台塑關係企業
FORMOSA PLASTICS GROUP

2016

Formosa Petrochemical Corporation

Corporate Social Responsibility Report

Contents

About this report

CH1 Industrial leading development

CH2 Green navigation

CH3 Work safety improvment

CH4 Local implementation

Appendix

About

Report Explanation

Letter from the Chairman

Stakeholder Engagement

Report Explanation

This is the third report of the Formosa Petrochemical Corporation (hereinafter Formosa Petrochemical). The period of disclosure of this information was from January 1 to December 31 2016. Taiwan is the main scope of this report, and any information that exceeds this scope will be specified in the report. In general, the information is disclosed based on data gathered over three years to help stakeholders better understand the quantitative information disclosed in this report.

Overview of Issues

Date of issue of first version:
December 2015
Date of issue of previous version:
June 2016
Date of issue of current version:
June 2017
Date of issue of next version:
June 2018

Principles of Editing

To ensure the entire report satisfies internal and external regulations and initiatives in Taiwan and on a global level, Formosa Petrochemical adopted the "Corporate Social Responsibility Best Practices for TWSE/GTSM Listed Companies", "Guidance on Social Responsibility" and the "10 Principles of UN Global Compact" as references for the information to be disclosed in this report and considerations of material issues.

The content of this report covers the three major dimensions of Formosa Petrochemical, namely economic, environmental and social factors and generally follows the Core Option of Global Reporting Initiatives, GRI, as well as refers to the Oil Gas Sector Disclosures and the three major areas of the AA1000 Accountability Principle Standard, significance, inclusivity and responsiveness, for the presentation of sustainable acts of Formosa Petrochemical in terms of business operations.

Scope and Sources

According to the 2016 consolidated financial statement of Formosa Petrochemical, the stakeholders of Formosa Petrochemical include Formosa Oil, Formosa Plastics Transport, FPCC USA, the Formosa Dredging Corporation, and Formosa Petrochemical Marine. However, the ratio of each interested party is extremely low and therefore this report mainly deals with data on Formosa Petrochemical within the same scope of the report of the previous year. Relevant data is summarized by the President Office with materials provided by all departments and used by the team tasked with writing this report, which the CSR core team of Formosa Petrochemical has reviewed and confirmed that it meets the requirements of the principles of honesty and is transparent in its disclosure.

Third party verification

To ensure the transparency and credibility of the information disclosed, the relevant information and data disclosed in this report has been independently verified by BSI according to the AA1000 principles in accordance with the Core Option of GRI G4. The BSI verification statement is also included in this report.

Contact methods

If any questions or suggestions should arise from this report, you are welcome to contact us and provide us with your opinions. The contact information is as follows:

Unit: President Office
Contact person: Ms. Lan
Email: csr01 @fpcc.com.tw
TEL: +886-2-27122211 ext.: 6255
Address: 4F., Rear Building No. 201, Dunhua N. Rd., Taipei City
Website: http://fpcc-csr.eorz.net/index.php

Letter from the Chairman

The Local Navigator

Formosa Petrochemical has cultivated the petrochemical industry in Taiwan for decades and has successfully built a vertical industrial supply chain connecting the upstream and downstream industries with products from imported crude oil to all kinds of refining oils as well as basic materials for downstream livelihood industries. Formosa Petrochemical is the navigator of the industrial chain leading the development of the industry, stimulating the local economy and indirectly playing an important role in the local community. However, due to the nature of this industry, the public underestimate the value of the petrochemical industry in the local community and have been deterred by the impression of the industry has upon them. Therefore, in addition to transforming the image of the industry, we should take further corporate responsibilities in providing social stability.

In recent years, issues regarding sustainable development are more and more emphasized around the globe. The Sustainable Development Summit convened by the UN in 2015 has established 17 Sustainable Development Goals (SDGs) including the elimination of poverty, health and hygiene, climate change, ecological conservation, gender equality and educational quality. Such issues are the main focus areas of global development over the next 15 years. As a global member and the navigator of the petrochemical industry in Taiwan, Formosa Petrochemical expects to develop methods of sustainable operation in connection with international SDGs and in accordance with global climate change and industrial trends.

We understand the urgency to fulfill our obligations and responsibilities to stakeholders. Listening to the voices of our stakeholders not only give us the opportunity to enhance the performance of operations of the Corporation, but also accumulate energy for sustainable development. Therefore, the vision of the development of CSR is planned as follows:

Workplace safety is the foundation of sustainable operations. Formosa Petrochemical strongly promotes safety in the workplace for all employees, carries out safety management on all levels, establishes the responsibilities of employees regarding safety in the workplace through various educational training and activities and cultivates autonomous management in the minds of employees to reinforce safety policies. Meanwhile, to allow sustainable environmental development, we invest in the most advanced process technologies to continue the promotion of energy-saving and carbon-reduction processes, and seek improvement and preventative measures. In addition, in cooperation with the high value-added governmental policy, we actively devoted ourselves to the development of product technology , cooperated with domestic and foreign companies to build factories of high value-added product lines, led the petrochemical industry upgrades, created a green economy, and brought about a society of positive cycle.

The fulfillment of solid corporate governance is a priority of sustainable operations. We strive for transparency of information and aim to enhance communication with stakeholders. We are therefore now in the top 20% of companies according to the corporate governance assessment of the Taiwan Stock Exchange Corporation in 2016. As we are faced with external environmental challenges, we continuously advance our business development through core management competence, which not only has won the trust of investors, but also has allowed shareholders to a reasonable return on their investment. We are all united in our goals and aspirations in terms of our customers and suppliers, all of which helps our Corporation grow. We provide more stable products and a good quality of services to establish long-term partnerships based on mutual trust and develop our social responsibilities together.

Sustainable operations is also achievable by being people-orientated. Accordingly, providing sufficient care to employees and recruiting outstanding talent are just some of the areas we focus on in pursuit of being a successful industrial leader. We provide stable and competitive salaries and comprehensive training systems to enhance the expertise of employees, while a safe working environment and sound welfare are created to satisfy both the physical and mental needs of employees. We also encourage employees serving as volunteers to understand societal needs, assist minority groups with long-term care and participate in caring for and development of the local community. Such activities are expected to bridge the gap between remote and urban areas and strengthen communities in the country as a whole.

Since the publication of the CSR report, Formosa Petrochemical has executively received many great suggestions and feedback from different stakeholders. In the future, we will continuously devote ourselves to the development of sustainable resources and incorporate these efforts into the core business to make sustainability a part of daily operations and be an example to colleagues and partners to participate more in the development of society. Meanwhile, we will follow international sustainability trends, and further research various issues. We are looking forward to leading the petrochemical industry in terms of the planet, people and profit.

Formosa Petrochemical Corporation

Chairman

陳志郎 B.L. CHEN

2017

Stakeholder Engagement

Communication with stakeholders

Formosa Petrochemical highly values communication and the exchange of opinions with different stakeholders and considers suggestions from stakeholders to be an important link to sustainable business operations. Through the Dependency, Power, Influence, Responsibility and Diverse Perspective, five major principles of the AA 1000 Stakeholder Engagement Standard, SES, the influence of stakeholders on Formosa Petrochemical were assessed to understand the concerns of stakeholders and establish relevant management guidelines and action. Meanwhile, internal communication channels were checked to ensure that the responses are satisfactory to the appeal and expectation of stakeholders.

There are 8 major stakeholders identified by business divisions and the CSR core team. Focusing on different stakeholders, relevant main departments have been established to manage communication, accept opinions and respond to the needs of stakeholders. The relevant areas of communication focused on are as follows:

Stakeholder	The Importance to Formosa Petrochemical	Responsible Department	Communication Channel and Frequency	Key Communications in 2016	Effects of Communication in 2016
Employees	Employees are the foundation of competitiveness. Coherence with employees is enhanced through comprehensive educational training and a friendly working environment	President Office	Labor-Management meetings (once/2 months) Welfare Committee (once/2 months) Opinion box/email (occasionally) Announcement letter (occasionally)	Labor-Management relations Occupational health and safety Industrial and public safety	The conversion rate of the items proposed in the labor management meeting was 93%. The conversion rate of items proposed by the Occupational Health and Safety Committee was 50%. No accident relating to health and safety occurred in 2016.
Investor/ Shareholder	With the support of investors/ shareholders, we are continuously involved in a partnership with out investors based on integrity of operations and sustainable governance. We also maintain and create long-term returns on investments for our investors/ shareholders.	President Office	Shareholders' meeting (once) Investor conference (2 times or more) Email/ telephone (occasionally)	Operational performance	Investor conferences were held twice
Residences in Operational Regions	Maintaining good interaction with community residents in operational regions is the key of operation. It is always included in relevant assessment considerations when setting annual strategic goals.	Regional Administrative Department	Email/ telephone (occasionally)	Local community development and communication	Pay attention to the health and environment education of local residents

Stakeholder	The Importance to Formosa Petrochemical	Responsible Department	Communication Channel and Frequency	Key Communications in 2016	Effects of Communication in 2016
Customers	Customer satisfaction is one of the main focuses of our operation. Suggestions and requirements of customers are the driving force of our progress	Sales unit of each business division	Satisfaction survey (twice per year) Email/ telephone (occasionally) Meeting (once per month)	Products and services	Customer satisfaction in 2016 was 2% higher than the previous year
Governmental Institutions	In addition to compliance with relevant laws, we also conduct two-way communication with the local government, providing information on our industrial experience to mutually promote the sustainable development of the industry	President Office	Meeting (thrice per year) Email/official letter (occasionally)	Occupational safety management Energy management	A total of 981 energy improvement cases A total of 4.93 billion dollars was accumulated as an into energy-efficiency optimization
Suppliers and Contractors	Suppliers and contractors provide high quality products and services, the supply chain relationship is strengthened with trust and cooperation	Health and safety department of each business unit	Meetings (occasionally) Contractor audit (occasionally) Email/ telephone (occasionally)	Training and education Emergency response measures	142 emergency response practices
Environmental Protection Group	Due to the nature of the industry, we work with environmental groups to exchange ideas and suggestions for improving environmental sustainability	President office	Email/ telephone (occasionally) Meeting (once per quarter)	Water resources, waste, energy management, greenhouse gas emissions	Water consumption was 1.1% less than the previous year. Both SOx and NOx by-products were respectively 26% and 7% less than than the previous year
Experts and Scholars	We value academic suggestions relating to sustainable issues, and actually apply theories to improve the competitiveness of industries in Taiwan	President office	Email (occasionally) Meeting (once per quarter)	Environmental assessment	Two environmental assessment and consultation meetings were held

Materiality Analysis Flow

To satisfy the expectation of stakeholders with respect to information disclosure, we analyze the concerns of stakeholders through materiality analysis, which were then used as reference when preparing the report, allowing stakeholders to understand the methodology of business operations, environmental protection and social welfare.

Step 1. Identifying Stakeholders

The CSR team has identified 8 major stakeholders of Formosa Petrochemical: employees, investors/shareholders, local residents in operational regions, customers, governmental institutions, suppliers and contractors, environmental groups, and experts and scholars after conducting discussions with different departments and executive officers based on international trends, the nature of the industry, business conditions and the five principles of the AA1000 Stakeholder Engagement Standard (dependency, responsibility, influence, diverse perspective, power)

Step 2. List of sustainable issues

Referring to domestic and foreign petrochemical industry-related issues, the UN SDGs targets, the GRI G4 Sustainable Report Guide, the "Oil and Gas Sector Supplement", "Corporate Social Responsibility Best Practice Principles for TWSE/GTSM Listed Companies", ISO 26000 Guidance on Social Responsibility", "10 Principles of UN Global Compact" and supplemented by the mid- to long-term vision and daily operations of Formosa Petrochemical, 43 sustainable issues of the Company were identified following discussions with the CSR team.

Step 3. Analyzing the Degree of Concern

We have electronically distributed a questionnaire with 43 sustainable issues to 5 executive offices of Formosa Petrochemical and 98 external stakeholders with the goal of arranging the power and impact of business areas with regards to economic, environmental, human rights, social, and product liabilities.

Step 4. Identification and assessment

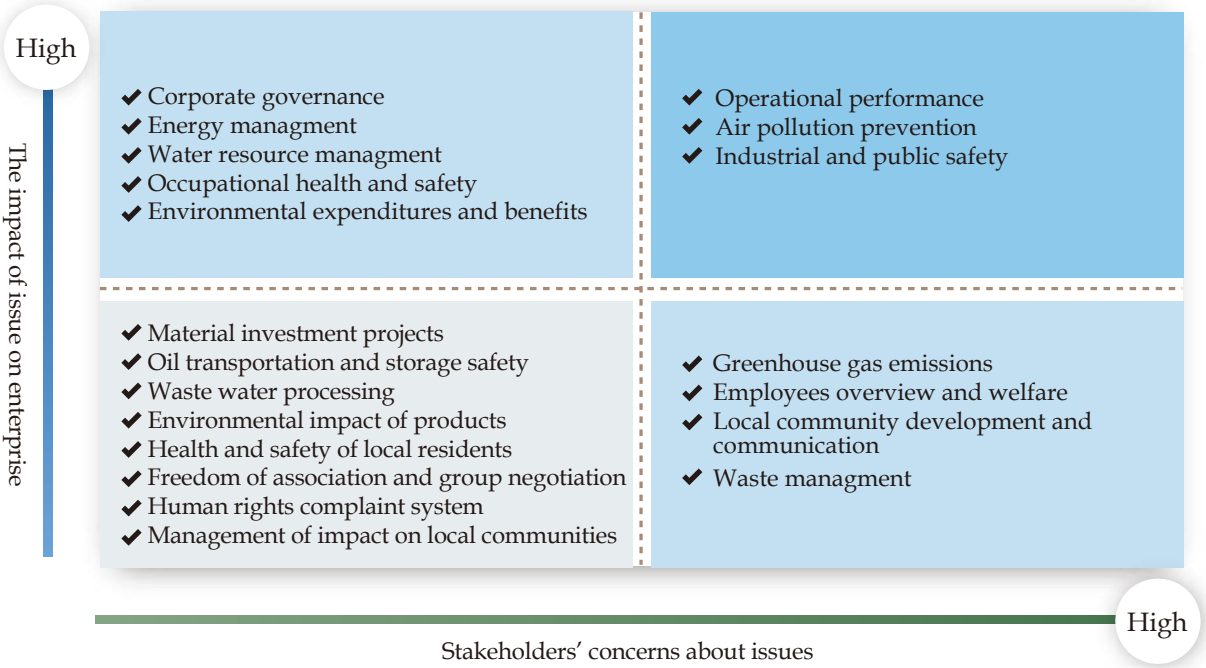
After conducting a cross analysis of the questionnaires completed by executive officers and stakeholders, 20 material considerations and relevant GRI considerations and management guidelines are identified based on the nature of the industry and operational conditions through discussions with the CSR team. Meanwhile, relevant issues shall be transparently, equally and comprehensively disclosed in this report.

Step 5. Review and discussion

After publication of the report, the materiality of report considerations as well as the feedback and response of stakeholders will be reviewed to ensure the transparency, reasonableness and equality of the content of the report.

Materiality Analysis Matrix

Formosa Petrochemical has identified 20 material issues from main issues of concern of stakeholders using materiality analysis matrix. After mutual discussions between all departments and the CSR team, this table was created based on 12 representative items with mid to high impact on sustainable issues. Comprehensive management methods and performances are disclosed in the report to satisfy the expectations of stakeholders.



The meaning and limitations of material issues of Formosa Petrochemical

Sustainable issues	Meaning for Formosa Petrochemical
Corporate governance	Comply with various laws and articles of incorporation such internal regulations to ensure the operational concepts of the Corporation. There is also internal control system established to review compliance with relevant laws and stable growth of all areas of the business as well as taking the benefits to all circles into consideration to create the maximum reward
Operational performance	
Air pollution prevention	Reduce the impact on the environment, undertake social responsibilities to local residents, and share common prosperity with communities to achieve sustainable operation goals of the Corporation
Energy management	Ensure reduction of greenhouse gas emissions and promote optimization and energy management policies such energy saving projects to continuously reduce the volume of greenhouse gas emissions
Greenhouse gas emissions	
Water resource management	Manage sources, and adopt higher standards of requirements to minimize the impact of operations on the environment
Waste management	
Environmental expenditures and benefits	Incorporate environmental protection into operational considerations. Create overall operational guidelines from difference angles to show the determination and possibility of sustainable operations
Industrial and public safety	Carry out process, equipment and personnel risk-management through the introduction of various international standards and technologies to reduce risks on-site
Occupational health and safety	Follow the requirements of the Occupational Safety and Health Act to systematically engage in health management and establish a quality workplace culture
Local community development and communication	Incorporate resources of the Chang Gung Medical System to promote health and hygiene education of local residents and actively be involved with the local community
Employees overview and welfare	Establish comprehensive welfare above regulation standards to improve employee benefits and create a wholesome enterprise together

Significant Considerations and Limitations

The report limitations and scope are disclosed aiming significant issues such as comparing sustainable issues internally or externally defined , as well as GI G4 related significant considerations to ensure the comprehensiveness and transparency of disclosed information allowing stakeholders understand how Formosa Petrochemical establishes relevant Disclosure of Management Approach, DMA.

Dimension	Significant Issue	Corresponding Consideration			Limitations						
						Outside the Organization					
		Significant Consideration	Correspondent Indicator	Corresponding Chapter	Inside the Organization (Formosa Petrochemical)	Customers	Governmental Agency	Local Residents	Investors/ Shareholders	Environmental Groups	Experts & Scholars
Economics	Corporate Governance	General Disclosure	G4 34	CH 1.1	●	●	●		●		
	Operational Performance	Economic Performance	EC1~EC4	CH 1.2	●	●			●		
Environment	Air Pollution Prevention	Industrial issues	OG6	CH 2.4	●		●	●		●	●
	Energy Management	Energy	EN3~EN7	CH 2.3	●		●			●	●
	Water Resource Management	Water	EN8~EN10	CH 2.5	●		●	●		●	●
	Greenhouse gas emissions	Emissions	EN15~EN21	CH 2.3	●		●	●		●	●
	Waste management	Sewage and waste	EN23	CH 2.5	●		●	●			
	Environmental expenditures and benefits	Overall conditions	EN31	CH 2.2	●		●				
Society	Industrial and public safety	Industrial issues	OG13	CH 3.2	●	●	●	●		●	●
	Employees overview and welfare	Labor relationship	LA1-3	CH 4.2	●						
	Occupational Health and Safety	Occupational health and safety	LA5~LA8	CH 3.4 CH 4.2	●						
	Local Community Development and Communication	Local society Industrial issues	SO1-2, OG10,12	CH 2.4 CH.4.3	●		●	●			

Sustainable Development Goals (SDGs) of Formosa Petrochemicals

As the industry leader, Formosa Petrochemical has the responsibilities to economic growth, environmental protection, and local communities. To actually fulfill the operational guidelines of sustainable strategies, the Corporation has integrated strategies to establish the sustainable blueprint of Formosa Petrochemical as corresponding with 17 UN SDGs.

	The relationship between SDGs and Formosa Petrochemicals	Sustainable Acts of Formosa Petrochemical in 2016	SDGs Correspondent Chapters
	Fulfill local health care and occupational health management	Complete employee physical checks, carry out overall tracing management and introduce "Smart medical check tools" to take care of employees' health through the use of technology	3.4 Occupational health management
	Improve water usage efficiency, control waste water processing, and protect the water ecosystem	Rainwater recycling of 9,039 tons, water recycling rate 98.7%. Also introduced a100,000 tons/day seawater desalination plant construction plan	2.5 Water resource and waste management
	Expand the efficiency of global sustainable energies through energy efficiency improvement and development of clean energy	Introduce "brand new recipe of super diesel" as the highest grade gasoline to compete with Japanese and EURO V or higher diesel vehicles	1.2 Sustainable business model
	Focus industries on high value-added development, create fair employment opportunities and promote a safe working environment	Promote local employment, the ratio of hiring local residents as executive officers has increased to 36.4%	4.1 Employee structure
	Expand the provision of global sustainable energies through energy efficiency improvement and clean energy development	981 cases of improvement in total The investment amount 4.93 billion in total	1.2 Sustainable business model 2.4 Air pollution prevention 2.5 Water resource and waste management
	Reduce the effect of climate change through control and reduction of greenhouse gas emissions	Efficiently controlled greenhouse gas emission volume in recent 5 years. The emission volume is 2% less than previous year	2.3 Greenhouse gas emission and energy management
	Reduce the effects of land waste on the ocean and conserve marine ecology	"National Kaohsiung Marine University" is designated to implement a marine ecological survey and environmental photo project and apply to the EU for EcoPorts certification to reinforce marine ecological conservation	4.4 Local ecological conservation
	Reduce actions that destroy natural habitats to protect ecological resources and land species	Have performed surveys on the number of species on the Mailiao Taixi area for ten years to fulfill responsibilities of local species conservation	4.4.3 Land ecological effects assessment

Industrial Leading Development

1

Due to the efforts of all our employees, the plants of Formosa Petrochemical have stable operations with properly controlled costs. Meanwhile, the Corporation actively explores new markets as the spread of petrochemical materials increases; therefore, the operational performance has yielded unusually brilliant results and attained historical records. The Corporation further persists in its steady attitude to make continuous and stable progress with regard to corporate governance, risk management, and supply chain maintenance.

- Stakeholders: investors/shareholders, customers, government agencies
- Material Issues: Corporate governance, Operational performance
- Strategic theme: optimize the communication validity and strengthen the transparency of disclosed information

Goals and annual achievements

Goals		2016 Achievements
Short-term Goals	Stable operation, shareholder interests' assurance, transparent information, and reinforcement of stakeholder communication	2016 net income before tax NT$ 90,678,154 thousand, EPS 7.95 6 board meetings, attendance rate of 90% 50 internal audit items, deficiency improvement rate of 100% Website consolidation; strengthen the disclosure content in the area of corporate governance and establish an area of corporate social responsibilities Customer satisfaction is higher than in the last two years.
Mid-term Goals	High value-added products	Introduce super diesel with a brand-new recipe Trial run of the HSBC joint venture project Launch the plant construction for the HHCR joint venture project
Long-term Goals	Sustainable development, seeking power for next-generation progress	Develop green energies and alternative energies Develop assessments for new investments

1.1 Corporate Governance

Disclosure of Management Approaches (DMA)

The Board of Directors, the highest governance unit of Formosa Petrochemicals, ensures that the business philosophy complies with various laws and internal regulations, such as the articles of incorporations. An internal control system has also been established to review the compliance of all corporate governance businesses to the relevant laws and regulations.

