occupational Health Management 4.2 Employee Benefits and Care	
403-1	Working Representative of Official Safety and Sanitation Committee Organized by Labor and Capital		4.2 Employee Benefits and Care	
403-2	Type of Injury, Rate of Injury, Occupational Disease, Lost Work Days, Absence, etc., and Number of Work-related Death		3.1 Establishment of the Industrial Safety Culture	
403-3	Occurrence Rate of High Occupational Disease and High Occupational Risk Worker		3.4 Occupational Health Management 4.2 Employee Benefits and Care	
403-4	Health and Safety Relevant Issues Covered in Formal Agreement with Labor Union		3.2 Risk Management of Industrial Safety 4.2 Employee Benefits and Care	



Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
Training and Education				
404-1	Average Hours of Training Received by Each Employee Per Year		4.1 Employee Structure	
404-2	Enhancement of Staff Function and Transition of Assistance Project		4.1 Employee Structure	
404-3	Regular Examination of Performance and Employee Percentage of Career Development		4.1 Employee Structure	
Employee Diversity and Equal Opportunity				
405-1	Governing body and Employees Diversification		4.1 Employee Structure	
405-2	Women to Men's Ratio of Basic Salary plus Remuneration		4.1 Employee Structure 4.2 Employee Benefits and Care	
Non-discrimination				
406-1	Incidents of Discrimination and Corrective Actions Taken by the Organization		4.1 Employee Structure	
Freedom of Association and Collective Bargaining				
407-1	Operating Sites or Suppliers Who May Be Facing the Risk of Freedom of Association and Group Bargaining		4.2 Employee Benefits and Care	
Child Labor				
408-1	Operating Sites and Suppliers' Material Risk of Using Child Labor		1.4 Customer and Supply Chain Relationship Maintenance	There is no such case.
Forced or Compulsory Labor				
409-1	Operating Sites and Suppliers with Material Risk of Forced and Compulsory Labor Incidents		1.4 Customer and Supply Chain Relationship Maintenance	There is no such case.
Security Practices				
410-1	Security personnel receive human rights policy or procedural training.		4.1 Employee Structure	
Indigenous Rights				
411-1	Incidents Involving Violation of Indigenous Rights		4.1 Employee Structure	
Human Rights Assessment				
412-1	Operational Activities that Accept Human Rights Reviews or Human Rights Impact Assessment		4.1 Employee Structure	

Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
412-2	Staff Training of Human Rights Policies or Procedures		4.1 Employee Structure	
412-3	Significant Investment Agreements and Contracts Recording Human Rights Clauses or Proceeded Human Rights Review			FPCC did not sign any material investment agreement or contract in 2017.
Local Community				
103-2	Management Policy and Its Elements		2.3 Air Pollution Prevention 4.3 Community Development and Communication	
103-3	Management Policy Assessment		2.3 Air Pollution Prevention 4.3 Community Development and Communication	
413-1	Operating Activities through Local Community Communication, Impact Assessment, and Development Planning		2.3 Air Pollution Prevention 4.3 Community Development and Communication	
413-2	Operating Activities with Actual or Potential Negative Impact on Local Communities		2.3 Air Pollution Prevention 4.3 Community Development and Communication	
Supplier's Societal Assessment				
414-1	New Suppliers Screened by Social Criteria		1.4 Customer and Supply Chain Relationship Maintenance	Suppliers must be 100% compliant with the Company's supplier and contractor management policies.
414-2	Negative Social Impact and Actions Taken in Supply Chain		1.4 Customer and Supply Chain Relationship Maintenance	
Public Policy				
415-1	Political Contributions		1.1 Corporate Governance	
Customer Health and Safety				
416-2	Violation of Health and Safety Regulations Concerning Products and Services		1.2 Sustainable Development Business Model	There is no violation of regulations in 2017.
Marketing and Labeling				
417-1	Requirements of Product and Service Information and Labeling		1.4 Customer and Supply Chain Relationship Maintenance	
417-2	Failure to Comply with Product and Service Information and Labeling Regulations			There is no such case.



Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
417-3	Failure to Comply with Marketing Communication Relevant Regulations			There is no violation of regulations in 2017.
Customer Privacy				
418-1	Verified Complaints about Breach of Customer Privacy or Loss of Customer Information		1.4 Customer and Supply Chain Relationship Maintenance	
Social Economy Compliance				
419-1	Violation of Laws and Regulations in Social and Economic Fields			There is no violation of regulations in 2017
Category: Supplementary Indicator for Oil and Gas Industry				
Indirect Economic Impact				
GRI-OG1	Verification of Type and Magnitude of Storage and Production Estimate			FPCC mainly operates Taiwan's local business and is not involved in oilfield drilling and mining, so the indicator does not apply.
Energy				
GRI-OG2	Investment Amount of Renewable Energy		2.1 Environmental Protection Strategy and Policy	
GRI-OG3	Total of Renewable Energy Generated by Green Energy Materials		2.1 Environmental Protection Strategy and Policy	
Biodiversity				
GRI-OG4	Quantity and Proportion of Assessment and Monitoring Operation for Biodiversity Risk		4.4 Local Ecological Conservation	
Wastewater and Waste				
GRI-OG5	Quantity and Disposal of Oily Sewage and Oil Extraction Wastewater		2.3 Air Pollution Prevention	
GRI-OG6	Combustion and Fugitive Emissions of Hydrocarbon		2.1 Environmental Protection Strategy and Policy 2.2 Greenhouse Gas Emissions and Energy Management	
GRI-OG7	Drilling Mud Volume and Treatment Policy			FPCC is not involved in oilfield drilling and mining in Taiwan.
Products and Services				

Item Number	Item Title	Disclosure Status	Corresponding Chapter	Remarks
GRI-OG8	Benzene, Lead, Sulfur in Fuels		2.1 Environmental Protection Strategy and Policy 2.2 Greenhouse Gas Emissions and Energy Management	
Indigenous Rights				
GRI-OG9	Whether There Are Corresponding Measures Affecting Indigenous Peoples' Operation			FPCC has no influence on indigenous peoples' operation in 2017.
Local Community				
GRI-OG10	Number of Valid Disputes with Local Community and Indigenous Peoples and Their Description		2.3 Air Pollution Prevention 4.3 Community Development and Communication	FPCC mainly operates Taiwan's local business and is not involved in oilfield drilling and mining, but it has disclosed relevant events in Taiwan's operation.
GRI-OG11	Number of Decommissioned and Decommissioning Diggings			FPCC is not involved in mining in Taiwan.
Involuntary Migration				
GRI-OG12	Execution of Involuntary Migration and Number of Migrating Households' Impact on Their Lives		4.3 Community Development and Communication	FPCC did not cause any involuntary migration in 2017.
Process Safety				
GRI-OG13	Frequency and Type of Process Safety Incidents Due to Operational Activities		3.2 Risk Management of Industrial Safety	FPCC mainly operates Taiwan's local business and is not involved in oilfield drilling and mining, but it has disclosed relevant events in Taiwan's operation.
Fossil Fuel Replacement				
GRI-OG14	Biomass Energy and Purchases in Line with Sustainable Development Standards		2.1 Environmental Protection Strategy and Policy	





## Independent Third-Party Verification Declaration

### INDEPENDENT ASSURANCE OPINION STATEMENT

#### FORMOSA PETROLCHEMICAL CORPORATION 2017 Corporate Social Responsibility Report

The British Standards Institution is independent to FORMOSA PETROLCHEMICAL CORPORATION (hereafter referred to as FPCC in this statement) and has no financial interest in the operation of FPCC other than for the assessment and assurance of this report.

This independent assurance opinion statement has been prepared for FPCC 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 FPCC. 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 FPCC only.

#### Scope

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

1. The assurance scope is consistent with the description of FORMOSA PETROLCHEMICAL CORPORATION 2017 Corporate Social Responsibility Report.
2. The evaluation of the nature and extent of the FPCC'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 FPCC 2017 Corporate Social Responsibility Report provides a fair view of the FPCC 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 FPCC and the sample taken. We believe that the 2017 economic, social and environmental performance information are fairly represented. The CSR performance information disclosed in the report demonstrate FPCC'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 FPCC'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 FPCC'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.
- 6 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 reflected a fact that FPCC has continually made a commitment to its stakeholders, as the participation of stakeholders has been conducted 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 FPCC's inclusivity topics.

### **Materiality**

FPCC 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 FPCC's material topics.

### **Responsiveness**

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

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

FPCC 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 FPCC'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 FPCC'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  
2018-05-08*



**AA1000**  
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