1.1.1 Organization , Ethical Operation, Transparent Information Reinforcement

Company Overview

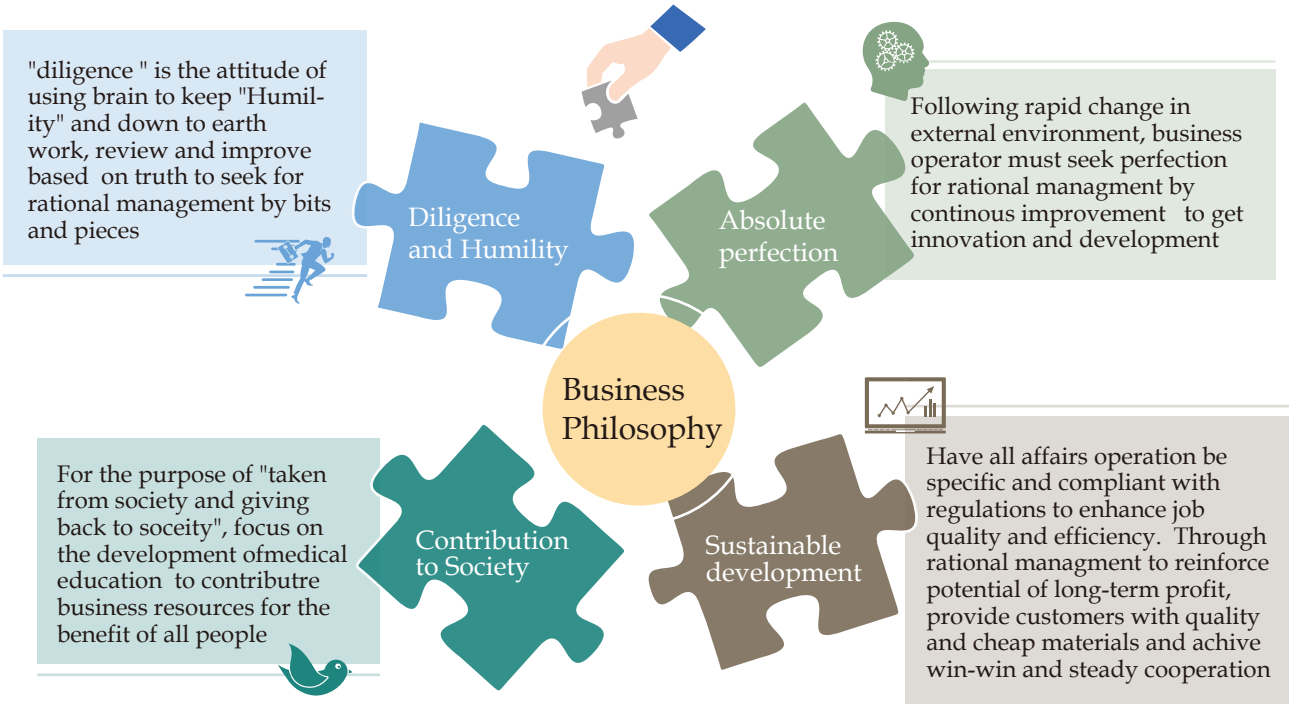
Formosa Petrochemical Corporation was founded in 1992 for the primary purpose of engaging in the manufacturing and sale of petroleum products and basic petrochemical materials. It is the only domestic private petroleum refining business producing and selling such petroleum products as gasoline and diesel. The naphtha cracker plant produces petrochemical materials such as ethylene, propylene, and butadiene, with the top production scale in the country. Furthermore, a qualified co-generation system supplies steam and other such power utilities as required by the plants within No. 6 Naphtha Cracker Complex.

Company Name	Formosa Petrochemicals Co., Ltd.
Date of Establishment	April 6, 1992
Date of Listing	December 26, 2003
Capital	NT$ 95,259,596,520
Number of employees in 2016	5,153
Consolidated turnover in 2016	NT$546,161,410 thousand dollars
Principal Office	Headquarters: No. 1-1, Formosa Industrial Park, Zhongshin Vil., Mailiao Township, Yunlin County Taipei Office: 4F., Rear Formosa Building, No. 201, Dunhua N. Rd., Taipei City
Credit Ranking	Taiwan Ratings twAA-； Standard & Poor's BBB+

Note: as of December 31, 2016

Business Philosophy

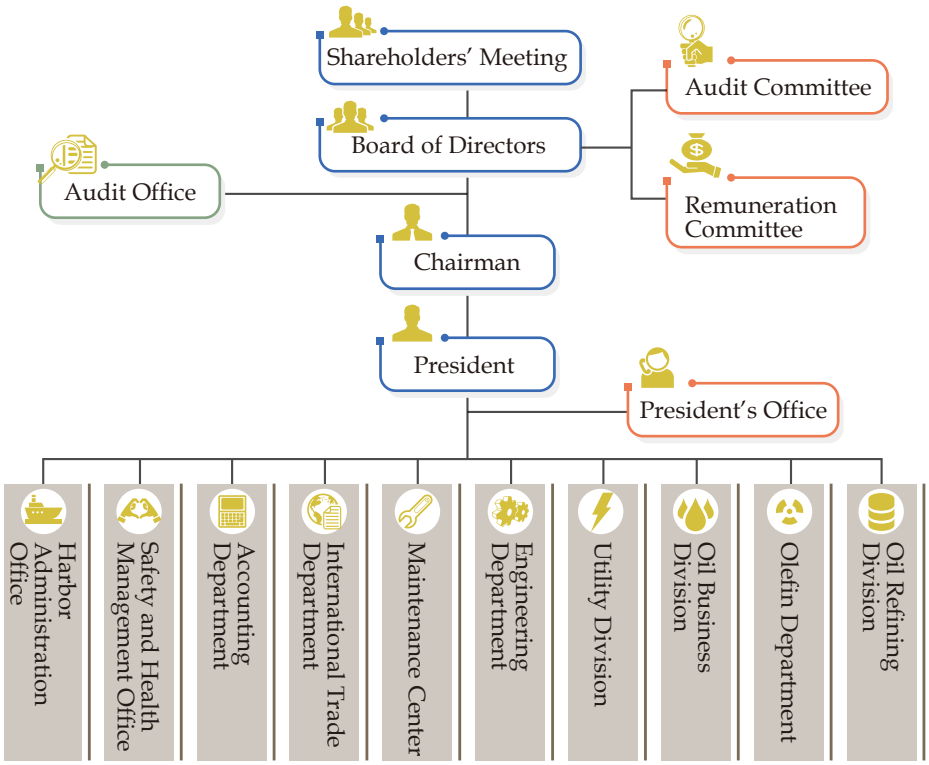
Formosa Group has become a comprehensive industrial group that today crosses various fields. The driving force of the continuous expansion, growth, and strength of the organization is the spirit "Diligence and Humility, Absolute perfection, Sustainable development, Contribution to Society" which was always emphasized and physically performed by the two founders, Mr. Wang, Yong-Chin and Wang, Yong-Tsai.



To ensure implementation of the business philosophy, the Corporation has established corporate governance best practice principles and ethical corporate management best practice principles, which includes 17 regulations that are disclosed in the corporate governance area of our website (http://www.fpcc.com.tw/).

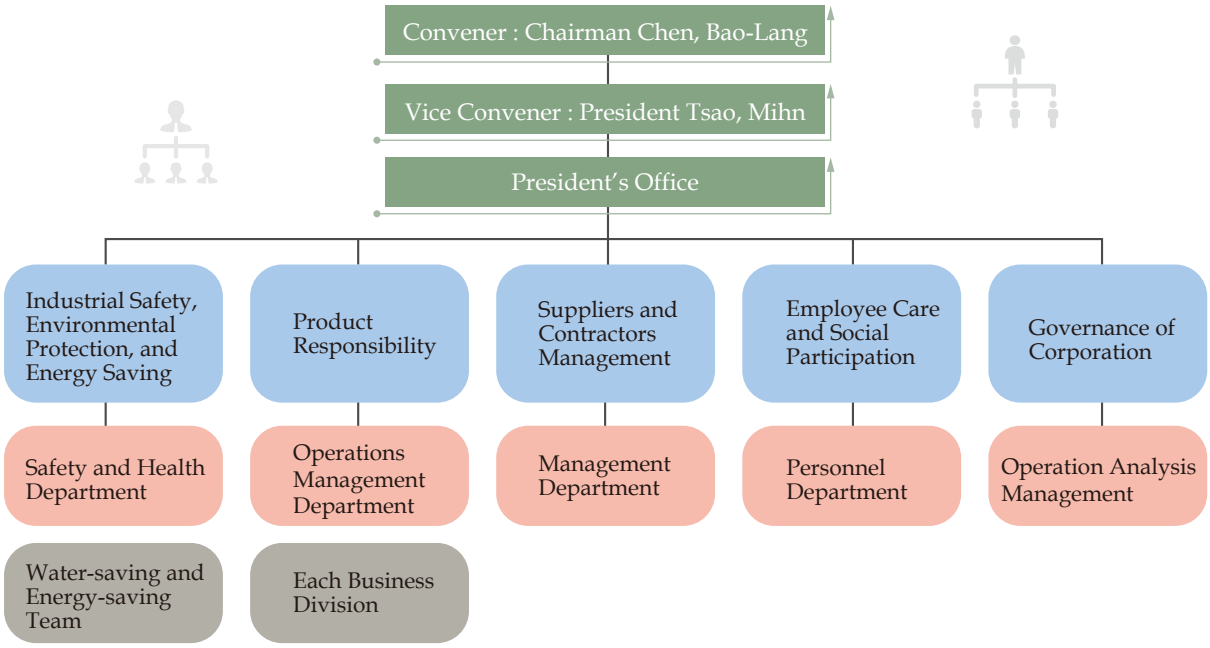
Corporate Governance Structure and Sustainable Governance Organization

Formosa Petrochemical has an organizational structure with distinct responsibilities. The Chairman is not the corporate manager. To ensure independent operation, different business divisions are subordinated to the President. In addition to focusing on their own businesses, cross-department communications are periodically held to achieve business goals via mutual support.



For the sustainable development of the Corporation, Formosa Petrochemical has its Chairman serve as the convener and the president as the deputy convener leading the President's Office and relevant departments to handle energy saving and climate change corresponding works. Meanwhile, the thoughts and needs of interested parties are acquired through various smooth communication channels as importance references for the Corporation's establishment of sustainable policies.

Organization of "Formosa Petrochemical CSR Promotion Team"



Transparent Information Reinforcement

To reinforce two-way communication with stakeholders, Formosa Petrochemical has done the following:

- Periodically disclosed various information on MOPS pursuant to laws and regulations
- Held at least two investor conferences every year
- Constantly optimized the company website and consolidate information disclosure regarding corporate governance and corporate social responsibilities
- Established the "investors' zone" on the website to provide investors with related information and answers to frequently asked questions
- Established the spokesperson system to provide a contact window for shareholders and investors

The actual achievements are reflected in various assessments. Formosa Petrochemical has consecutively received an A rating and higher from the rating announcement since the 3rd session in 2006 to the 12th session in 2014. Furthermore, the Corporation scored 86.89 in the 1st session, 92.89 in the 2nd session, and the score decreased back to 86.89 due to an indicator adjustment in the 3rd session of corporate governance assessment implemented since 2014. The Corporation has ranked among the top 20% of all listed companies assessed for the past three sessions.

1.1.2 Board of Directors, Audit Committee, Remuneration Committee

BOD Overview

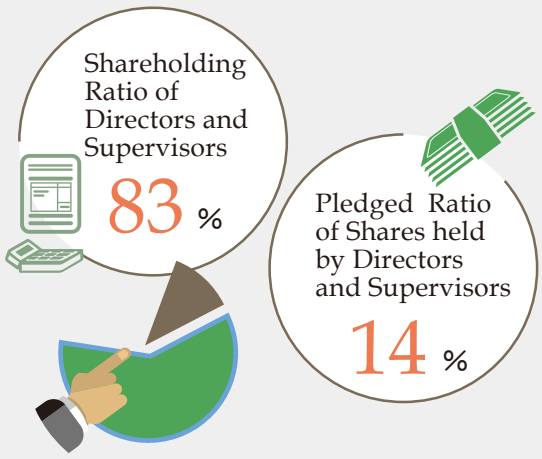
Formosa Petrochemical has adopted the candidate nomination system to elect directors since 2015. After candidates' qualifications are reviewed, the candidate list will be submitted to the shareholders' meeting for election from the list. The tenure of the office of directors shall be three years per term.

Currently, the Board has 15 directors aged between 52~87, all of which are professionals and experienced people. Several directors have served in petrochemical and plastic industries for a long period of time and can thus provide the Corporation with optimal strategic instructions for company development through their rich professional knowledge and operational capabilities. To further enhance the professional knowledge and legal cultivation of directors, Formosa Petrochemical arranges courses for the study of directors as new information replenishment. For detailed information about the education and advanced study of the directors, please refer to the annual report of the shareholders' meeting on our website (http://www.fpcc.com.tw/).

In general, the board of directors convenes at least one meeting every quarter. Six board meetings were held in 2016, with an actual attendance rate of 90%.

Company	Number of Directors (Including independent directors)	Independent Directors		Female Directors		Average age
		Number	Percentage	Number	Percentage	
Formosa Petrochemical	15	3	20%	1	7%	66.9

The shareholding rate of the directors and supervisors of Formosa Petrochemical was about 83% over the past five years, which is far more than the minimum shareholding requirement of 2% stipulated by the Financial Supervisory Commission for the board and supervisors of public issuers in the same scale. Furthermore, the pledged ratio of shares held by directors and supervisors was only about 14%. These percentages show that the interests of the Board of the Corporation are closely tied with shareholders and are worthy for the commission and trust of shareholders.



Audit Committee Operation

The Audit Committee of Formosa Petrochemical is organized by independent directors. They insist on honest and independent principles to supervise the business execution and financial conditions of the Corporation, audit financial statements, and assist the Board in implementing its supervision duties, as well as the tasks given to them by the Company Act, the Securities Exchange Act, and other relevant laws. The Audit Committee held five meetings in 2016, with an average actual attendance rate of 87%, which is disclosed in the corporate governance area on our website (http://www.fpcc.com.tw/).

Title	Name	2015		2016	
		Actual Attendance Number	Attendance Rate	Actual Attendance Number	Attendance Rate
Convener	Chang, Chan-Bang	4	100%	5	100%
Audit Member	Luo, Gi-Tang	3	75%	3	60%
Audit Member	Cheng, Yu	3	75%	5	100%
Total		13	10	83%	13

Remuneration Committee Operation

The Audit Committee of Formosa Petrochemical is organized by independent directors. They insist on honest and independent principles to supervise the business execution and financial conditions of the Corporation, audit financial statements, and assist the Board in implementing its supervision duties, as well as the tasks given to them by the Company Act, the Securities Exchange Act, and other relevant laws. The Audit Committee held five meetings in 2016, with an average actual attendance rate of 87%, which is disclosed in the corporate governance area on our website (http://www.fpcc.com.tw/).

Title	Name	2015		2016	
		Actual Attendance Number	Attendance Rate	Actual Attendance Number	Attendance Rate
Convener	Chang, Chan-Bang	3	100%	2	100%
Audit Member	Luo, Gi-Tang	2	67%	1	50%
Audit Member	Cheng, Yu	2	67%	2	100%
Total		5	7	78%	5

Compensation of directors and managers

With regard to the compensation of directors and managers, the independent directors receive compensation and a travel allowance every month. The travel allowance is paid according to the actual number of meetings attended. The combination of compensation to managers mainly covers the salary, rewards, and bonuses to employees, as well as a pension fund and appropriated employee welfare. The Chairman reviews the overall performance and personal "annual goals" achievement within the scope of duties to ensure that executive officers understand and achieve the Corporation's general strategic goals, as well as connects the incentive system with both personal and overall company performance.

The Percentage of Total Compensation to Directors and Managers of Formosa Petrochemical to Net Income after Tax:

Unit: thousand in NTD

	2012	2013	2014	2015	2016
Compensation to directors and managers	75,544	88,246	88,633	81,049	108,026
% of net income after tax	2.78%	0.33%	0.98%	0.17%	0.14%

1.1.3 Anti-corruption policies and internal audit system

Anti-Corruption Policies

Code of Ethics

- Anti-corruption
- Labor laws compliance
- Environmental protection
- Insider trading
- Protection of intellectual property rights
- Personal information and privacy protection
- Gender equality

Self-Discipline Documents

- Sign the "Affidavit"
- Follow the "Business Secret Act"
- Personal "Working Rules"
- "Ethical Corporate Management Rules"
- "Corporate Governance Rules"
- "Personnel Management Rules"
- "Self-discipline Convention"
- "Code of Conduct" for directors and managers

Types of Training

- Orientation
- In-service training
- Executive officer training
- Face-to-face lectures
- Online courses

System and regulations establishment

The Corporation has established relevant systems and regulations aimed at different legal fields, including anti-corruption, labor laws compliance, environmental protection, insider trading, protection of intellectual property rights, personal information and privacy protection, and gender equality. The purpose is to fulfill the code of ethics and law compliance concepts through a complete system or regulations. For any violation, the Corporation would enforce severe punishment without hesitation, including termination of employment or business relationship, as well as appropriate legal action.

Self-discipline documents

The Corporation has drawn up "Ethical Corporate Management", "Corporate Governance Rules", and "Personnel Management Rules", all of which demonstrate the ethical polices for ethical management with regard to dishonest acts. All employees must sign the "Affidavit", including compliance with the "Business Secret Act" without any bribery or other illegal gains. "Working rules" are also distributed, and those who deal with external suppliers (e.g.: procurement, contract) must sign the "self-discipline convention". Furthermore, the periodical transfer system has been adopted to prevent fraud. The "Code of Conduct" was established especially for directors and managers. They are strictly prohibited from providing, promising, requiring, and accepting, directly or indirectly, any illegal gains or actions that violate good faith, laws, or trust.

Educational training

Educational training is an important channel for promoting the internal system and establishing the correct legal concepts of employees. Over the past several years, the Corporation has included relevant regulations in the orientation, professional training, and managers' training courses to facilitate employees' comprehensive understanding of the legal concepts necessary for the businesses.

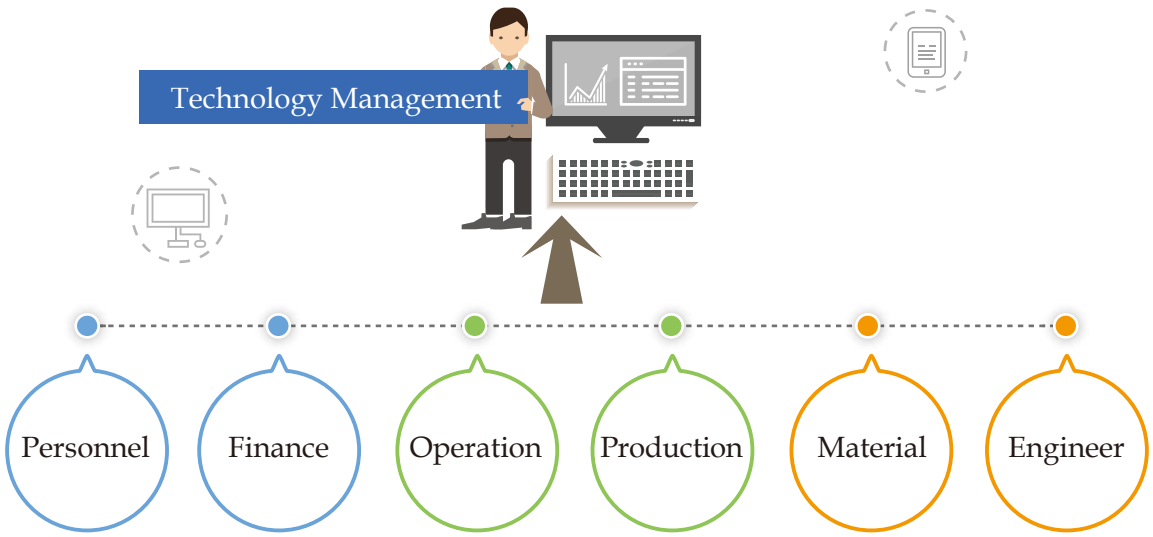
For employees equipped with stricter legal concepts, the Corporation has introduced "anti-corruption law promotion" courses since 2016. The syllabuses include anti-corruption and confidential information protection incorporated with actual cases studies. The general administration division arranged courses aimed at outsourcing and procurement personnel in two sessions, 2 hours per session, for a total of 4 hours in 2016. The training percentage reached 99.6% (employees to be trained 274, actual number of trainees 273). Furthermore, online courses are planned for 2017, which newly recruited employees must take to ensure their compliance with the laws.

Complaint channels

The Corporation provides internal channels for reporting illegal acts through the "Outlines for Complaints of Employees" system. When an employee finds an illegal or improper act that may affect the rights of an individual or the company or an employee intends to get illegal gains by taking advantage of his/her duties, he/she may fill out the "Complaint Form" and submit it to the relevant department superiors for management according to the position of the person who is the subject of the complaint. The Corporation and people responsible for investigation shall maintain a fair and impartial position to carry out the investigation and make a report. No retaliation shall be made against the person filing the complaint, and the entire process shall be kept confidential; otherwise, the punishment will be reported in another way.

Internal auditing

Formosa Petrochemical has established a complete internal control system, promoted general computer operations, and connected personnel, finance, operations, production, materials, and engineering in order to check each other and abnormal management. A professional and independent internal audit operation structure has also been established.



According to the "2016 Audit Plan" passed by the board of directors in 2016, the audit items, including sales and collection, procurement and payment, production, salary, financing, fixed assets, computer information, and investment, a total of 50 items, were determined to audit the goals in terms of operational effects and efficiency, reliability of financial reporting, and compliance with relevant laws. According to actual audit results, nine items were found to be deficient. Most of them involved the careless omission of paper work or incomplete information, and no material deficiency was found. The audit report aimed at the deficiency and abnormality of the internal control system was prepared, and the cases were filed for periodical follow up. The aforementioned nine deficiencies were all corrected, and the improvement rate was 100%.

	2015	2016
Audit plan	47 items	50 items
Number of cases in deficiency	10	9
Number of cases corrected	10	9
Improvement rate	100%	100%

1.1.4 Participation in Public Policy and Associations

Participation in public policy

The Corporation reflects our suggestions to the energy industry mainly through the white paper for suggestions of the National Federation of Industries (CNFI) every year and expresses our opinions and comments regarding industrial related regulations when government agencies ask for advice, which has established good communication channels and feedback with such government agencies. In 2016, in the CNFI white paper, we provided our suggestions about the approaches of Generally Allocated Tax Revenue Distribution, energy polices, and labor issues as references for government administration.

Donation and political contribution policies

Formosa Petrochemical manages various donations. Material donations to related and non-related parties are managed upon approval from the board of directors. Donations to government agencies are based on contributions to local and social responsibilities. No political donations were made for the purpose of persuasion in 2016.

Participation in non-profit organizations:

To enhance the operational quality of industries in Taiwan, Formosa Petrochemical actively participates in various industrial unions and associations and serves as president, director, supervisor, or representative of such organizations. In addition to exchanging operational experiences with enterprises in the same industry through union organization, seminars and international meetings are also mutually held to share the latest market information, changes in supply and demand, and technological information. Meanwhile, the Corporation participates in various international negotiations and consultations with the goal of contributing to the overall industry and providing suggestions to the government regarding international industrial and economics issues.

Name	Officer of the Corporation	Position
Petrochemical Industry Association of Taiwan	Chairman Chen, Bao-Lang	President
Taiwan Institute of Chemical Engineers	Chairman Chen, Bao-Lang	Vice President
Chinese Chemical Society	Chairman Chen, Bao-Lang	Vice President
Chinese Petroleum Institute	Chairman Chen, Bao-Lang	Managing Director
Sino-Arabian Cultural & Economic Association	Chairman Chen, Bao-Lang	Managing Director
Center for Corporate Sustainability	Chairman Chen, Bao-Lang	Director
Chinese Institute of Engineers	Chairman Chen, Bao-Lang	Director
Taiwan Responsible Care Association	Director Chiang, Chi-Chang	Director
Association of Ocean Pollution Control of the Republic of China	—	—
Pressure Vessel Association	—	—
The Society for Nondestructive Testing and Certification of Taiwan	—	—

1.2 Sustainable Business Model

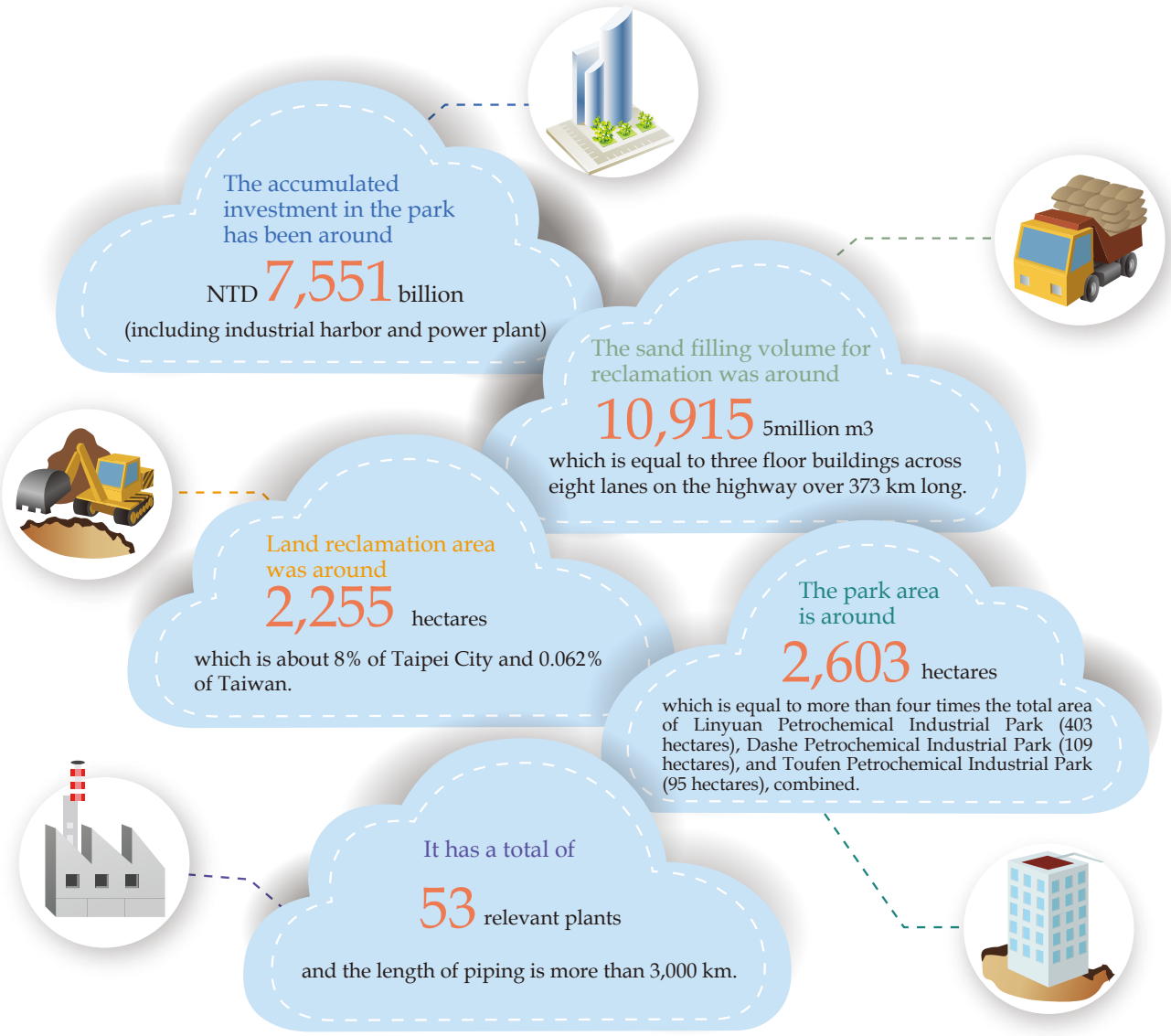
1.2.1 Industry Overview

Due to the orientation of policies, the domestic petrochemical industry has had neither significant expansion nor additional capacity in recent years. On the other hand, countries in Asia like China and Korea continuously create new capacities. Facing competitive pressure, Formosa Petrochemical has maintained stable production without significant changes in 2016.

1.2.2 Business model, products, and capacity

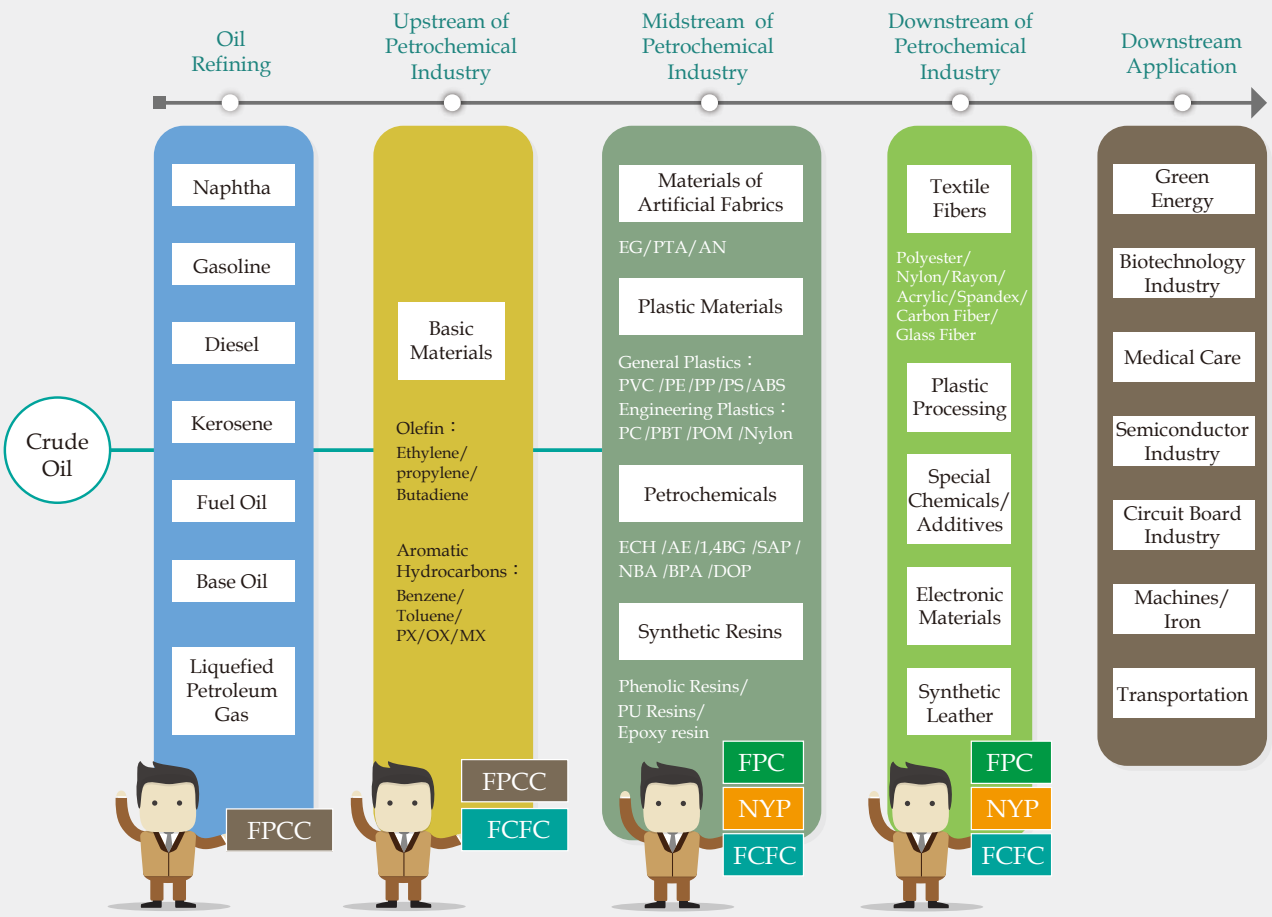
Regarding the sixth naphtha cracker plant:

The Yunlin Offshore Industrial Park in Mailiao Township, Yunlin County is located on the northern border of the estuary of Zuosheui Creek, with a length of around 8 km from north to south and 4 km along the coastline. This area has been called the land "receiving direct blows from strong winds and the end of a river", which is not only inconvenient in terms of traffic, but also receives strong winds from the northeast for half the year. The climate is relatively tough so plant construction was very difficult. With a great effort from all of our colleagues, the Corporation has completed plant construction through phase 4 for the sixth naphtha cracker plant since 1994.



Formosa Group Product Diagram:

The petrochemical industry can be roughly divided into basic materials, middle materials, and downstream application products, all of which are closely related to each other. Meanwhile, the basic materials include Olefins and Aromatics made via cracking or restructuring of Naphtha refined from oil under high temperature and high pressure. Formosa Petrochemical stands upstream of the industrial chain, the major materials are crude oil imported from abroad, and the major products are various oil products and basic petrochemical materials.



The Capacity and Scale of Formosa Petrochemical in 2016:

Business Division	Major Capacity		
Oil refinery	Daily oil refining volume	540K	barrel/day
Olefin Business	Ethylene	2,935	Ktons/year
Co-generation system	Power generation	2750	MW

Oil refining business

The oil refining plant produces 540,000 barrels daily, among which the naphtha capacity may reach 3.75M tons for the use of relevant plants in Mailiao Park. The plants produce gasoline, diesel, jet fuel, liquidized gas, etc.

Olefin business

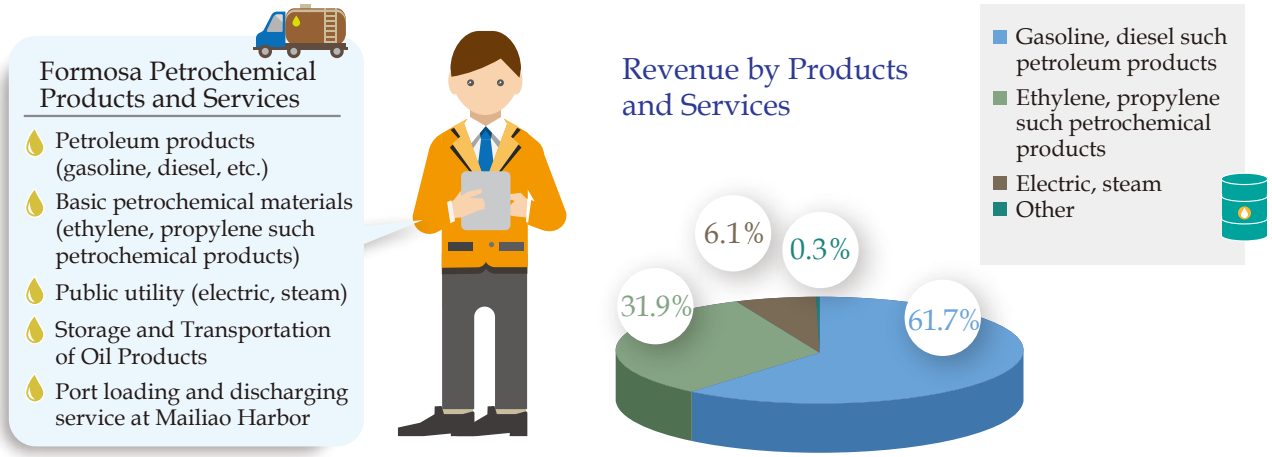
Three naphtha cracking plants produce a total of 2,935K tons a year of ethylene.

Co-generation plant

The qualified co-generation system has 16 generators with a total capacity of 2,750 MW, which is the biggest co-generation plant in the country producing power, steam, industrial water, ultra-pure water, nitrogen, oxygen, and compressed air.

Principal products and services

The principal products and services of Formosa Petrochemical cover oil products, basic petrochemical materials, utility liquids, oil storage, and loading/discharging businesses in Mailiao Harbor. The oil products accounted for 61.7% of the turnover in 2016 and 31.9% for basic petrochemical materials, which are the most important core businesses of the Corporation.



For further details about our various products and services, please refer to our website (http://www.fpcc.com.tw/) and annual report.

Quality certification products and services:

Better new energy — Formosa 95+ unleaded gasoline "stable, saving, strong, clean"

As a local brand, Formosa Petrochemical has always been devoted to producing high quality products for both domestic and oversea markets. The Corporation is highly valued on the international oil market due to its good quality. The products are sold to such developed countries as Germany, the United States, Japan, and Australia. The Corporation uses advanced processes and equipment to do thorough research on the development of world engine technology and develop the new recipe "95Plus unleaded gasoline" through process improvement and research tests, as well as actual road tests of a world standard engine laboratory based on refining technologies and experiences over the years. We are deeply involved in the domestic oil market to provide new products equipped with better driving stability, fuel efficiency, and power performance.

Formosa Gasoline- brand new recipe super diesel, the best choice for business vehicles

Due to the rapidly changing engine technology, strict global environmental regulations, and the high expectations of consumers for good products, Formosa Gasoline introduced "brand new recipe super diesel" in 2016, which is the gasoline for diesel vehicles satisfactory to the highest levels of Japanese specifications and Euro 5. It has the four major advantages of "smooth oil passage", "oil saving and good price", "strong climbing power", and "reduced carbon deposition" and is the best choice for business vehicles.

Authorized Economic Operator (AEO) certification

AEO certification represents that the safety of the overall supply chain from enterprises as approved by the government to their upstream and downstream enterprises and trading safety measures achieve the standards of good quality enterprises, which is the trend of international trade in the future, as well as the key policies promoted by our customhouse.

Formosa Petrochemical launched AEO certification in June 2013 and completed all the verification items in less than six months. The AEO certification was received on December 6 of that same year. AEO certification allows the goods imported and exported from the Corporation to enjoy such benefits as minimum examination ratio and periodical import tax payments.

Taiwan Accreditation Foundation (TAF) certification

The flow collaboration lab of Formosa Petrochemical Service Center was founded in 2003. The diesel engine of the Oil Refining Department received Chinese National Laboratory Accreditation (CNLA) certification in 2004, which was formerly the Taiwan Accreditation Foundation–Department of Laboratory Accreditation (TAF). The purpose is to improve the technological abilities and mutual approval of our quality level internationally, as well as the evidence ability of test reports and collaboration certificates issued by the lab after certification.

REACH chemical registration

Formosa Petrochemical has acquired REACH chemical registration for ethylene, propylene, pyrrolyene, IPM, PIPS, and DCPD. REACH is the European community's safety regulations governing chemical registration, authorization, and restrictions. This registration may help the sales of the Corporation to the European Union and facilitate sales promotion.

JHOSPA

JHOSPA was founded in accordance with the Japan Foods Health Act in 1973. JHOSPA establishes regulatory standards in terms of materials, additives of foods containers/packages, and finished goods. Formosa Petrochemical has the white oil products 380N and 550B certified at the food level as qualified additives approved by JHOSPA.

1.2.3 Operation Performance

Disclosure of Management Approaches (DMA)

The Corporation's operations are centered on stable production, accompanied by flexible production and sales distribution according to market conditions to seek maximum benefits for its shareholders. The financial principle is stability without financial operations not related with the businesses in order to keep the Corporation stable.

Operation Performance

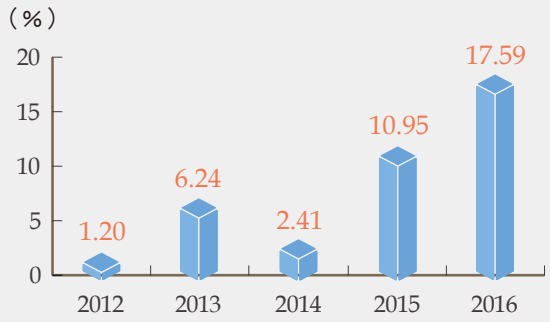
The consolidated revenue of the Corporation was NT$546,161,410 thousand in 2016, which was 13.2% less than the revenue of NT$629,513,850 thousand in 2015. However, the consolidated net income before tax was NT$90,678,150 thousand, which was 72% growth compared to NT$52,712,570 thousand in the previous year. The Corporation mainly benefited from the demand stipulated by the low oil price and reduced supply due to increasing periodical inspection of petrochemical plants in Asia compared to previous years, resulting in significant profit growth.

Unit: NT thousand

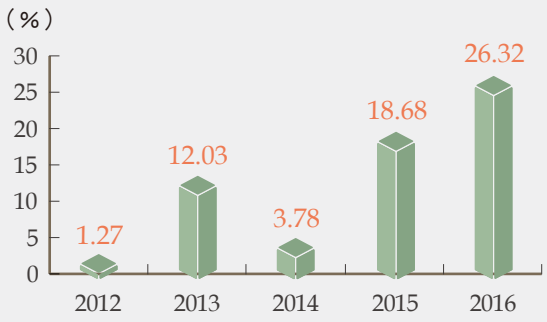
Item \ Year	2014	2015	2016
Sales revenue	913,085,277	629,513,853	546,161,413
Cost of goods sold	903,507,025	574,353,426	449,702,499
Net gross margin (loss)	9,578,252	55,160,427	96,458,914
Total operating expenses	9,752,199	9,678,274	10,249,581
Operating income (loss)	(173,947)	45,482,153	86,209,333
Total non-operating income and expenses	9,274,218	7,230,420	4,468,821
Net income before tax	9,100,271	52,712,573	90,678,154
Income tax expenses (benefit)	30,041	5,405,716	14,909,685
Net income after tax	9,070,230	47,306,857	75,768,469

Financial ratios

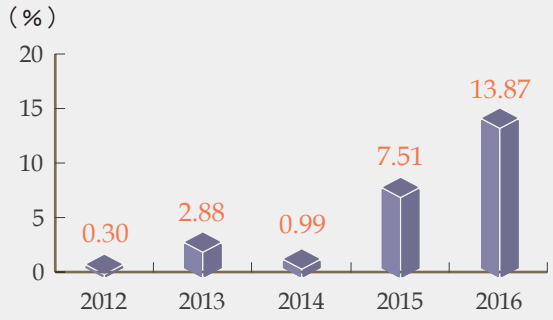
Return on assets



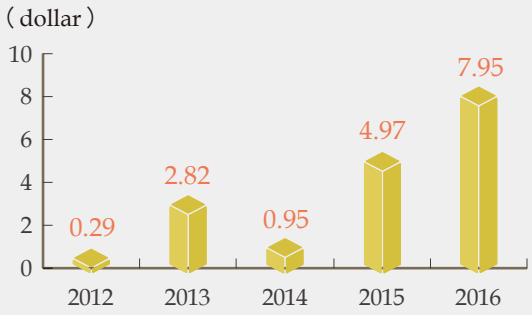
Return on equity



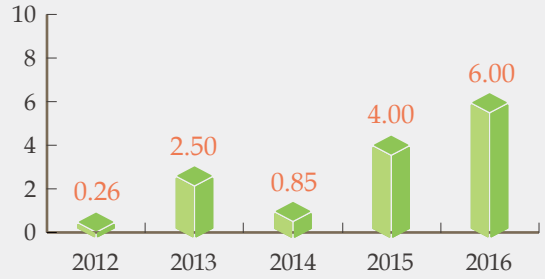
Net income ratio



Earnings per share after tax



Dividend per share



Productivity and Capacity

With regard to productivity, the production remained stable in 2016, which is similar to previous years. For detailed information, please refer to our website (http://www.fpcc.com.tw/) and annual report.

1.3 Business risk management

1.3.1 The competitive advantages of Formosa Petrochemical

Vertical integration and economic scale

Formosa Petrochemical stands upstream of the petrochemical industrial chain and has formed vertical integration with other middle and downstream companies in Mailiao Park for effective planning and distribution to reduce production and transactions costs while enhancing competitiveness.

Advanced and flexible process

Formosa Petrochemical has the most flexible process to produce oils that satisfy high domestic and overseas environmental standards, in which naphtha or LPG can be used as a material based on cost adjustment, and the product combinations may be adjusted according to market conditions to achieve optimal income.

Close to deepwater harbor and owns its fleets

Mailiao Industrial Harbor is favorable to the import/export and transit of bulk materials and finished goods. Furthermore, transportation using a privately owned fleet of ships and oil tankers of related parties may reduce the risks of materials and inventory costs.

Private co-generation plant

The co-generation plant owned by Formosa Petrochemical can stably provide such utilities as steam and power, thus reducing the losses due to interruption of supply.

1.3.2 Operational risks evaluation

The sustainable operation of business must consider various potential risk issues and operational evaluations. Each department has a unit responsible for risk management to plan and evaluate the probability and impact of operational risk issues, while the risks review unit plans relevant response actions.

Risk evaluation items	Risks management unit	Risks review	Response Action
1. Change in interest rate, exchange rate, and inflation	President's Office, Accounting Division, Finance Department, Formosa Group Headquarters	BOD, Audit Office, computer audit and periodical autonomous examination, financial superiors meeting	1. Interest rate: Aimed at long-term debts with a floating interest rate, carefully review the conditions of the financial market and conclude interest rate swap contracts with famous international banks when the interest rate is relatively low. 2. Exchange rate: Buy spot or future exchange to support the deficit of working capital in daily operations when the market exchange rate is favorable. 3. Inflation: According to the CIP index published by the Accounting and Statistic Department, Executive Yuan, the CPI annual growth rate was 1.40%, and the annual growth rate of the core consumer price was 0.84% in 2016. The inflation risk was low and insignificant to the profit and loss of the Corporation.

Risk evaluation items	Risks management unit	Risks review	Response Action
2. High-risks and high-leverage investments, fund lending to others, endorsements, and derivative transactions	President's Office, Finance Department, Formosa Group Headquarters	BOD, Audit Office, computer audit and periodical autonomous examination, financial superiors meeting	1. High-risks and high-leverage investments: The petrochemical industry is a mature and stable industry with low risks, and Formosa Petrochemical has always been oriented to stable operation and sound finance without engaging in high-leverage investments. 2. Fund lending to others: Fund lending to others is implemented pursuant to relevant laws and regulations after the subject, amount, period, and interest calculation methods are approved by the Audit Committee and the Board of Directors. Fund lending shall be reviewed periodically. The purposes of loans are mostly for short-term capital distribution, and the subjects are financially sound, in stable operation, and without any history of bad debt loss. 3. Endorsements: In general, the subjects of endorsement/guarantee are parent companies, subsidiaries, or business-related affiliates. The endorsement/guarantee items are mostly guarantees for financing and import taxes. Since the subjects of guarantees are financially sound and in stable operation, no losses on endorsement/guarantee have yet occurred. 4. Derivative product transactions: All derivative transactions are for the purpose of avoiding market risks arising from the fluctuation of exchange rate and interest rate instead of hedge or speculative purposes.
3. Research plan	President's Office, Manager's Office of all business divisions, Formosa Group Headquarters	BOD, Audit Office, production and sales meeting, operational performance meeting	No such risks after evaluation
4. Important changes in domestic or foreign policies and laws	President's Office, Formosa Group Headquarters, Legal Affairs Office	BOD, Audit Office	Formosa Petrochemical pays close attention to domestic and overseas political and economic situations, the establishment of important policies, and changes in laws and then arranges personnel to undergo the necessary professional training.
5. Technological changes	President's Office, Manager's Office of all business divisions, Formosa Group Headquarters	BOD, Audit Office, production and sales meeting, operational performance meeting	The petrochemical industry is a technology matured industry without significant technological changes. Regarding shale gas and coal chemical technology, C4 and aromatic products cannot be produced by using shale gas. Therefore, the ethylene plant using naphtha may still be profitable. Furthermore, the Corporation has launched process improvements to adjust the LPG material percentages and reclaim C4 and C5 to increase product value and enhance competitiveness. Since the crude oil price has been relatively low recently, the alternative material development of all countries has slowed down.
6. Change in business image	President's Office, Formosa Group Headquarters	BOD, Audit Office	Formosa Petrochemical holds the belief of "Diligence and Frugality, Aim at Absolute Perfection, Sustainable Operation, Contribution to Society" to establish a good business image. We will continuously fulfill this philosophy to strive for perfection and make a greater contribution to society.
7. Acquisition or reinvestment	President's Office, Manager's Office of all business divisions, Formosa Group Headquarters	BOD, Audit Office, production and sales meeting, operational performance meeting	The Corporation does not engage in mergers. Aiming at reinvestment, the Corporation prepares detailed investments and does complete assessments in advance. The assessment results are provided to the Audit Committee and the Board of Directors for approval before making any investment.

Risk evaluation items	Risks management unit	Risks review	Response Action
8. Plant expansion	President's Office, Manager's Office of all business divisions, Formosa Group Headquarters	BOD, Audit Office, production and sales meeting, operational performance meeting	No such risks after evaluation
9. Purchase or sales	President's Office, Manager's Office of all business divisions, Formosa Group Headquarters, Procurement Dept.	BOD, Audit Office, production and sales meeting, operational performance meeting	Purchases: The major sources of the oil refining plant and naphtha cracking plant are major petroleum exporting countries in the Middle East. Such areas may have risks of supply interruption due to occasional turmoil, which further affects the productivity of petroleum exporting countries. Formosa Petrochemical may purchase different crude oils from all petroleum exporting countries due to quality refining technology and flexible processes. Furthermore, the Corporation has concluded long-term purchase agreements with foreign oil and coal dealers to diversify risks; therefore, the unstable material supply may be properly prevented and the material purchase costs can be controlled. Sales: The domestic and oversea sales were 60.71% and 39.29%, respectively, in 2016. Sales agreements have been concluded with major domestic customers, and the sales conditions are stable. The products are sold to Southeast Asia, Korea, Australia, Europe, and the United States depending on the production and sales conditions of the refining plant. The petrochemical products are mostly sold to companies inside the Mailliao Park with lower risks.
10. Share transfer of directors, supervisors, and major shareholders	President's Office, Finance Dept., Stock Affairs Office, Legal Affairs Office, Formosa Group Headquarters	BOD, Audit Office	No such risks after evaluation
11. Change in operation ownership	President's Office, Finance Dept., Stock Affairs Office, Legal Affairs Office, Formosa Group Headquarters	BOD, Audit Office	No such risks after evaluation
12. Litigious and non-litigious events	President's Office, Manager's Office of all business divisions, Legal Affairs Office	BOD, Audit Office, production and sales meeting, operational performance meeting	After evaluation, the litigious cases attributed to Formosa Petrochemical will not have a significant effect on the shareholders' equity or security price.
13. Climate change	President's Office, Manager's Office of all business divisions, Formosa Group Headquarters	BOD, Audit Office	Regarding various agreements aimed at climate change, such as greenhouse gas measures, as well as changes in environmental protection regulations, the Corporation actively responds and carries out process adjustments with optimal feasible technology to reduce its environmental impact.

1.3.3 Innovative Thinking, Integrated Research, Risk Reduction

Formosa Petrochemical has departments dedicated to process improvement in each plant. Professional chemical engineering technicians are hired to carry out process improvement research works aimed at stable production, higher productivity, cost reduction, increase of production value, and reduction of energy and pollution to reduce operational risks.

Furthermore, the Corporation is devoted to developing the application of downstream products of naphtha cracking plant C4 and C5 in cooperation with high-value petrochemical industry policies to increase the output value of cracking related products and operational income. The high-value industrial developments currently in progress include the joint venture with Kraton for HSBC with an annual capacity of 40,000 tons and the joint venture with Japan Idemitsu for HHCR with an annual capacity of 43,800 tons.

Research Expenses over the Past Five Years

Unit: NT thousand

Year	2012	2013	2014	2015	2016
Research expenses	741,905	504,081	537,835	541,579	621,603

1.4 Customer and Supply Chain Maintenance

1.4.1 Customer relationships and satisfaction survey

Good partnerships have always been an important issue to which Formosa Petrochemical has paid much attention. We continuously make innovations and help customers acquire high-quality and competitive products in order to be a trustworthy and growing business partner together with its customers. The business department also periodically visits customers to establish interactive and timely communication channels and include the responses of customers as important references for company operations and future improvements.

Press conference to introduce new credit card

Scratch card prize drawing for the Lunar New Year

Formosa Petrochemical New Uniform Release

「95+ undeniable energy」TV Commercial

Undeniable energy Formosa Gasoline new "Dress" debut demonstrating purer power on 721 ！

Undeniable energy Formosa Gasoline new "Dress" debut demonstrating purer power on 721 ！

Encouraging allied stations acquiring "quality oil volume autonomous management label" to protect the rights of consumers

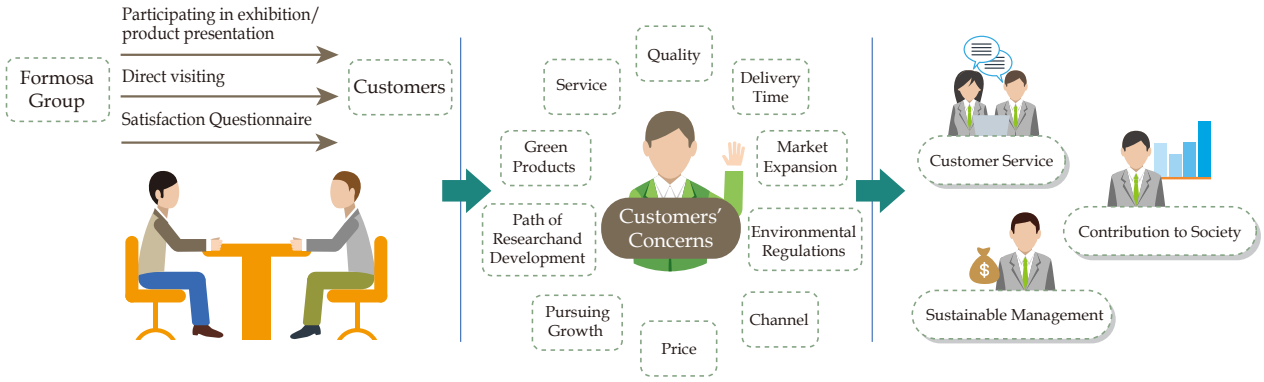
To respond to energy-saving policies of the government, we have installed LED projecting lights and pendant lights to keep stations trim and bright.

Disclosure of product information

We provide "product specifications" and "safety information sheets" for various products, as well as the latest oil price information in the "products and services" section of our website (http://www.fpcc.com.tw/tc/products1.php) for our customers to browse.

Customer opinions and processing

To understand the precious opinions of our customers, we have specifically set up the customer complaint channel, as well as replacement, exchange, and compensation applying procedures. Customers can provide their opinions directly through the "customer feedback form", service hotline, and e-mail available on our website. We classify and analyze the concerns of customers after summarization based on their significance and timeliness to define the priority of improvement. For product complaints, the sales department fill out a "customer complaint form" for management and enters the progress into the computer for control. With regard to our customer feedback channel, no complaints regarding privacy infringement or information being divulged were filed by customers in 2016.



Customer satisfaction survey

To enhance customer satisfaction, we collect the views and suggestions of customers toward various products and services provided by Formosa Petrochemical. Furthermore, in order to meet ISO 9001's quality commitment to customers and value customer satisfaction, we conduct customer satisfaction surveys aimed at both domestic and oversea sales customers at least once every year. The content of such questionnaires includes product features, product quality, delivery time, product price, service attitude, technological services, brand image, and overall satisfaction. In addition, the questions of the questionnaire are occasionally revised according to the current issues concerning customers.

Year	Product Features	Product Quality	Delivery Time	Product Price	Service Attitude	Technological Services	Brand Image	Overall Satisfaction	Average
2014	4.2	4.2	4.2	3.7	4.4	4.2	4.0	4.0	4.1
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

Note: 5 means very satisfied, 4 means satisfied, 3 means no comment, 2 means unsatisfied, 1 means very unsatisfied

According to the results of the customer satisfaction survey in 2016, all of our performances exceeded the "satisfied" indicator and were better than the previous year. With regard to customers' suggestions, Formosa Petrochemical will include them into our operational policies for continuous improvement to meet public expectations.

1.4.2 Suppliers and Contractors Partnership

Formosa Petrochemical maintains good relationships with all associate partners in the industrial value chain. The types of suppliers and contractors mainly cover "manufacturers" or "agents" and "construction contractors" (construction, outsourcing design, etc.). To establish a good communication and negotiation exchange platform, we periodically convene negotiation meetings for exchange and various improvement suggestions, allowing workers to operate at ease and in a safe work environment.

Management policies

We have set definite management policies for suppliers and contractors. In addition to the quality and labor safety requirements, we ask corresponding companies to meet environmental, labor safety, and human rights requirements based on fair trade principles. For any violation, the supplier will be rejected and included in the supplier review operation. We hope to pay attention and reduce the impact on the environment altogether with our value chain and encourage each other to move towards sustainability.

Sustainable issues

For each procurement, Formosa Group asks its upstream suppliers to meet such standard conditions as RoHS, national requirements regarding labor safety, ISO qualification, and label hazardous announcement and symbols along with shipment. Furthermore, the suppliers need to properly recycle their used containers and supporting devices, purchase goods produced by handicapped groups first, and enclose radioactive pollution free certificates along with the goods. We ask suppliers to firmly follow regulations in "inquiry form" and "purchase notice". Where metal is contained in the materials, parts, or products purchased, the suppliers are required to honestly investigate if they satisfy the "metal conflict-free" principle to ensure that all the materials purchased are acquired through legal channels and explain our belief of sustainable operation in forms.

Supplier review

All of our corresponding suppliers must pass written assessment or field assessment as necessary and may not be our associate suppliers unless they have passed the assessment and have been registered in our file. For overdue delivery (construction), inferior quality, or subsequent violations of labor safety regulations, the supplier will be automatically included in the supplier review system to screen the long-term quality associate suppliers as appropriate. Furthermore, we carry out the contractor classification management system, educational training, and construction safety management to enhance the labor safety awareness of factory affairs personnel and establish a labor safety system.

Transportation safety guidance

To ensure the transportation safety of oil products, we must control the management of our transportation partners. Therefore, Formosa Petrochemical uses Formosa Plastic Transport as its primary transportation partner. We keep abreast of the vehicle arrangements, driver distribution, and various management systems of Formosa Plastic Transport. All vehicles are equipped with GPS for easy distribution and control. Furthermore, we conduct an external audit aimed at the vehicle safety of transportation contractors and request that the drivers pass alcohol, blood pressure, and heartbeat tests before driving to ensure safety during the transportation course and create a win-win situation.

1.4.3 Enhancement of economic value of products and services

- Formosa Petrochemical incorporates the latest technologies and equipment with production to continuously improve oil quality and provide consumers with better oil.
- Assist business partners enhance their management efficiency, actively install POS for allied stations, help enterprises reinforce management and reduce operational costs, and apply information flow to expand mutual marketing effects and enhance overall operational performance.
- Guide allied stations to operate stations with local features by integrating private products, local features, or surrounding scenic areas to attract consumers and increase the revenue of subsidiary businesses.
- Extensively service business card and TAXI card customer groups. Assist allied stations to streamline labor through mutual marketing with banks and continuous development of self-service pumping systems.

Transportation fleet "pump up"

To show consideration for the hard work of taxi drivers and help reduce the oil expenditure of taxies, we have issued the TAXI card to allow taxis to enjoy pumping discounts to achieve economic benefits. Furthermore, we continuously distribute cards to individual taxi drivers at the gas station, thus allowing more drivers to enjoy the benefits. We issued 11,275 TAXI cards in 2015, and the number of cards issued accumulated to 43,659 in 2016.

We also provide more convenient pumping services to large trucks via the Formosa Business Card incorporated with gas stations. An invoice is summarized and issued at the end of each month, which is more convenient for reimbursement compared to the invoices issued by vehicles. An e-commerce inquiry and statement are also available for download to facilitate oil consumption management and improve customers' oil-saving effects. Through long-term cooperation with neighborhood truck fleets and business vehicles of government agencies acquired by our associate gas stations, Goldsun Group, Kingcar Logistics, and Chiayi Bus, among others, have used the cards for many years.

Lubricant oil distributors conference

To understand the actual operation of lubricant oil distributors, achieve the goals of higher sales performance, increase sales volume, and enhance the visibility of Formosa Lubricant Oil on the market, the general agency of Formosa Lubricant Oil organizes a distributor conference every year. Nationwide distribution partners are invited to attend the event to help distribution partners strengthen their competitiveness on the market, create a more advantageous operational environment, and praise outstanding partners.

Photo of all distributors

Award for outstanding distributor

1.4.4 Outstanding Performance

Awards received in 2016

2016.4 Olefin Plant II honored 2016 water saving award granted by the MOEA

2016.7 Honored 2015 Best Trade Contribution Prize from the Awards for International Trade granted by the MOEA in 2015

2016.11 Oil Refining Department received Outstanding Energy Saving Award (Excellent Award) granted by the MOEA in 2016

Green navigation

2

Since 98% of domestic energy is imported from abroad, and independent resources are quite scarce, Formosa Petrochemical has promoted energy saving, emission reduction, and environmental protection works based on the concept of an ecological industrial Complex and circular economy since Mailiao Complex was established in 1999. After the mass production of the fourth phase of the sixth naphtha cracking plant was completed in 2006, the unit dedicated to organize energy saving and carbon reduction measures to further improve the energy consumption efficiency and promote the cross-plant and cross-company circular economy in term of materials, water resources, energies, and wastes with the goals of energy saving, reduced emissions, resource integration, and zero waste.

- Stakeholders: environmental groups, government agencies, experts & scholars, residences in operational regions
- Material Issues: environmental costs and benefits, greenhouse gas emissions, energy management, air pollution prevention, water resources, and waste management
- Main strategies: green reformation and green image enhancement

Goals set and annual achievements

Goals		2016 Achievements
Short-term goals	Transparent disclosure of greenhouse gas, air pollution, waste water, wastes, and other such environmental information reinforces the promotion of industrial-academic cooperation and green activities	Greenhouse gases: Industrial-academic cooperation: · Cooperate with Tsing Hua University to develop high-gravity rotating packed bed technology incorporated with the chemical absorption approach · Cooperate with Taiwan University to build the integrated greenhouse gas reduction plan in Mailiao Industrial Complex Participate in the "voluntary industrial greenhouse gas reduction audit" organized by the Industrial Development Bureau of the MOEA Air pollution prevention: Cooperate with Taiwan University to promote coal-fire boiler PM 2.5 assessment strategies Install automatic emission pipe air quality monitoring facilities and make the information available to the public for search (website http://218.161.81.10/epb/CemsEPB.asp) The sulfur oxide and nitrogen oxide emissions of unit products in 2016 were 26% and 7% less than in 2015, respectively.

Goals		2016 Achievements
Short-term goals	Transparent disclosure of greenhouse gas, air pollution, waste water, wastes, and other such environmental information reinforces the promotion of industrial-academic cooperation and green activities	Water resources management: - Install automatic water quality (volume) monitoring facilities and make the information available to the public for search (website http://yunlincwms.ylepb.gov.tw/PUBLIC/) - Cooling water recycling - The water consumption of unit products in 2016 was 1.1% less than in 2015. Waste management: - The waste processing volume in 2016 was 10% less than in 2015.
Mid-term goals	1. Promote various environmental loading reduction measures 2. Implement greenhouse gas, air pollution, waste water, and waste resource protection measurements, as well as make other green investments	Greenhouse gases: - Actively promote the application for the greenhouse gas credit project Air pollution prevention: - Promote the replacement of diesel vehicles with emission standards as satisfactory diesel IV (inclusive) - Promote the use of low-sulfur fuel in domestic import (export) harbors - Establish reduction goals via the simulation results of stationary pollutant source PM2.5 Water resources management: - Recycle the factory's waste water to reduce waste water discharge - Cooperate with the MOEA to promote the development of renewable water resources Waste management: - Promote the recycling of sand blasting waste
Long-term goals	Achieve the green goals of best domestic emissions of greenhouse gases, air pollution, waste water and waste of unit product, water consumption of unit product, and full recycling of rainfall in collectible zones to seek sustainable operations.	Greenhouse gases: - Achieve the greenhouse gas emission standards promoted by the MOEA Air pollution prevention: - Constantly promote air pollutant reduction every year - Implement stationary pollutant source PM 2.5 reduction to achieve the expected reduction goal Water resources management: - Promote the plan for the construction of a 100Ktons/day seawater desalination plant - Cross-plant waste water recycling to reduce the discharge of waste water Waste management: - Continuously promote waste reduction every year

2.1Environmental Performance Overview

98%

The amount of government fines was 98% lower than last year.

10%

10% decrease of waste compared to last year.

433.2 million CO_2e

Accumulated 981 energy saving projects with a total investment amount of 4.93 billion. The reduction of greenhouse gases was estimated to be 4.332 million tons of CO_2e/year.

80,601 tons/day

Accumulated 307 water saving projects with a total investment amount of 8.8 billion and water saving volume pf 80,601 tons/day.

9,039 tons

9,039 tons of rainfall recycled, which is equivalent to the water consumption of 90 people in one year.

98.7%

Water recycling rate 98.7%.

26%

The sulfur oxide emission of unit products was 26% less than last year.

7%

The nitrogen oxide emission of unit products was 7% less than last year.

15,000 tons

More than 2 million trees and bushes were planted across 390 km^2 in the Mailiao Factory area, which are estimated to absorb 15,000 tons of CO_2 every year.

11,212 visitors

360 groups visited the Complex in 2016, with a total of 11,212 visitors.

2.2 Environmental protection strategies and policies

Formosa Petrochemical has established and maintains a safety, health. and environmental management system based on pursuing the goal of mutual benefits in term of "industrial safety, environmental protection, and economic success". The safety, health, and environmental policies include: strict law compliance, communication reinforcement, pollution prevention, plant waste deduction, hazard identification, risk control, full participation. and continuous improvement. These eight principles were established in 2003 to achieve the goal of sustainable operation.


台塑石化股份有限公司

安全衛生環境政策

嚴守法規　加強溝通
污染預防　工廠減廢
危害鑑別　風險控制
全員參與　持續改善

董事長：

中華民國 100 年 10 月 11 日

Air Pollution and Waste Gas Management

Best Available Control Technology，BACT is applied entirely. All production units have continous automatic monitoring systems connected with the monitoring of environamental agencies.

Water Resources and Waste Water Management

Clean sewage and different sewage separation systems have been adopted for water collection. There is a wastewater processing plant dedicated to handling wastewater from industrial zones. The processed water may still breed ornamental fishes and the sewage recycling is continued to reduce the burden on water resources.

Waste and Toxic Materials Managment

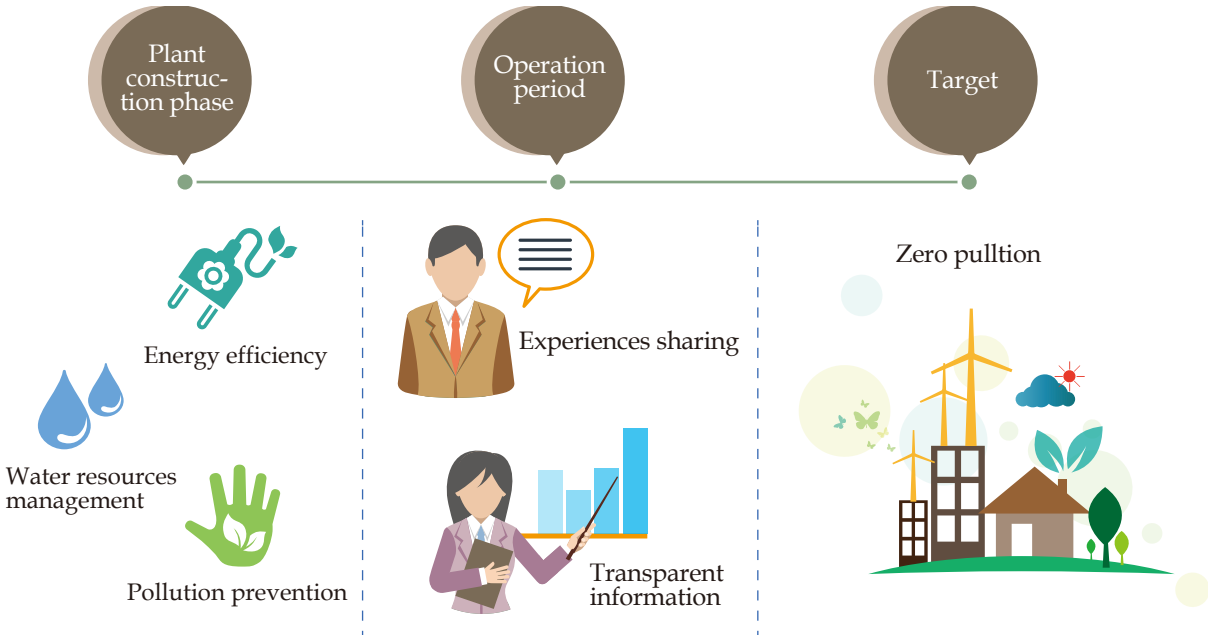
Carry out classifed recycleing, use ERP and online reporting system to control the storage, cleaning, and processing, as well as to trace the overall flow.

2.2.1 Environmental Policies in Mailiao Complex

In early Taiwan, the basic upstream petrochemical materials were supplied by Taiwan CPC. Since domestic needs could not be satisfied, Formosa Group launched the sixth naphtha plant in the Mailiao area and built a vertically integrated petrochemical industrial zone to solve the problem.

Goals:

The Corporation cares very much about its effect on local greenhouse gases, air pollution, wastewater, and waste issues and has set itself the goal of zero pollution.



Plant construction phase:

When Formosa Petrochemical designed the plant, the most advanced and best pollution prevention equipment was adopted based on the ideas of Best Available Technology (BAT) and Best Available Control Technology (BACT). After operations began, water resource usage and energy consumption were strictly controlled and continuously improved via review.

Operation period:

Actively promote various environmental improvements, set the KPI indicator and annual targets, understand the implementation of all indicators, and periodically review the target attainment progress. Provide intensified guidance to plants or divisions with performance falling behind and encourage plants or divisions with good performance to further advance their employees' participation and accomplishments.

Experience sharing:

With the concept of a global village, the Corporation holds energy saving, carbon reduction, and pollution prevention achievement seminars to share its experiences and thoughts with others in all circles.

Transparent information:

Regarding external environmental issues, the Corporation continuously designates impartial professional institutions to carry out the surveys and then clarifies and explains the improvement status via the CSR publication and auto environmental monitoring data transparency (website http://www.epa.gov.tw/np.asp?ctNode=32970&mp=epa).

2.2.2 Environmental risk management

The environmental risk management of Formosa Petrochemical is carried out through various channels. In addition to complying with environmental regulations, the Corporation also promotes the identification and support of residences in the neighborhood through technological development, industrial-academic cooperation, and open information. To continuously advance environmental protection works and work with professional college groups, the Corporation integrates energy and resources across plants through the development of exhaust gas, wastewater, and waste recycling technology to increase the resources recycling rate of plants and aim at saving energy and reducing emissions. To effectively control the conditions of greenhouse gas, air pollution, wastewater, and waste inside the plant, Formosa Petrochemical has established environmental protection rules to govern greenhouse gases, air pollution, wastewater, and waste. The Corporation also carries out daily patrols according to the checklist as stipulated in the management rules to ensure that the process environment satisfies environmental regulations and that the health of employees and residences in nearby neighborhoods is protected. Meanwhile, to maintain smooth exchange channels with residences in nearby neighborhoods, the exhaust gas, wastewater, noise, land, underground water, seawater, and nearby marine ecology information is made available to the public. Furthermore, tour guides and spaces to visit are available for various groups so that they can recognize plant processes and environmental control actions, thus further promoting the identification of citizens and nearby neighbors.

- Promote the identification of neighborhood
- Exceed environmental regulations
- Continue to optimize the development and adoption of new technologies
- Establish and carry out environmental managment rules

2.2.3 Green production and environmental accounting

Green energy fulfillment

In addition to proactively reducing energy consumption and greenhouse gas emissions, Formosa Petrochemical is further devoted to clean energy development and fulfillment. Currently, Mailiao Complex has invested 30 million altogether with enterprises to set up 4 660KW wind turbine generators, which provide 7M degrees of electricity for the plants' use every year.

Green transportation

Formosa Petrochemical now mainly uses long pipeline transportation to replace the long-distance transportation of oil tankers, which has effectively achieved energy saving and carbon reduction. Four long-distance 12" pipes, which total about 229 km, are buried along the west coast highway to the Taipei Storage Station at Taipei Harbor in Bali. They transport unleaded gasoline, jet fuel, diesel, and other such oil products. The length in Yunlin is around 10.2km, and the oil transportation started in June 2007. In general, the areas along the route are sparsely populated. In addition to supplying the oil required for livelihood and relevant industries in the northern area, the carbon emissions are also reduced during the course of transportation.

Section	Length	Oil Type
Mailiao Plant to Changbin Station	48km	Unleaded gasoline, diesel, jet fuel
Changbin Station to Taoyuan Station	146km	
Taoyuan Station to Taipei Station	35km	
Total	229km	
Branch to Taoyuan Airport	5km	Jet fuel

Industrial safety management for long distance pipelines

To assure the transportation safety of long distance pipelines outside the plant, in addition to daily patrols by our assigned personnel, the negative pole anti-corrosive test is implemented quarterly to effectively prevent the pipelines from corrosion and leakage. Furthermore, professional contractors are commissioned to conduct a completeness test over the pipe cladding via PCM and CIPS and check pipe thickness using smart PIG. A monitoring system has also been installed on important facilities, accompanied by the transportation monitoring system, to control transportation operations.

2.2.4 Environmental costs and benefits

Disclosure of Management Approaches (DMA)

The environmental cost accounting system was introduced in 2009 and has been implemented since 2010; it includes information about direct environmental benefits and takes environmental protection as an operational consideration. This system allows the Corporation to develop overall operational policies from various angles and demonstrate the determination and abilities of the Corporation in terms of sustainable operation.

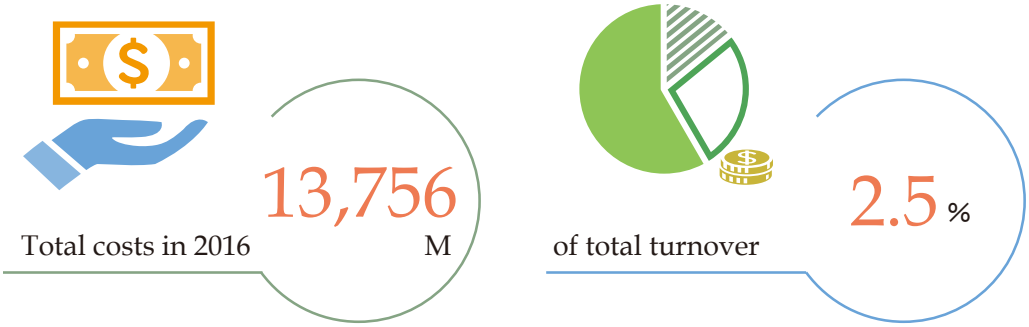
Statement of Environmental Costs over the Past Three Years

Unit: NT$ million

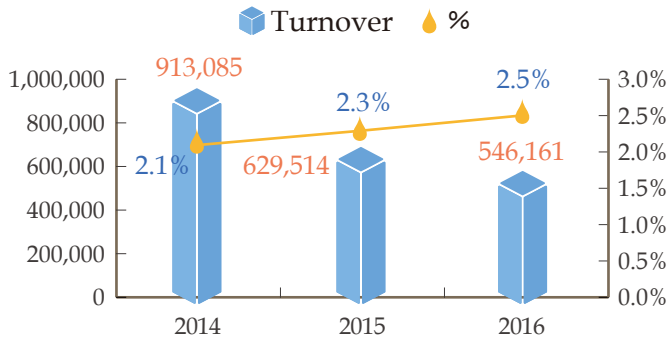
Item	2014	2015	2016
Item	17,208	13,961	13,219
Operational costs	15	16	24
Supplier and customer related costs	302	271	343
Administration costs	6	18	7
Research costs	2	146	144
Social activity costs	1	1	7
Loss and compensation costs	1,609	245	12
Duties, taxes, energy tax, and other such expenses	19,143	14,658	13,756
Total			

Note: The "operational costs" referred to herein include the expenses derived from green procurement, recycling, and reproduction costs for products manufactured or sold and expenses derived from products and services provided for environmental protection.

The introduction of the environmental accounting system can clearly record the equipment investment, maintenance, research, duties, and other financial information regarding environmental activities. It allows the Corporation to analyze operational decisions from the perspective of environmental protection, facilitating the enhancement of company competitiveness. The total environmental costs were 13,756M in 2016, accounting for 2.5% of the 546,161M turnover.



The Percentage Trend of Environmental Costs Compared to Turnover



Unit: NT$ million

2.2.5 Environmental Violation

The Corporation had no material environmental violations in 2016 (according to the material event, more than 1 million were to be disclosed on MOPS); however, the Corporation did have to pay eight environment-related fines, mainly for abnormal written reports and abnormal component effusion. We will continuously reinforce document control and improve equipment component management.

The Corporation pays constant attention to environmental issues, performs relevant reviews of each event, and then corrects and optimizes its operational flow and management system. Compared to 2015, the fines imposed by the government were reduced by 98%, representing our efforts on constant environmental actions. Meanwhile, the number of fines for air pollution was increased in 2016, which was mainly due to the stricter criteria of competent authorities regarding the regulations. Of those fines, three cases are in the process of administrative relief.

The Losses and Punishment Suffered due to Polluted Environment in Recent Years

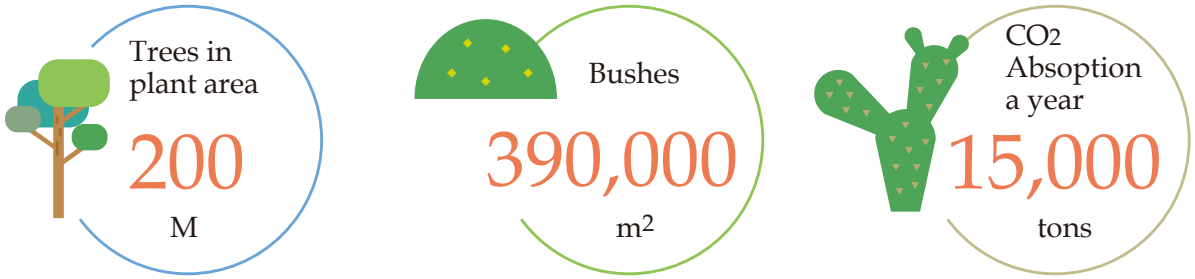
	2014	2015	2016
Air pollution	2/200K	4/400K	6/600K
Water pollution	0 /0	0 /0	0 /0
Waste pollution	1/1.224M	1/14.4156M	1/2.142M
Other	1/300K	1/100K	1/600K

Note: The tickets for waste pollution in 2014-2016 were mainly for the violation of the Waste Cleaning Act (illegal gains and improvement by deadline) due to a byproduct lime of the Corporation issued by Tainan City Government. One ticket for improvement by deadline (a total fine of 6,000) and 203 consecutive tickets by days (a total fine of 1.218M) were received in 2014; one ticket for illegal gains (14.196M) and 366 consecutive tickets by days (a total fine of 2.196M) were received in 2015; and 357 consecutive tickets by days (a total fine of 2.142M) were received in 2016, which are now in the process of administrative relief filed pursuant to laws.

2.2.6 Green Working Environment

We actively perform afforestation actions, allowing our employees to rest on the green fields to break from work and providing a quality work and leisure environment. The Corporation actively plants trees at all plants, school, hospitals, and surrounding areas. More than 2 million trees and bushes have been planted across 390,000 m^2 in the Mailiao Factory area. It is estimated to absorb 15,000 tons[note] of CO_2 every year, which is a measure that considers both industrial development and environmental protection.

Note: The carbon absorption volume of trees is based on the stationary CO_2 amount in the unit forest area estimated by the Forestry Bureau: 7.45~14.9 tons/hectare/year, stationary CO_2 amount of a single tree on average: 5~10 kg/year.



Mailiao Scenic Park

Mailiao Scenic Park is situated behind the Administration Building of the Industrial Complex. The plaza features a fountain and lines up with the Administration Building. Its clean, white design covers an area of 7 hectares. The long trail is surrounded by green grasses, and the sophisticated and beautiful landscape is ideal for local residents or visitors to take a walk or just relax.

A total of 360 groups visited in 2016 (including domestic and foreign companies, academic institutions, social groups, government agencies, business colleagues, etc.), of which the percentages of academic institutions and social groups were 39% and 33%, respectively, and the total number of visitors was as high as 11,212 persons.

Visit to Mailiao Ecological Lab

Photo in front of the Administration Building

Photo in front of the Statue

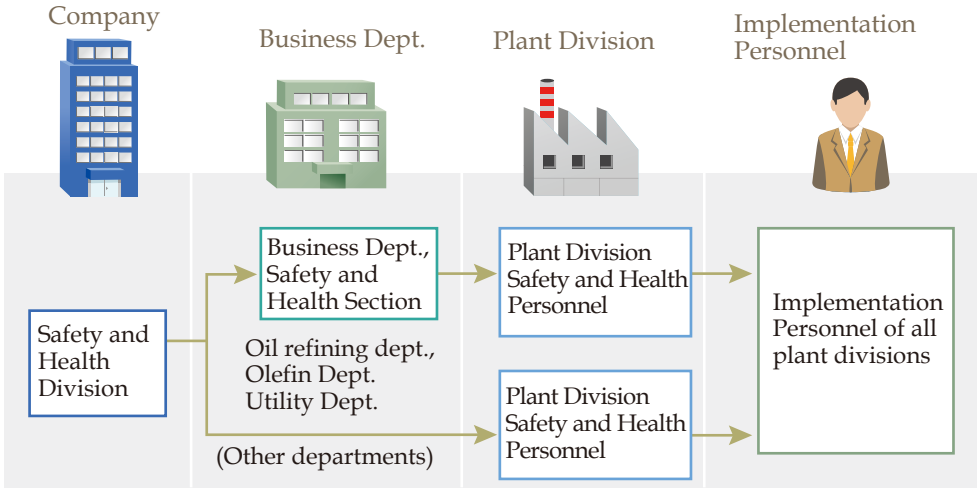
Walking in the Complex

2.3 GHG emissions and energy management

Disclosure of Management Approaches (DMA)

Formosa Petrochemical has followed the GHG emission taking and verification procedures as stipulated by ISO 14064-1 since 2005. Meanwhile, BSI Taiwan is invited to make verifications regarding CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, and NF_3 in order to ensure the correctness of GHG emission volume. Furthermore, several process improvement and energy management projects have been promoted to achieve the continuous reduction of GHG emissions.

Framework of Greenhouse Gas Management



Greenhouse gas emission status

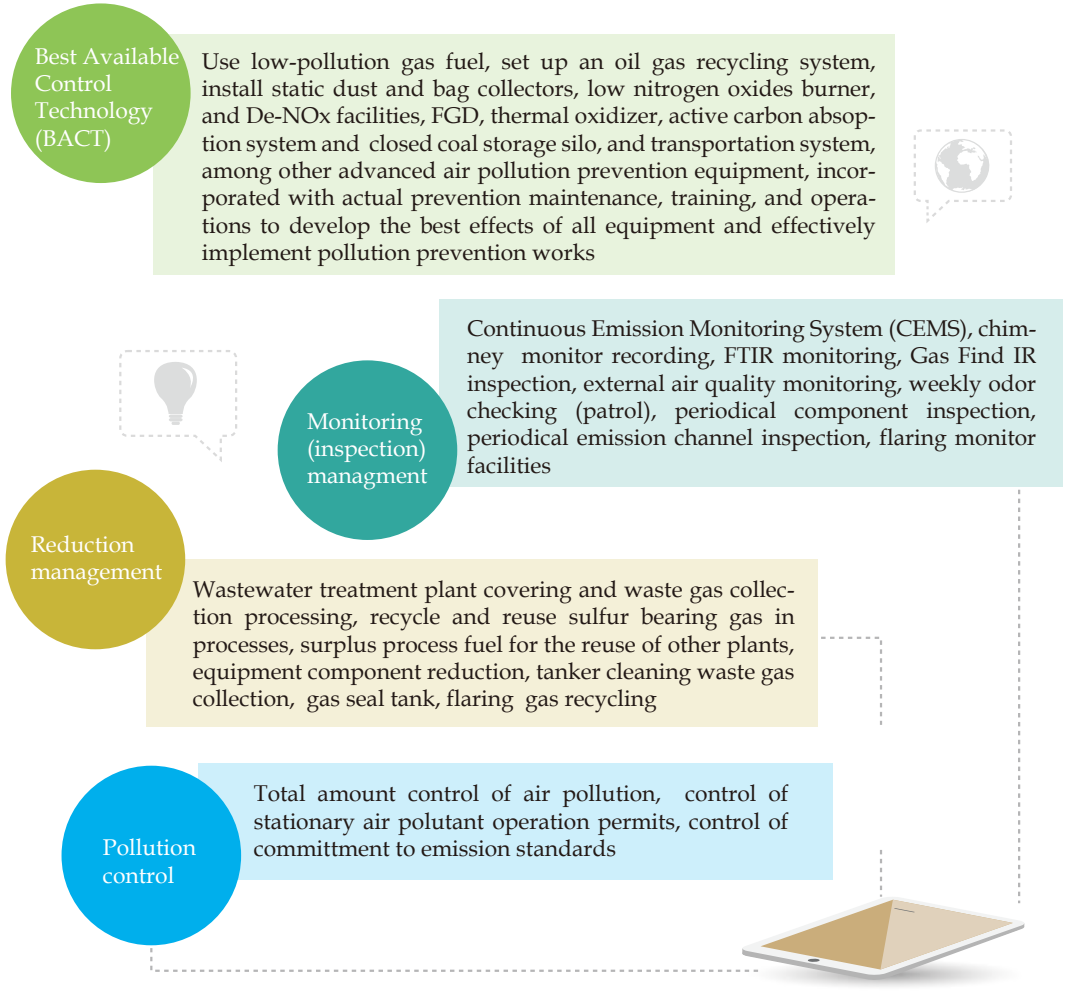
Unit: tons of CO_2e

	2011	2012	2013	2014	2015
Scope 1	27,272,088	28,028,092	30,039,781	29,766,908	29,114,312
Scope 2	209,481	221,241	107,444	141,928	129,452
Total Emissions(Scope 1+Scope 1)	27,481,569	28,249,333	30,147,226	29,908,837	29,354,764

Note 1：Scope 1 refers to the direct emission of greenhouse gases.
Note 2：Scope 2 refers to the indirect emission of greenhouse gases.
Note 3：The GWP adopts the IPCC1995 Second Assessment Report (SAR) announced; for the power and steam emission coefficient, the plant's own coefficient, verified by the verification institution, has been adopted.
Note 4：Since the 2016 GHG emissions have not yet been verified by the verification institution during the publication of report this year, the information will be disclosed in next year's report.

Greenhouse gas emission management

In addition to the implementation of environmental monitoring and neighborhood health risks assessment, as well as the degree of emission articles' effect on the environment and public health in ordinary times, the Corporation has also introduced world advanced process improvement and pollution prevention technologies to reducing the greenhouse gas emissions that affect climate change in order to ensure the best benefit development and the spirit of sustainable operations.



Historical Greenhouse Gas Emission Analysis

	2011	2012	2013	2014(A)	2015(B)	(A-B)/A
Greenhouse gas emissions (CO_2e Ktons)	27,482	28,249	30,147	29,909	29,355	-2%
Turnover (million)	800,362	894,378	931,334	913,085	629,513	-31%
CO_2e Kton/Million	0.034	0.032	0.032	0.033	0.047	-42%

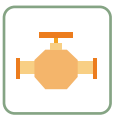
Note: source: Formosa Group GHG physical taking database

Regarding further analysis aimed at GHG emissions of unit turnover, although the 2015 GHG emission was 2% less than in the previous year, the turnover dropped significantly by 31% due to low oil prices, causing the GHG emissions of unit turnover to increase to 0.047 Ktons/million

2.3.1 Energy management:

(Early phase) improvment methods

Energy reduction and repeated use

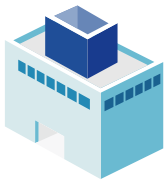


Energy management

Heat reclycing

Equipment efficiency enhancement

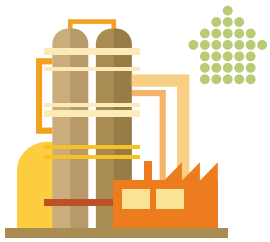
(Recent) resources integration



Across plants

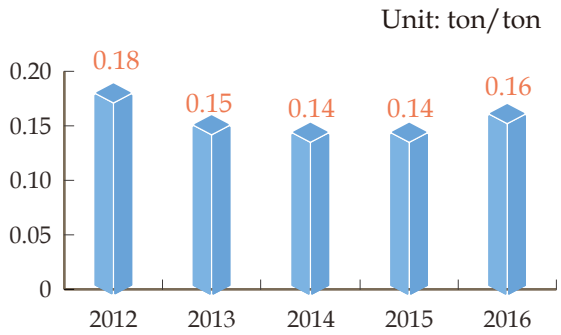
Across companies

(Recent) achievement



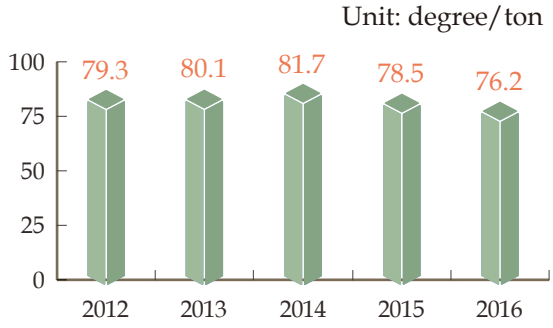
Energy efficiency has been significantly increased

Formosa Petrochemical Historical Steam Consumption of Unit Products



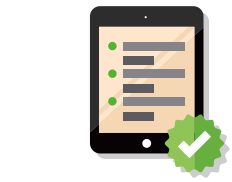
Note: source: Formosa Group Business Intelligence system BI database

Formosa Petrochemical Historical Electric Consumption of Unit Products



Note: source: Formosa Group Business Intelligence system BI database

In 2016, 981 improvement projects were accumulated with an investment amount of 4.93 billion. The steam consumption of all companies in Mailiao Complex was 5,392Ktons for the entire year, with 613.9 tons of steam consumption every hour on average, which translates to 0.16 ton/ton steam consumption per unit. The overall CO_2 emission was reduced due to process improvement; however, the unit steam consumption increased slightly. The total electric consumption was 2600M degrees for the whole year, an average of 295,997 degrees per hour, which translates to 76.2 degrees/ton electric consumption per unit. They were all controlled within a reasonable scope, and no renewable energy is currently used.



Accumulated improvment projects

981

Accumulated investment amount

49.3 billion

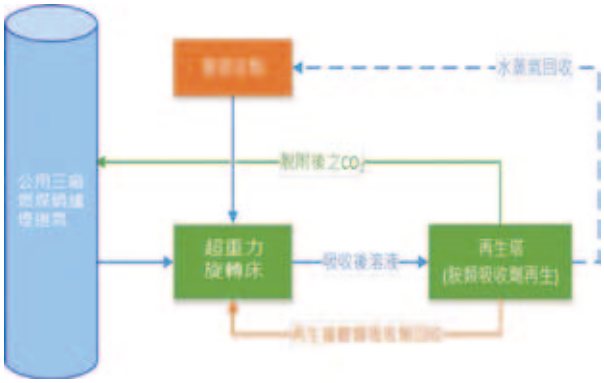
Formosa Petrochemical Historical Energy Saving Implementation

	Accumulated Volume (1999~2015)	2016	Accumulated Volume (1999~2016)	In Progress	Total
Number of improvements	795	186	981	276	1,257
Steam saved(ton/hour)	741.1	37.5	778.6	92.3	870.9
Electricity saved(K degree/hour)	99.2	20.7	119.9	14.3	134.1
Fuel saved(ton/hour)	80.2	2.0	82.2	2.8	85.0
CO2e reduction(10K tons/year)	406.4	26.8	433.2	37.0	470.2
Investment amount(100 million)	38.0	11.3	49.3	8.7	58.0

Note: source: Formosa Group environmental improvement management database

2.3.2 Industrial –Academic cooperation:

Formosa Petrochemical implemented the "Daily One-ton Capture Model Plan" via industrial-academic cooperation, in which National Tsing Hua University provided technological instructions and related support. The device was set up at public plant III, and the chemical absorption approach incorporated with a high-gravity rotating packed bed was adopted to capture one ton of CO_2 every day. The carbon capture hardware system was completed on November 14, 2015, with an investment amount of 35.8 million. According to the 2016 statistics, the daily carbon capture volume was 1.26 tons on average.



Formosa Petrochemical implemented "carbon capture and recycle technology development (carbonate deposit technology)" and "simulation and optimization of steam pipe system transmission" via industrial-academic cooperation. With regard to "CO_2 capture and recycle technology development", the plan was to carbonatite new alkaline waste in order to capture the CO_2 in chimney gas and enhance the net carbon capture efficiency and capacity through the development of a high-gravity rotating packed bed. According to the 2016 statistics, the daily carbon capture volume was 600 kg, and the chimney gas CO_2 elimination efficiency reached 96%.

Daily CO_2 capture

600 kg

Chimney gas CO_2 elmination efficiency

96 %

On the other hand, regarding the "simulation and optimization of steam pipe system transmission", the steam pipe of public plant III and oil refining department was used for simulation and analysis. The basic steam transmission model of the oil refining department and public plant III has been established according to the research results. Meanwhile, the FORTRAN calculation software was also developed to calculate steam flow, direction, pressure loss, thermal loss, condensate volume, and cold point data. Currently, we plan to collaborate for a transmission model preliminarily established to enhance the precision of simulation results to be closer to the real data of the pipe system. After the collaboration is completed, the analysis for the pipe system of different operational and onsite conditions will be processed to provide pipe system improvement strategies to thus enhance steam pipe system transmission efficiencies and decrease transmission loss.

2.4 Air pollution prevention

Disclosure of Management Approaches (DMA)

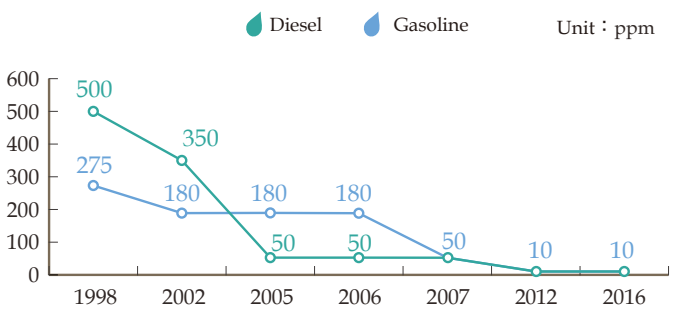
The Best Available Control Technology (BACT) was fully adopted. All production units have a continuous auto monitoring system (a total of 29 sets) connected with the monitoring of the competent authority to implement various pollutant inspections. In addition to law compliance, the Corporation actively engages in related reduction and odor prevention works. The Corporation has further established the "Assessment and Consulting Committee for the Effects of Air Quality in Mailiao Complex" to conduct overall research and analysis against air pollution issues to ultimately achieve the goal of sustainable operation.

Mailiao Complex - air pollution and exhaust gas management:

Formosa Petrochemical has focused on international standards and implemented "Montreal Agreement" policies in cooperation with the government since its establishment in 1992. Materials such as Halons, CFC-11, and CFC-12 that may easily damage the ozone layer are prohibited. Currently, the refrigerants used are mostly R-134a, R-401a, and R-410a. Furthermore, the sulfur and benzene contained in gasoline and diesel products are in strict compliance with EU standards.

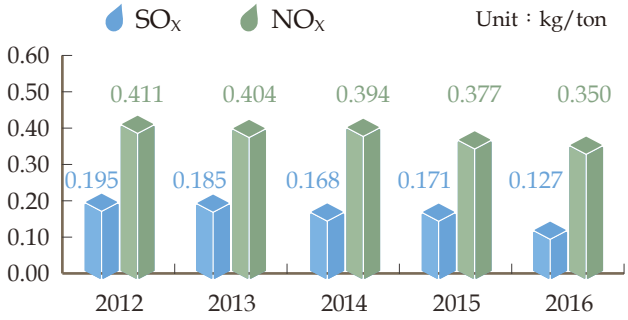
Category	Composition	Domestic Market		Overseas Market	
		Standard	Actual Value	Standard	Actual Value
Gasoline	Benzene	1.0 vol %, max	0.60	1.5 vol %, max	1.21
	lead	0.013 g /l, max	< 0.003	0.01 g/l, max	< 0.003
	Sulfur	10ppm, max	7.10	250 ppm, max	103
Diesel	Sulfur	10ppm, max	7.30	10 ppm, max	7.20
					374

Formosa Petrochemical is devoted to reducing the impact of operations on employees, the surrounding communities, and the environment. According to the 2016 data, the sulfur content in domestic gasoline and diesel has been decreasing every year.



To carry out air pollution prevention, the best pollution prevention equipment has been adopted. The SOx emission of unit products was 0.127kg/ton and was 0.350 kg/ton for NOx in 2016, which represented a decrease of 25.73% and 7.16%, respectively, compared to 2015.

Formosa Petrochemical SOx and NOx emission of unit product



Note: source: summary report of total air pollutant emission reported by Formosa Petrochemical quarterly

Odor control and VOC reduction

Mailiao Industrial Complex is the first industrial Complex to implement total volume control. In addition to all pollutants being satisfactory to environmental requirements, the volatile organic compounds (VOCs) reduction procedures are also continuously promoted. This material refers to easily volatile organic chemicals at normal pressure. Formosa Petrochemical has accumulated 41 improvement projects by 2016, with an investment amount of 1.65 billion.

The odor inspection for process equipment components is conducted every week. Furthermore, effective use cycles (lifespans) are established for various types of components; for example, low effusion materials are used for the o-ring of control value, the small diameter connector is replaced by a low leakage connector, and unnecessary equipment components are removed to make effective prevention and repair before a leakage event occurs and to reduce the leakage occurrence.

We have also added covers to open gas exposure tanks, which easily have VOCs and odor effusion, which is supplemented by sending gas collected via pipeline back to air pollution equipment, such as the washing tower and exhaust gas incinerator, to eliminate odor and prevent VOCs effusion.

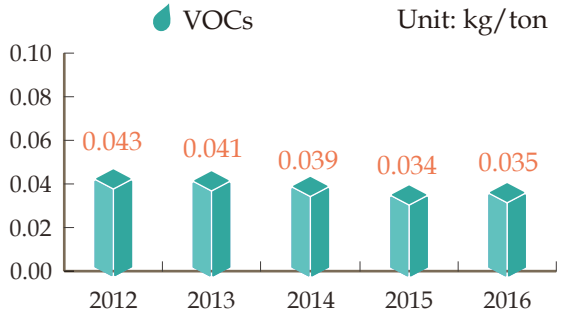
Wastewater Treatment Plant (Before improvement)

Wastewater Treatment Plant (After improvement)

VOCs emission management

To achieve the goal of environmental sustainability, Formosa Petrochemical continuously makes sustainable improvements aimed at relevant environmental issues. The major sources of VOCs are processes (emission from emission channels), tank effusion, loading operations, wastewater treatment plant and oil separating tank effusion, exhaust gas flaring, and equipment component effusion,. The total VOCs emission was 1,189 tons, unit product VOCs 0.035 kg/ton in 2016, which was only a 0.001 kg/ton increase compared to the previous year. The difference is negligible and mainly due to the increase of fuel gas used by the coal-fire boiler.

Formosa Petrochemical Unit Product VOCs Emission



note：Note: source: summary report of total air pollutant emissions reported by Formosa Petrochemical quarterly

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.

Formosa Petrochemical Historical VOCs Reduction Improvement

Item \ Year	2012	2013	2014	2015	2016	Accumulated Volume 1999~2016
Number of improvements	10	4	15	5	2	41
Emission channel (ton/year)	0.10	7.09	7.64	1.83	2.28	25.83
Equipment component (ton/year)	0	1.85	0	3.40	0	5.25
Storage tank (ton/year)	2.61	2.16	20.48	0	0	26.52
Loading facility (ton/year)	0	0	0.31	0	0	0.31
Total (ton/year)	2.71	11.10	28.43	5.23	2.28	55.63
Investment Amount (thousand)	4,602	615,398	154,193	193,680	640,908	1,652,730

Note: source: Formosa Group environmental improvement management computer database

Air quality effects assessment and consulting committee

Since the effects of air pollutant emissions of Mailiao Complex on air quality in Yunlin, Chiayi, and Tainan areas are issues of high concern with the public, the "Air Quality Effects Assessment and Consulting Committee" was thus organized. According to 2016 research findings, the influence on local air quality has been limited. Furthermore, the terrible air quality in Douliu, Puli, and Chiayi over the years has barely been affected by the emissions of Mailiao Complex along the western coastline according to the aforementioned data analysis. The research results of the government have further shown that the effect of reduced industrial loading has almost nothing to do with PM 2.5 reduction. The government must then face the effects of outdoor burning, vehicle emissions, and oil fumes of restaurants on PM 2.5. To improve the air quality in Taiwan, overall planning is required to show apparent effects in term of air pollution from various pollutants, and then reasonable air quality standards and reduction responsibilities can be established accordingly.

2.4.1 Mailiao Complex - air quality evaluation:

To control various environmental indicators in real time, Formosa Petrochemical has established a complete environmental monitoring network under the centralized planning of Formosa Group. Intensified monitoring operations have been established from inside out in eight layers, including 3,109 stationary gas detectors, 39 US military purpose GasFindIR, 34 stationary pollutant CEMS, 39 FLARE CEMS, six mobile FTIR, and eight stationary FTIR. Furthermore, one VOC monitoring station, 10 PAMS, 12 automatic odor sampling stations, and one air quality monitoring vehicle have been set up to facilitate the tracking of pollutant sources and ensure local air quality.

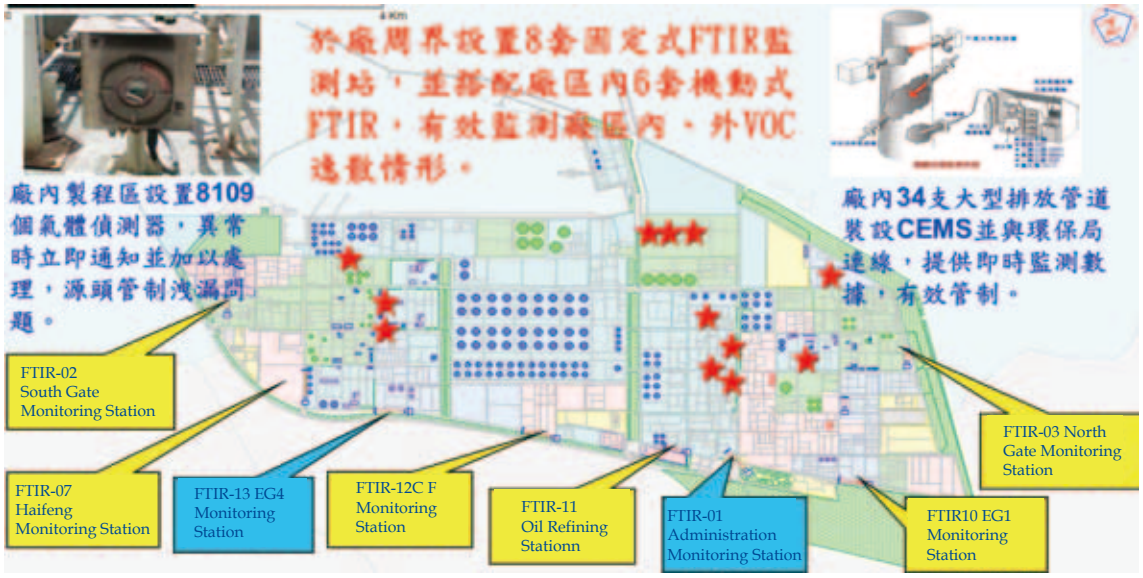
Illustration of eight-layer environmental monitoring network and geological position of Sixth Naphtha Plant

air quality monitoring stations in sixth naphtha plant, EPA air quality monitoring stations

Automatic odor sampling station spots

automatic odor sampling station spots (analyzed using the NIEA A715.13B approach)

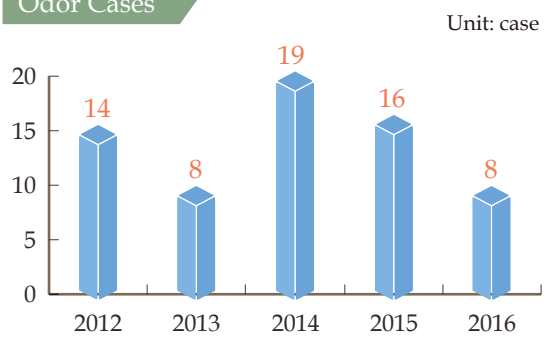
Internal Monitoring Equipment Layout



1. Eight stationary FTIR monitoring stations have been set up around the plant and incorporated with six mobile FTIR to effectively monitor the FOC effusion inside and outside the plant.
2. 8,109 gas detectors have been installed within the process zone of the plant to set off alarms and immediately handle any abnormality so any leakage problem can be controlled from the beginning.
3. 34 large emission pipes have CEMS connected with EPB to provide real-time monitoring data for effective control.

The Corporation completed a total of 63 out of 65 improvement cases since 2012, with two cases in progress. The odor source from process improvement projects has been introduced since 2015, and the number of odor finding via joint inspection has clearly increased. After strict auditing and odor source improvement, the number of odor findings have decreased every year. The odor findings in 2016 were 50% lower than 2015, showing the physical results of the overall odor control.

Odor Cases



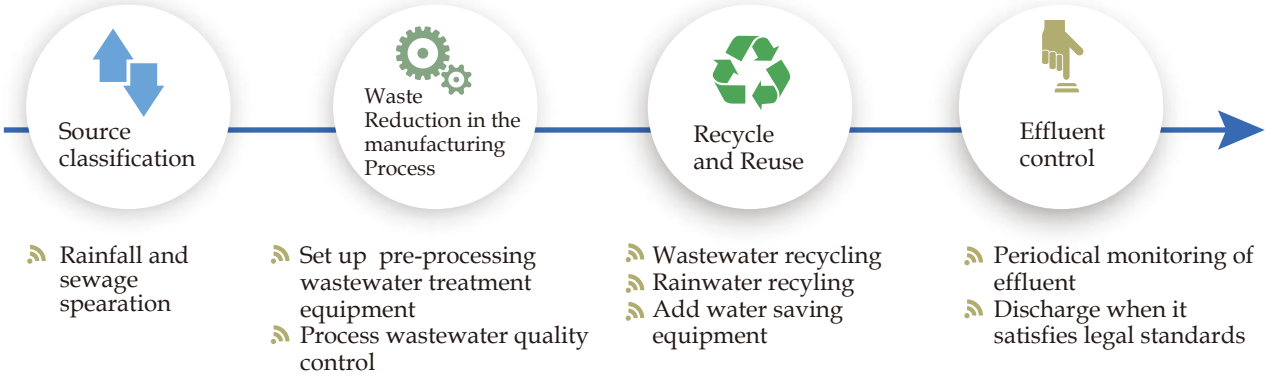
2.5 Water resources and waste management

Disclosure of Management Approaches (DMA)

The source management, process waste deduction, and terminal control principles are applied to all management policies aiming at water resources, waste, toxic materials, and soil and underground water pollution. The source management was first adopted to reinforce resource recycling, speed up processing flow, and incorporate process waste reduction in order to reduce the loading of treatment facilities. After resources unavailable for recycling are decomposed at treatment facilities, the terminal control approach will be used to assure law compliance and minimize environmental impact.

2.5.1 Water resources and wastewater management

The water sources of Formosa Petrochemical plant are mainly divided into ground water and tap water. To effectively use water resources, we use optimized processes to reduce water consumption, implement water saving management, and minimize evaporation loss to lower the overall water demand and enhance the efficiency of water resources usage.



Water resources management

According to the "Monthly Report of Jiji Weir Industrial and Public Water Volume Transferred to Agricultural Water Consumption" published by the Central Region Water Resources Office, Water Resources Agency, MOEA, the water inflow from Jiji Weir was an average of 47,847.9 million tons over the past five years (2012~2016). Of that, the industrial water supply was 1011.45 million tons on average, accounting for just 2.1% of the water inflow to Jiji Weir. However, considering more flexible domestic water allocation and sustainable operations, the Corporation has actively evaluated the feasibility of building a 100Ktons/day seawater desalination plant to replace industrial water. Furthermore, wastewater recycling measures continue to be promoted, while all subordinated plants have intensified their rainwater collection to increase the rainwater collection area and set up rainwater storage tanks for the proper storage and effective use of rainwater. A total of 307 water saving improvement projects were completed from 1999 to 2016, with an accumulated investment amount of 8.8 billion.

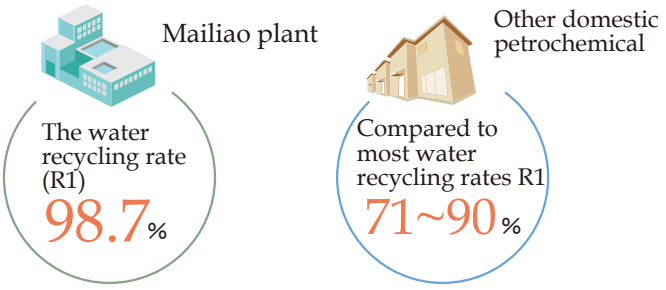
Water resources recycling in Mailiao Complex

The water consumption of Formosa Petrochemical in Mailiao Complex has decreased every year; on average, the water drawn from Jiji Weir was 99 Ktons, and the rainwater recycled volume was 9,039 tons per day. The rainwater recycling volume is equal to the daily water consumption of 90 people in one year.

Amount of Rainwater Reuse in 2016 **9,039 tons**

Equal to the daily water consumption of 90 people in one

With continuous process optimization, water saving management, and reduction of evaporation loss, the water consumption of unit products was reduced 0.01 ton/ton compared to last year, reaching 1.06 ton/ton in 2016. According to the water consumption indicator of "Directions for Application Review on Proposal of Water Usage" announced by the MOEA, the water recycling rate (R1) in Mailiao plant was 98.7%note. Compared to most water recycling rates R1 71~90% of other domestic petrochemical related industries collected by the Industrial Development Bureau, MOEA, we are clearly superior to the recycling rates of similar domestic industries.



Note: R1= repeated recycling water volume/(total water drawn+repeated recycling water volue)

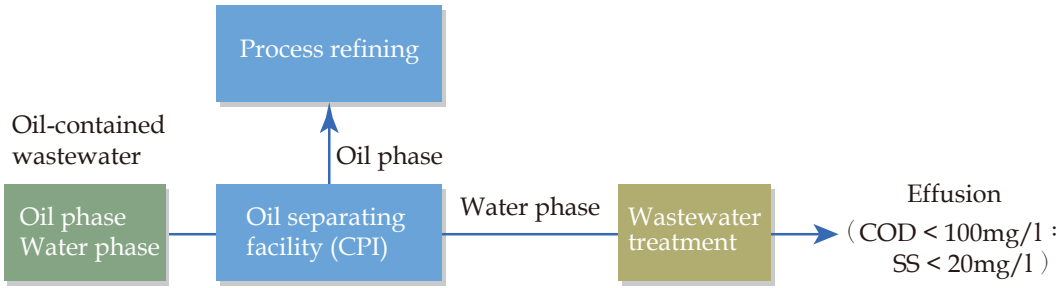
Formosa Petrochemical Historical Water Saving Conditions

Item \ Year	Accumulated Volume (1999~2015)	2016	Accumulated Volume (1999~2016)	In Progress	Total
Number of Improvements	260	47	307	82	389
Water Saving Volume (ton/day)	76,173	4,429	80,601	5,470	86,071
Investment Amount (NT$ 100M)	79.4	8	88	26	113
Improvement Benefit (NT$ 100M/year)	33.16	2	35	2	37

Note: source: Formosa Group water and energy saving control computer database

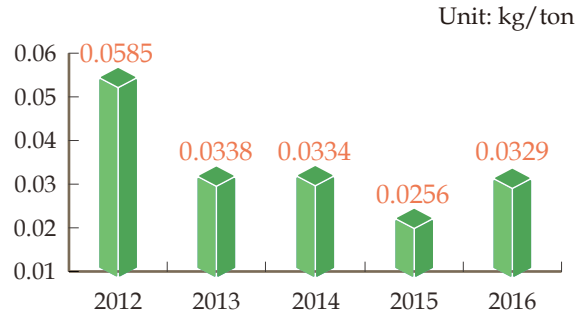
Water pollution prevention regulations and wastewater management

Formosa Petrochemical first carries out oil separation by using a Coagulated Plate Interceptor (CPI) for the wastewater generated by all plants, and that separated waste oil is then introduced to the oil refining department for freshening while the wastewater is drained to the wastewater treatment plant for processing through a low-salt processing system. The processing procedures include water quality adjustment of the mixing tank, removing suspended solids via deposition or flotation and organic material decomposition via a gas exposure tank, and testing of the COD and SS of effusion once/day to ensure that the COD is less than 100 mg/1 and the SS is less than 20 mg/1, reducing the effect of effusion on the environment.



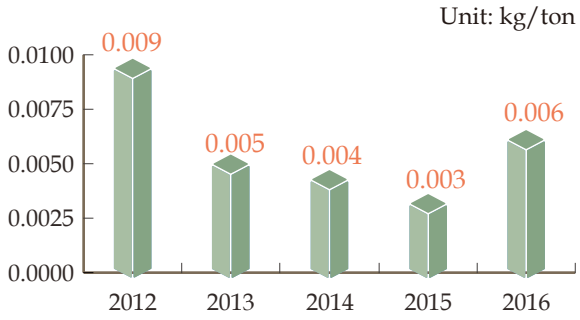
In 2016, the COD emission of unit products was 0.0329 kg/ton, and the SS emission of unit products was 0.006 kg/ton, which was slightly higher than those of 2015. The cause is likely wastewater processing efficiency affected by covering of the exhaust gas tank (odor prevention). Therefore, the Corporation will reinforce wastewater processing adjustments to improve wastewater processing efficiency.

Formosa Petrochemical unit product COD emission



Note: source: Formosa Group water pollution prevention management computer database

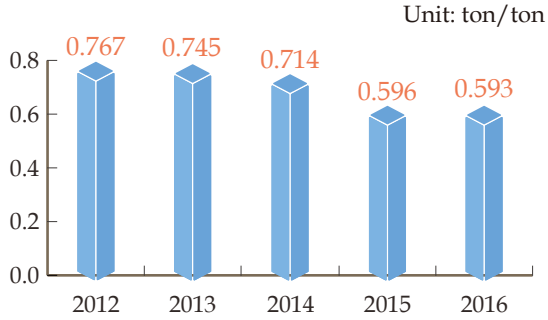
Formosa Petrochemical unit product SS emission



Note: source: Formosa Group water pollution prevention management computer database

On average, the 2016 daily effusion volume of Formosa Petrochemical's Mailiao Complex was 55.2K tons. The water quality effused to Taiwan Strait satisfies effusion standards. The effusion of unit capacity in Mailiao Complex was 0.3% less than the previous year, down to 0.593 ton/ton in 2016.

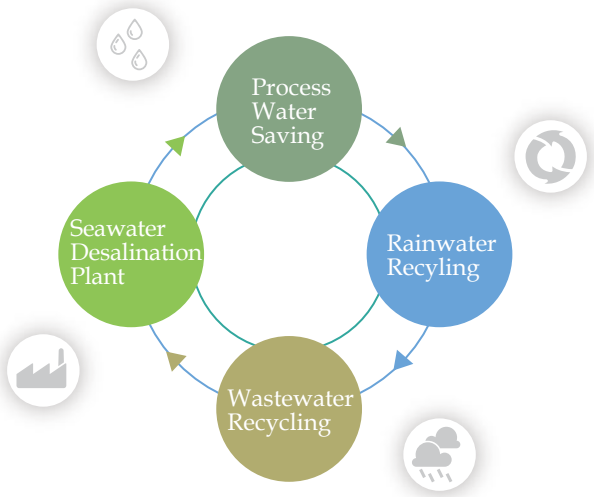
Formosa Petrochemical Effusion of Unit Capacity



Note: source: Formosa Group water pollution prevention management computer database

2.5.2 Mailiao Complex - water consumption issues:

The water usage of the sixth naphtha plant only accounts for 2.1% of the Zhuoshui River flow (inflow to Jiji Weir), which apparently neither puts restrictions on the agricultural water nor causes an excess draw of underground water to affect agricultural production. The Industrial Development Bureau strictly controls water allocation to the sixth naphtha, driving Formosa Group to fully promote its reduced water consumption plan. In order to reduce the water demand, we now actively promote diversified self-preparation projects to fulfill our corporate social responsibilities.



(1) Promote various water saving plans

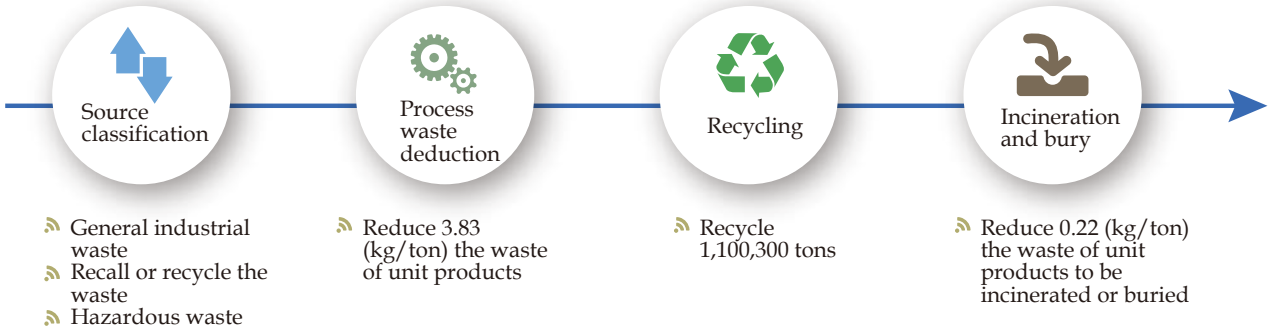
(2) Promote the wastewater recycling plan

(3) Promote the rainwater recycling plan

(4) Promote the construction of a 10k tons/day seawater desalination plant

Waste management

Waste management is divided into four phases: source classification, process waste reduction, and recycling in order to reduce the waste that would be incinerated or buried and adopt zero waste and no burying as our aggressive environmental goals.

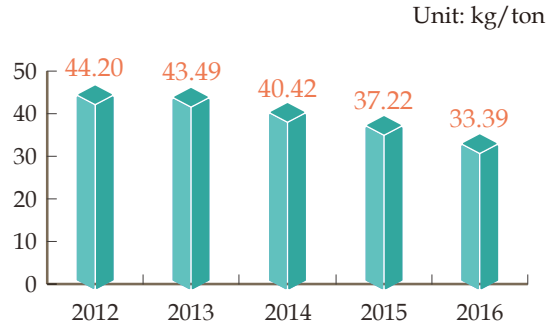


Recycling is prioritized for outsourced waste processing, followed by incineration and burying. A total of 1,138,484 tons of industrial waste (including the coal ash stored in the ash pond) was cleared in 2016. Of that, 1,138,245 tons was general industrial waste, and 239 tons of hazardous waste were delivered to legal processing institutions for proper treatment. Furthermore, 96% of general industrial waste was recycled, 2% was sent for incineration, 1% for burying, and 1% by other methods (e.g. heat treatment). Of the hazardous wastes, 78% was incinerated, 12% was physically treated, 9% was solidified, and 1% was handled by other methods (e.g. chemical treatment). The process waste had a 10% reduction compared to last year, the waste of unit products was reduced 3.83 kg/ton; incinerated and buried waste was reduced 16% compared to last year, and the incinerated and buried waste of unit products was reduced 0.23 kg/ton.

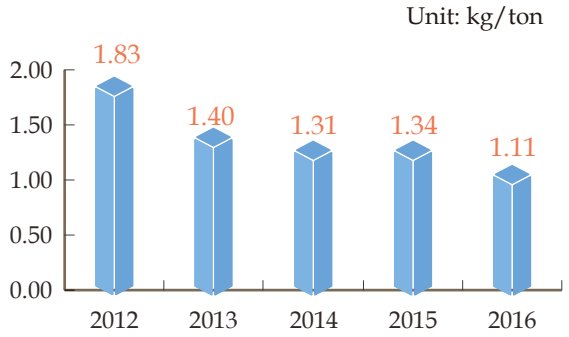
	2012	2013	2014	2015	2016
Waste occurred (ton)	1,337,788	1,393,628	1,327,670	1,259,273	1,138,484
Product (ton)	30,266,165	32,048,095	32,843,065	33,834,040	34,100,586
Unit product waste (kg/ton)	44.20	43.49	40.42	37.22	33.39
Incinerated or buried (kg)	55,307,718	44,763,848	43,076,876	45,210,908	37,945,880
Unit product waste incinerated or buried (kg/ton)	1.83	1.40	1.31	1.34	1.11

Note: source: Formosa Group waste management computer database

Unit Product Waste Volume



Unit Product Waste Incinerated and Buried



Toxic chemical substances management

The toxic chemical operating site and facilities in all Formosa Petrochemical plants are based on the regulations of the Toxic Chemical Substances Control Act. The competent authorities have issued 32 permits. Furthermore, the Corporation periodically holds hazard prevention and emergency response practices. Eight relevant practices were implemented in 2016, and the autonomous management of toxic chemical substances was promoted to ensure normal toxic chemical operation and reduce hazardous incidents.

Item	Types of toxic chemical substance documents	Types of toxic chemical substances	Number of documents (sheet)
1.	Manufacturing permit	1.3-pyrrolylene	2
2.	Use and storage registration	1) Use: perchloroethylene, N,N-Dimethyl formamide* (2) 2) Storage: vinyl chloride, Epichlorohydrin, Di-iso-nonyl Phthalate, bis (2-ethylhexyl) phthalate (di(2-ethylhexyl) phthalate), Acrylonitrile (5)	8
3.	Low content and 4th category approval	1) Low content (lab): mercury, Cadmium Chloride, chloroform, carbondisulfide, Chlorobenzene anhydrous, potassium dichromate, aniline, benzene, pyridine (9) 2) 4th category toxic chemical substance: methyl tert-butyl ether, ethylbenzene, diethanolamine, cyclohexane*, methylene chloride, Methyl Isobutyl Ketone, butyl acrylate, ethylene dichloride, Cyclopentadiene*, Acetonitrile (11)	22
		Total	32

Note 1: *refers to two kinds of concentrations, with the toxic chemical substance permit acquired separately

Note 2: The storage in 2) of item 2 is the toxic chemical substance to be exported by other companies with the assistance of the Harbor Administration Office instead of the toxic chemical substances manufactured or used by the Corporation.

Hazard prevention and emergency response practices

8

Complete 1st-3rd category analysis

5 plants (divisions)

Toxic chemical substances

12

To understand the environmental spread of toxic chemical substances, the Corporation has designated a professional institution to implement "Results Analysis and Plan for Toxic Chemical Substances Operated in Mailiao Complex". The 1st ~3rd category operations have now been completed, a total of 12 toxic chemical substance result analysis reports for five plants (divisions), which are provided to the firefighting squads of all plants and plant areas as references for the revision of emergency response and risk management plans.

2.5.3 Soil and underground water pollution prevention

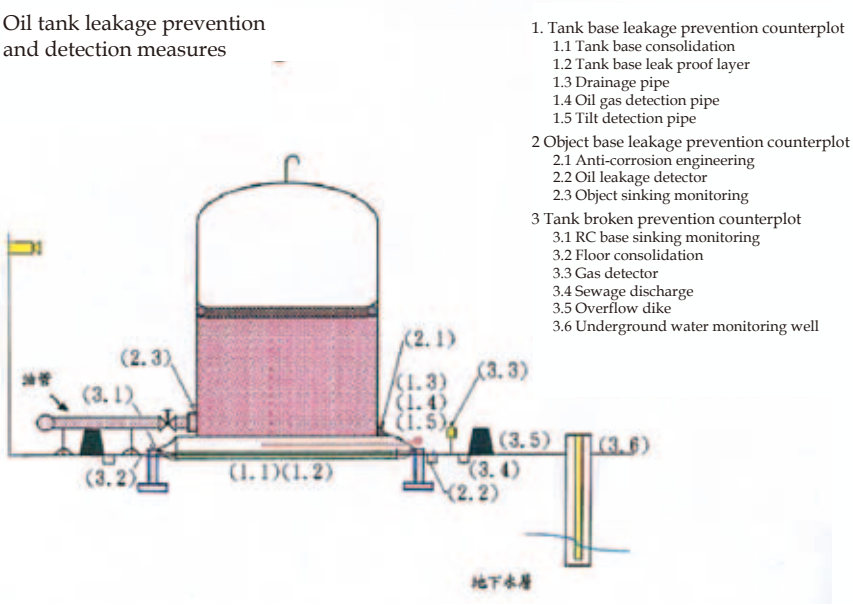
Mailiao Industrial Zone is an emerging offshore industrial zone. To allow for the sustainable use of land in the industrial zone and meet the soil and underground water pollution related regulations, the Corporation takes preventive procedures regarding soil and underground water management to avoid soil and underground water pollution. The preventive operation zone is divided into 1. Tank and pipe regulations; 2. Pollution prevention and processing; and 3. Periodical inspection and control.

Tank and pipe regulations

Tank bottom leakage prevention: The tank bottom is strengthened by RC, and waterproof cloths are applied on the bottom of the RC layer to effectively prevent downward oil leakages. The waterproof cloth extended downward is ABC level accessories with the function of moderating the effect of earthquake vibrations on the tank structure. The oil tank is surrounded by anti-flood dikes to limit the scope of leakage pollution. Furthermore, the leakage detection pipe and leakage detector for the tank bottom and sides are installed parallel to the tank bottom and sides, and the anti-corrosion system on the tank bottom allows the control room to monitor corrosive potential online to effectively control and timely handle oil leakages due to corrosive damage, as shown in the following diagram.

RC shop front is applied under the pipeline to prevent potential leakages from directly affecting the soil.

Oil tank leakage prevention and detection measures



Soil and underground water prevention management

Strict compliance of oil-free floor measures

Special storage site

Periodical inspection and control

The Corporation has built 53 underground water wells based on the high or low risk of pollution in Mailiao Complex. The monitoring frequency is divided into once every year (20), semi-annual (4), and quarterly (29) according to different monitoring requirements (e.g. environmental commitment, dry or rainy season, plant background, etc.). All the monitoring results of relevant pollutants (e.g. TPH, benzene, methylbenzene, ethylbenzene, xylene etc.) satisfy underground water control regulations.

External issues of concern

1. Why the 25000 over limit pollution data of Formosa Sixth Naphtha disappeared

According to the green citizens' action alliance, a total of 34 chimneys of Formosa Sixth Naphtha have CEMS data from January to November 2016 and a total of 25,000 instances of exceeding the limits, with 262 subject to fines. In fact, the chimney CEMS would have one data created every hour and 1.9 million data would be created from 34 chimneys over 11 months. With review, the "over limit" data provided by the green alliance were data created during periodical collaboration and maintenance and can legally be labeled invalid. Most of them were also still lower than the control standards. According to the CEMS, efficiency should be 75% as required by the EPA; the invalid data of 34 chimneys of Formosa Sixth Naphtha was only 1.3% (25,000/1,900,000), that is, the data efficiency surpassed 98%.

One abnormal process operation occurred in January 2016, resulting in Nitrogen dioxide concentration that passed the control standard as detected by CEMS. Yunlin County Government imposed a fine of 100,000 pursuant to laws. The plant where the abnormality occurred eliminated the abnormality immediately. Compared to the data of the EPA air quality monitoring station then, the NO_2 concentration was maintained at 11~19 ppb, indicating that such abnormality did not affect the surrounding air quality.

Formosa Sixth Naphtha has established 34 chimney CEMS monitoring facilities, 10 surrounding air quality monitoring stations, and 10 PAMS pursuant to laws, which are all connected with the Industrial Zone Service Center in real time for supervision. The EPA and competent authorities at all levels may audit the plants at any time, and Formosa Group will absolutely cooperate with such audits.

Press release http://www.fpg.com.tw/j2fpg/portal/News/5ILPHM2AAW0

2. The explanation regarding the newspaper report that a serious PM 2.5 haze in Yunlin County was directly correlated with Sixth Naphtha

Explanation:

1. The EPA report indicated that the major sources of PM 2.5 were not derived from petrochemical or coal fuel power:

The sources of PM 2.5 are really complicated. According to the EPA analysis regarding the effects of all domestic pollutants on PM 2.5, the affection ratio of moving sources is 37%, of industrial sources is 31%, and from other sources (including construction, dust, outdoor burning, restaurants, etc.) is 32%. The effect of emissions of petrochemical industries accounts for only 5.2% (oil refining and chemical materials manufacturing), showing that Mailiao Complex is likely not the major source of PM 2.5. Furthermore, the EPA has also indicated that the effect of reduced industrial loading is insignificant to PM 2.5 air quality improvement, again showing that the coal fuel power plant is not be the major contribution source.

2. After investigation, Yunlin County Government found that outdoor burning is the major reason for haze in autumn and winter:

The Environmental Protection Bureau of Yunlin County found through investigation that the average PM 2.5 concentration was already high in such monitoring stations as Douliu, Lunpei, and Taixi since late September 2015. However, the PM 2.5 would suddenly have a "purple alert" at certain times, such as during local temple activates, fireworks being set off, outdoor burning on farm land, and traffic jams. Of these, the contribution of outdoor burning reached 12.5%, showing that the effects of local activities cannot be neglected.

3. The Corporation cares about the health of residents in the nearby neighborhoods and has promoted various PM 2.5 reduction measures:

The Corporation is truly concerned about PM 2.5 haze issues and has voluntarily promoted PM 2.5 reduction according to EPA control measures through the strict control of large emission channels and reinforcing diesel vehicle control and dust prevention in Mailiao Complex. According to the statistics, the air quality in Taixi area near Mailiao Complex is not only better than that of adjacent countries and cities, but also close to the level before operations started. Therefore, air quality has not deteriorated, despite the rumors.

Monitoring item	Background value before construction 82/7~83/5	Construction period	Sixth Naphtha Phase I 88/1~90/3	Sixth Naphtha Phase II 90/4~91/3	Sixth Naphtha Phase III 91/4~93/6	Sixth Naphtha Phase IV 93/7~99/3	Sixth Naphtha Phase V 99/4~105/4	Average in Taiwan 99~104	National Standard	
									Annual Average	Hourly Average
SO_2 (ppb)	3.7	3.3	2.5	3.1	3.2	4.6	3.4	3.7	30	250
NO_2 (ppb)	12.0	10.0	11.2	11.5	10.7	10.1	8.3	15.7	50	250
CO (ppm)	0.43	0.36	0.37	0.40	0.35	0.29	0.27	0.47	—	35
PM_{10} ($\mu g/m^3$)	70	70	62	64	61	56	50	53	65	—
$PM_{2.5}$ ($\mu g/m^3$)	—	—	—	—	—	28.3	28.1	28.1	15	—
NMHC (ppm)	—	—	—	—	—	0.11	0.07	0.25	—	—

Please refer to the CSR website for our responses to other negative issues (add link).

Work safety improvment

3

Since its establishment, the Corporation has implemented a health and safety management system in line with the concept of continuous improvement. In addition to compliance with basic legal requirements, we further promote hazard prevention, risk control and implement a responsible care goal system to lead the industry in health and safety development.

- Stakeholders: employees, customers, local residents, environmental groups, government agencies, experts and scholars.
- Material Issues : industrial and public safety, occupational health and safety.
- Major strategies: reinforce control and safety responsibilities of all employees, carry out health and safety management at all levels and establish a health and safety culture of the Corporation.

Goal Setting and Annual Achievements

Goals		2016 Achievements
Short-term goals	1. Carry out autonomous health and safety management, establish a common consensus 2. Reinforce occupational health and safety management at all levels, form active interference and autonomous risk-management concepts.	Job safety culture formation • Severe occupational injuries per thousand: 0. Disability injury frequency: 0.20. Disability injury severity rate: 25, which was lower than in 2015 Job safety risk management • 188 chemicals subject to specialist management • Promote employee responsibility area and contractor autonomous management • Comply with employee and contractor standard operational procedures: audit abnormality was 0.95/plant per month average Occupational health management • Special health check acceptance rate 100%, abnormality rate 0.28%, which was 0.09% lower than previously • Physicians serviced 207 people on site • High-risk cerebral-cardiovascular disease decreased from a rate of 1.06% to 0.11%. • Hydrogen sulfide antidotes prepared, totaling 324 inhalers and 29 injections available on site and in a local hospital.

Goals		2016 Achievements
Mid-term goals	Systemized integration system and procedures, quickly eliminating on-site risks	♪ Job safety culture formation ⚙ Prevent the occurrence of the next occupational disaster through thorough investigation and improvement of occupational disaster management ♪ Job safety risk management ⚙ Investigate production accidents, actively explore root cause. 0 production-related accidents occurred in 2016. ⚙ The process risk evaluation was conducted by a third party and engineering improvement was processed due to suggestions. 30% (65/219) was improved and the remaining parts will be arranged and incorporated into the scheduled inspection before 2020. ⚙ Continuously implement the Mailiao Industrial Harbor facilities security plan ⚙ Plan the integration of production and equipment to simplify procedures ⚙ Create a technological management platform to integrate database management, incident management and change management into a cross-functional system ♪ Occupational health management ⚙ Implement 8 ergonomic hazard improvements and system construction
Long-term goals	Consolidate the health and safety responsibilities and concepts of employees and contractors, build the line of defense for health and safety	♪ Job safety culture establishment ⚙ According to the 2016 2nd safety culture weakness assessment, all items were improved. ⚙ Promote safety and continuously establish the concepts of safety culture, safety walking and talking (SWAT), and negotiation, and promote health and safety and meetings with colleagues and contractors. ♪ Job safety risk management ⚙ Organize statutory employee health and safety training totaling 15 categories, 94 sessions and 2,994 people ⚙ Organize employee health and safety promotion and training, totaling in 1,098 sessions and 42,851 trainees ⚙ Organize 687 two-step access control health and safety training for contractors, including 2,177 companies and 26,316 people. There are a total of 2,287 people eligible for contractor health and safety management, with a total of 15,355 people with technological certification ♪ Occupational health management ⚙ Establish contractor autonomous health assessment and management ⚙ Total 118 CPR and AED trainings

3.1 Job safety culture formation

3.1.1 Job safety culture promotion

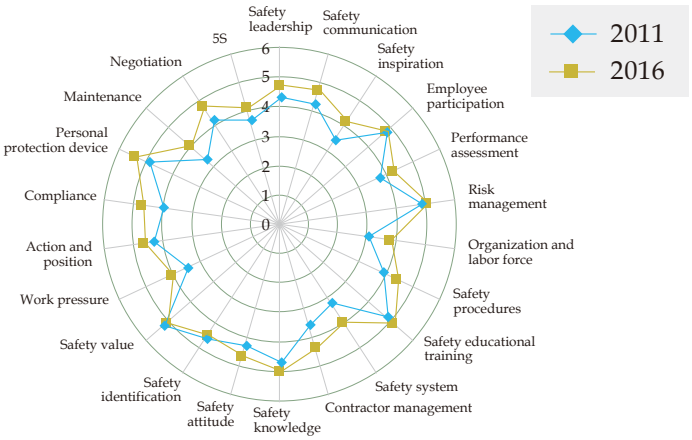
Formosa Petrochemical established health and safety policies in 2003 to build a job safety culture in the company. We understand that sustainable operation of a company relies on stable production performance. Meanwhile, a quality safety culture is an indispensable factor to maintaining stable production. Safety culture not only represents external performance, but also the safety performance and atmosphere of all employees in terms of the psychological wellbeing of staff, and company environment. In promoting various occupational health and safety (OHSAS 18001) and Process Safety Management (PSM) systems, we further want to understand the current safety culture conditions of the company as a whole to explore weaknesses and make progress in sustainable operations. The physical actions taken are as follows:

Safety culture assessment and improvement

To identify current conditions we designated a third party to implement the 1st safety culture assessment in 2011. The results determined that the overall safety culture of the Corporation is advantageous in terms of safety value and personal protective devices, while the scores of organization and manpower, safety systems, contractor management and equipment maintenance were lower. To adhere to the identification of safety culture improvement at all levels, we continuously invite all department superiors, employees and counseling teams to a "safety culture formation seminar" divided over four sessions to provide physical improvement tasks to be implemented.

Item	Dimension	Improvement Project
1	Safety system	Conduct overall review again and revise the management system to meet operational practices for increased safety
2	Organization and manpower	Recruit new employees to actively fill vacancies
3	Contractor management	Organize professional training to enhance their professional abilities
4	Equipment maintenance	Work with international professional companies to improve equipment and enhance reliability

To check whether our improvement measures are effective and provide references for working plans in the future, we continuously designated the same third party to conduct a 2nd assessment in 2016. According to the analytical results, the performances of safety culture in all dimensions were clearly improved compared to 2011. In the future, we will still make advancements and study improvement strategies aimed at weaknesses to gradually reinforce the all around safety culture of the Corporation.



3.1.2 Occupational disaster statistics, prevention, actions and follow up:

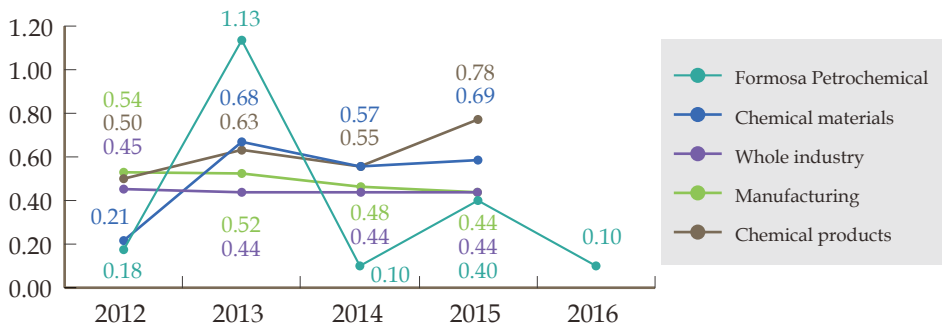
In 2016, severe occupational injuries per thousand was 0, disability injury frequency 0.20, disability injury severity rate 25 and comprehensive injury indicator was 0.05. Compared to previous years, the number of incidences of severe occupational injuries per thousand and injury severity rate all decreased, while the comprehensive injury indicator was lower than similar companies in the industry.

Table 1 History work injury ratio

Year	Annual average of workers			Total working hours and days		No. of Incidences	Total days lost	Disability injury frequency	Disability injury severity rate	Comprehensive injury indicator
	Male	Female	Total	Total working days	Total working hours					
2014	4,538	326	4,864	1,250,456	10,342,099	5	165	0.48	16	0.04
2015	4,543	348	4,891	1,210,441	9,994,536	1	6,000	0.10	600	0.45
2016	4,592	374	4,966	1,211,953	10,118,292	2	251	0.20	25	0.05

- Severity Rate (SR)= (total days lost $\times 10^6$)/ total working hours
- Frequency Rate (FR)= (number of injuries $\times 10^6$)/ total working hours
- Comprehensive injury indicator= $((FR*SR)/1,000)^{1/2}$
- Injuries inflicted in the last three years all occurred to males in Mailiao Complex. 2 people were injured at work (clamped, falling) in 2016.
- The subjects of the statistics were official employees of Formosa Petrochemical

A comparison of the comprehensive injury indicator between Formosa Petrochemical and the industry 2012-2016



※ Since the Ministry of Labor did not publish all data in 2016, some information is missing

The number of absences and work injuries of contractors

Year	Absence					Work injuries of contractors	
	Hour		Total working	Absence rate		Total number	Total loss
	Male	Female		Male	Female		
2014	20,173	2,246	10,342,099	0.20%	0.02%	8	236
2015	26,715	2,460	9,994,536	0.27%	0.02%	7	288
2016	28,728	1,961	10,118,292	0.28%	0.02%	5	422

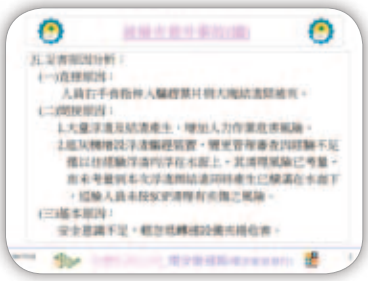
* Absence hours include: hours of work injury, hospitalized sickness and non-hospitalized sickness
* The categories of work injuries of contractors in 2016 were 2 falls from high places, 2 falls and 1 thermal contact

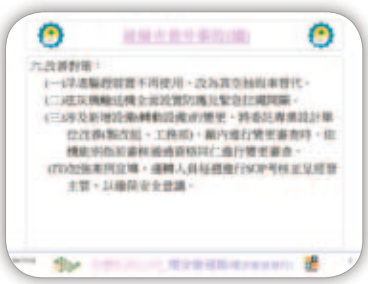
Occupational disaster prevention

By using the root cause analysis and investigation results, we have established a prevention plan aimed at incidences that have occurred, accompanied by Job Safety Analysis (JSA) and Process Hazard Analysis (PHA), these approaches to risk assessment to discover potential hazards and implement control in advance help to protect the health and safety of employees.

Two occupational disasters occurred in 2016: one involved the finger of an operator being clamped when he intended to cut off the power as a rush to eliminate an abnormality during on-site patrol. The other incident involved a service employee who fell when walking down stairs from the hoist when working on site. It was found from the analysis of the incidence investigation focused on people, material, equipment, and environmental factors that the main factors that led to these situations were inadequate safety awareness of employees, violating the prohibition of touch equipment during operations and failure to walk via formal elevation access. Therefore, we are continuously reinforcing education through monthly health and safety and environmental reports, implementing training, SOP review and experiences sharing.

Figure 2 Occupational disaster prevention and health and safety and environmental report

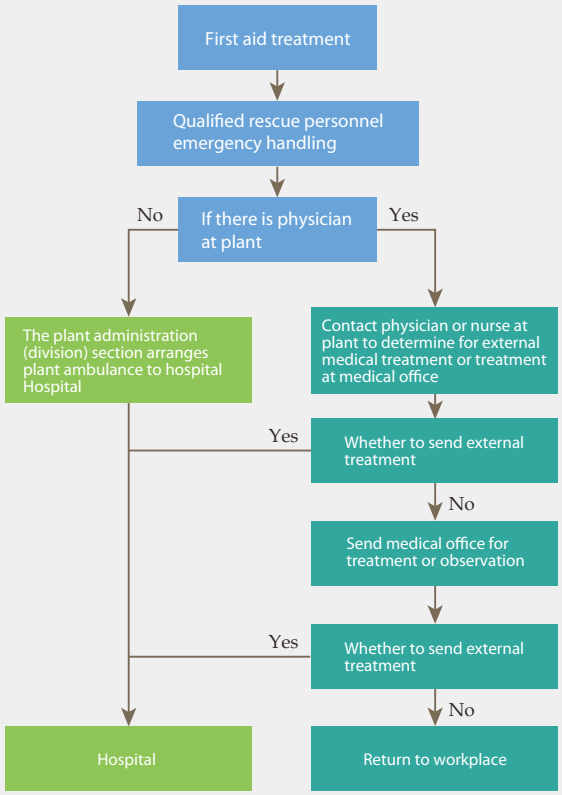



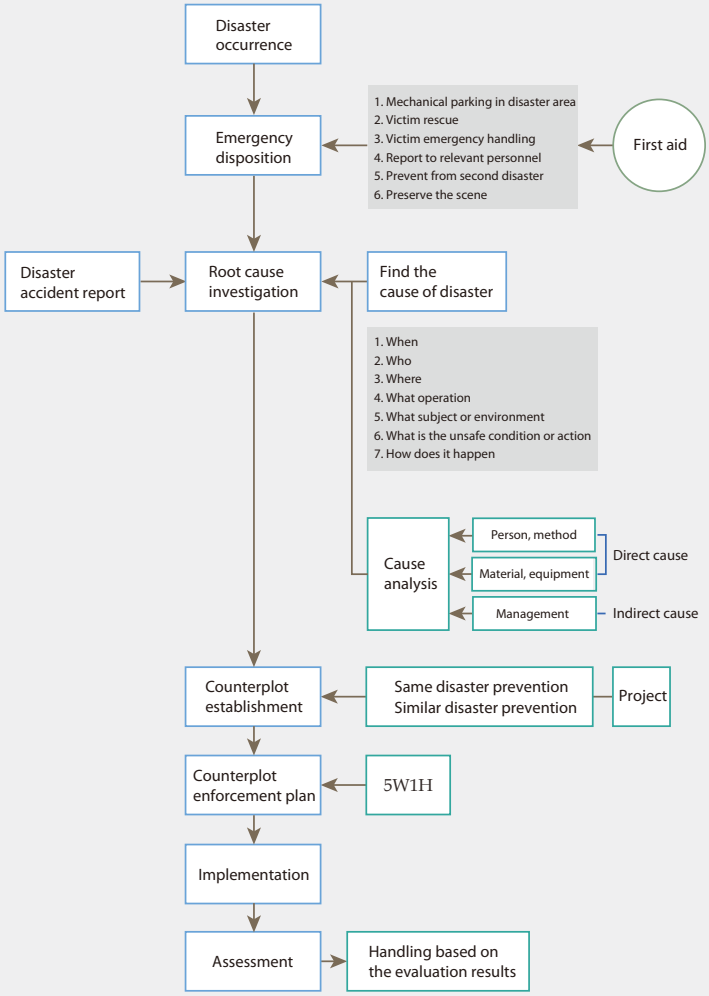
Occupational disaster management and follow up

In addition to managing occupational disaster pursuant to legal procedures, we have also established an injury rescue response flow chart. In order to understand the reasons why accidents have occurred and explore blind spots in management, a third party organized internally has been assigned to conduct independent accident investigations and control the area where an accident has occurred until improvements are implemented. A case isn't closed until this third party is satisfied that improvements have been made. On the other hand, medical personnel or employees may intervene via the assistance system depending on the whether the employee can resume work and their psychological condition.

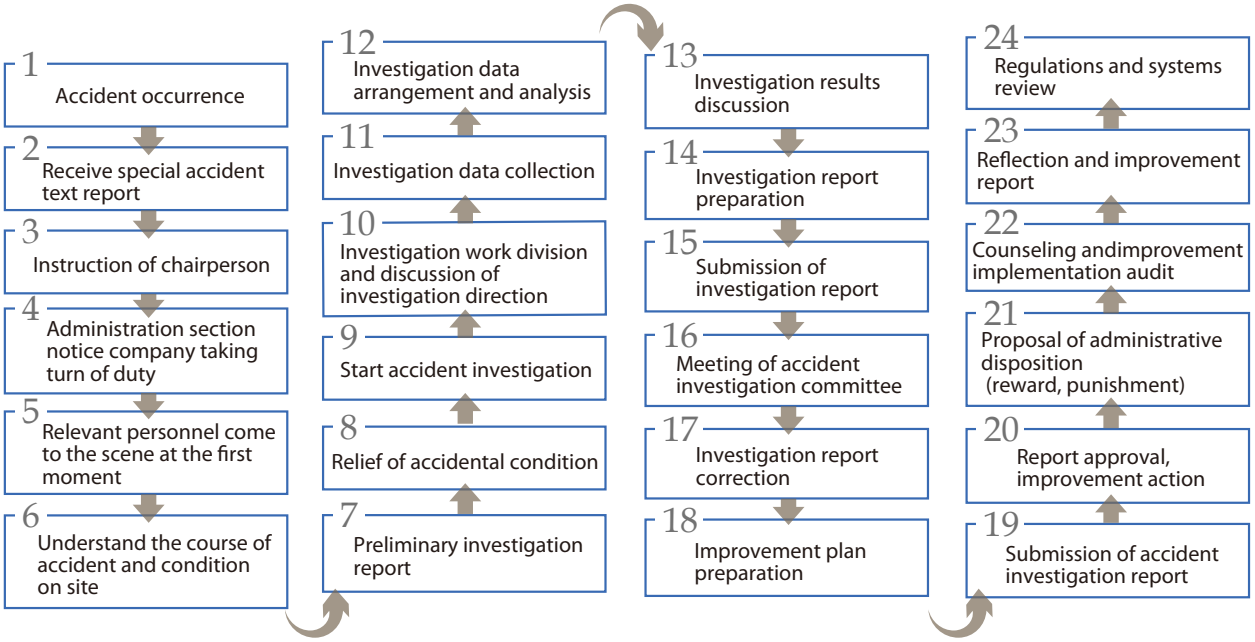
Figure 3 Personnel injury rescue procedures



Overview of accident investigation flow chart



Disaster root cause investigation flow chart



3.2 Job safety risk management

Disclosure of Management Approach (DMA)

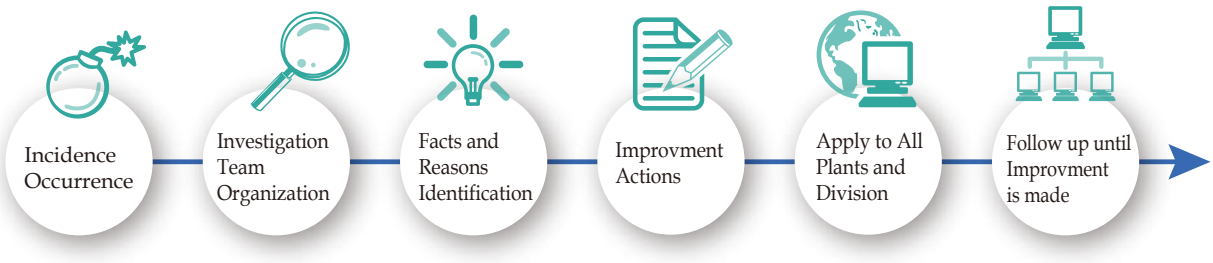
Eliminate existing risks on site through the introduction of international standards, technologies and professional training, various functional operation systems and procedures integration, risk management concept establishment and processes, equipment and personnel risks determined by management.

3.2.1 Process Safety Management

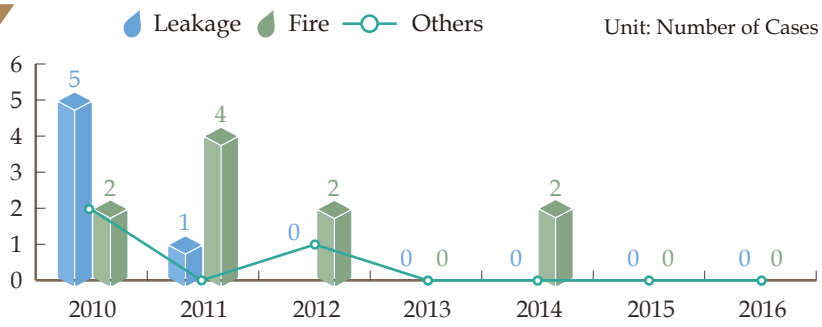
In addition to compliance with governmental laws, all processes, equipment and personnel management is implemented based on the concept of "risk management" and the standards governing the establishment of technological documents issued by the US "Occupational Health and Safety Administration (OSHA)", process safety management laws, the American Institute of Chemical Engineers (AIChE) and the Center for Chemical Process Safety (CCPS).

Since 2010, a total of 19 process-related accidents have occurred during operational activities, but no process-related accidents have occurred in 2016. In the event of process-related accident, the investigation team consisting of professionals from different fields is organized to identify the facts and reasons for the incident as well as to provide actions for improvement focused on hardware (equipment, maintenance, etc.) and software (personnel training, technology enhancement, etc.). Meanwhile, various actions will be taken in all plants and divisions and followed until improvements are made.

Process Safety Incidence Investigation Flow



Process-Related Accident



Process risk assessment implementation quality improvement and progress

Since 2010 we have assigned personnel to regularly attend statutory qualified training institutions for "process safety assessment personnel" training to enhance and ensure quality requirements are being met. Furthermore, HIS (HIS Global Canada Ltd.) is commissioned to conduct 1:1 PHA Facilitator certifications. Meanwhile, we encourage process improvement and designers to acquire CFSE and CFSP certifications to enhance overall risk assessment quality. Aimed at critical risky processes, the reassessment counseled by a third party institute (HIS, Lloyd's (Scandpower) and CCPS) has been implemented to avoid concerns of "underestimated risks" due to self-assessment and relevant personnel are gathered to learn the approaches and concepts of professional assessment institutions.

Item	Certification	No. of People
1	Statutory process safety assessment personnel	168
2	HIS PHA Facilitator	11
3	CFS engineer	11
4	CFSP	2

After the original "analysis of equipment and pipeline" was replaced with a "systematic process analysis", there were a total of 1,635 analysis systems (nodes). 219 suggestions for improvement require further engineering improvement after the overall re-assessment was conducted. Among them, 65 improvements have been completed, or 30% completed as of 2016/12. Remaining parts to be improved will soon be arranged and will be incorporated into the periodical inspection before 2020.

Process equipment safety management

To ensure the completeness of equipment, machinery and systems used in processes and operations, 6 major pieces of equipment encompassing the compressor (pump), pipeline system, pressure container and tank, instrument control, monitoring and alarm system, the emergency emission system and device and emergency parking system were subject to installation, inspection, testing and maintenance, etc. to keep personnel safe and healthy, and to protect the environment and avoid damage to assets in accordance with US OSHA1910.119 regulations.

Through technological cooperation with international specialized maintenance services, we have launched an equipment safety management system from three major dimensions:

Rotating / instrument maintenance

Rotating equipment/ instrument maintenance– develop self-maintenance technology and construct a predictive maintenance (equipment security) system

Static equipment maintenance

Static equipment maintenance – promote RBMI (Reliability-Based Mechanical Integrity) quantitative management

Maintenance record and equipment managment

(1) equipment reliability and maintenance data collection.

(2) ISO 14224 oil-refining equipment monitoring, analysis, and maintenance integrated management system (MAXIMO)

MAXIMO

Implementation of the results of process equipment risk level quantization

To ensure equipment risk management satisfies international standards, the Corporation continuously trains personnel with various international certificates. There are a total of 234 certificates awarded to personnel to consolidate job safety risk management and enhance the concept of a safety culture.

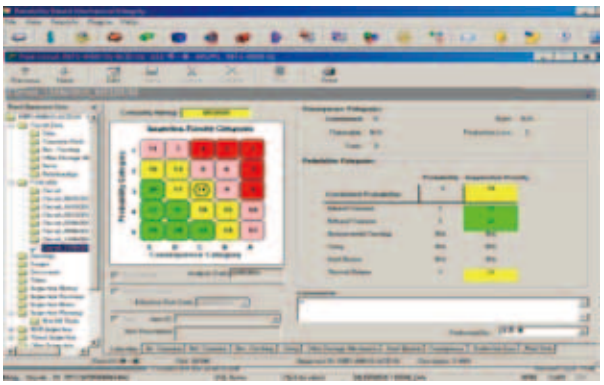
Equipment risk assessment related international certificates

Non-destructive testing	Visual	Radiation	Liquid penetration	Magnetic force	Ultrasound	Eddy current
Level II	51	19	41	40	22	18
Level III	0	1	1	1	1	1

US Petrochemical Association					National Association of Corrosion Engineers	American Welding Society	British Welding Research Association Welding inspector	
510	570	653	571	580	6	2	Level I	Level II
6	9	9	1	1			2	2

RBMI (Reliability-Based Mechanical Integrity) quantization analysis was introduced in 2013, the equipment and pipeline risk levels are as follows:

RBMI risk level	High	Middle High	Middle	Low	Total
Equipment （set）	131	865	3,435	1,495	5,926
Equipment ratio	2.2%	14.6%	58.0%	25.2%	100.0%
Pipeline（circuit number）	107	997	6,423	5,427	12,954
Pipeline ratio	0.8%	7.7%	49.6%	41.9%	100.0%



RBMI System

According to the risk level derived from quantization analysis, the maintenance department has planned and implemented relevant maintenance work and a monitoring system according to international standards and factory suggestions, is carrying out risk management and has included in the management system all people, processes and items related to equipment to improve technology and enhance equipment reliability to prevent accidents from occurring at the plant.

3.2.2 Employee and contractor professional training and certification:

Statutory employee health and safety training

The Corporation has designated training institutions approved by the central competent authority to regularly manage statutory health and safety training to strengthen the knowledge of employees of industry safety, including superior to basic operations of occupational health and safety, to ensure employees are equipped with the professional knowledge and skills necessary to actively investigate potential hazards for early identification and prevention and reduce operational risks.

94 training sessions covering 15 categories and a total of 2,994 hours of personnel training were conducted 2012 to 2016.

Employee health and safety and environment promotion and training

1,098 lectures focused on business/company regulations, occupational health and safety-related laws, common hazard knowledge, personal protection/first aid device operation, traffic safety, accident case studies, emergency response practices and health education were held in 2016, totaling 42,851 hours of personnel training.

Employee job certification

To develop professional skills of employees, the headquarters of the technology training center offers job certification with training categories covering process operations, mechanical engineering, health and safety management personnel, environmental management personnel, pollution prevention personnel, fire management personnel, and dedicated personnel for safety management of processes, who sit tests before acquiring the certification. By December 2016, the number of certified people reached 429.

Contractor access training

Contracted personnel involved in construction must pass health and safety training and testing before entering the plant (1st access control), and must accept "health and safety training" managed by different business departments and pass those tests before acquiring the formal construction qualification.

687 two-step access trainings were held in 2016, involving a total of 2,177 contractors and 26,316 personnel training hours.

To reinforce the knowledge of contractors of potential hazards and safety notices in processes and operations, the "operation risks reminder board" or toolbox meeting is conducted every day before construction commences to further promote and remind personnel of the potential risks during construction and to review their psychological and physiological health before starting work to avoid industrial accidents from occurring.

Operation risks reminder baord

Toolbox meeting

Contractor certification

1. Health and safety management personnel certification

   To reinforce the autonomous management of health and safety personnel of contractors, the business technological training center has been offering certification in this area since September 2013. The training courses cover abnormal cases via internal audits, internal and external occupational disaster cases, contractor operational safety analyses, operational environmental testing and use of personal protection equipment. Those who pass the tests may acquire certification. As of December 2016, 2,287 people acquired the certification.

2. Professional technology certification

   To enhance the construction techniques and standards of personnel of contractors, the business technological training center has been offering certification in this area since January 2011. The items cover scaffold assembly and disassembly, general rotating machine disassembly, bolt disassembly, control value maintenance, power panel maintenance, general instrument collaboration, accessory electrical circuit maintenance, painting, welding, thermal insulation, reinforced bar, and piping etc. Those who pass the tests may acquire certification. As of December 2016, 15,355 people acquired the certification.

3.2.3 Chemical management

Purchasing, manufacturing, disposal and use of chemicals

When a new chemical is purchased, we must identify the composition of such substance, construct a safety data sheet and complete the application or reporting procedures pursuant to regulations of the competent authorities. When the supplier cannot provide sufficient data to support the features and safety of a chemical, we immediately determine that the supplier is not suitable to complete the transaction nor can we protect the operational safety of chemicals used inside the plants and the health of employees and residents.

The existing chemical management system starts from systematic MSDS management. We establish and regularly update all chemical lists in operation, record the hazardous classification, composition, concentration of chemicals and the manufacturing, import, supply, disposal, use and storage volume, etc., of the chemicals. We also arrange for employees and contractors that may use or be exposed to hazardous chemicals to accept general hazardous chemical training.

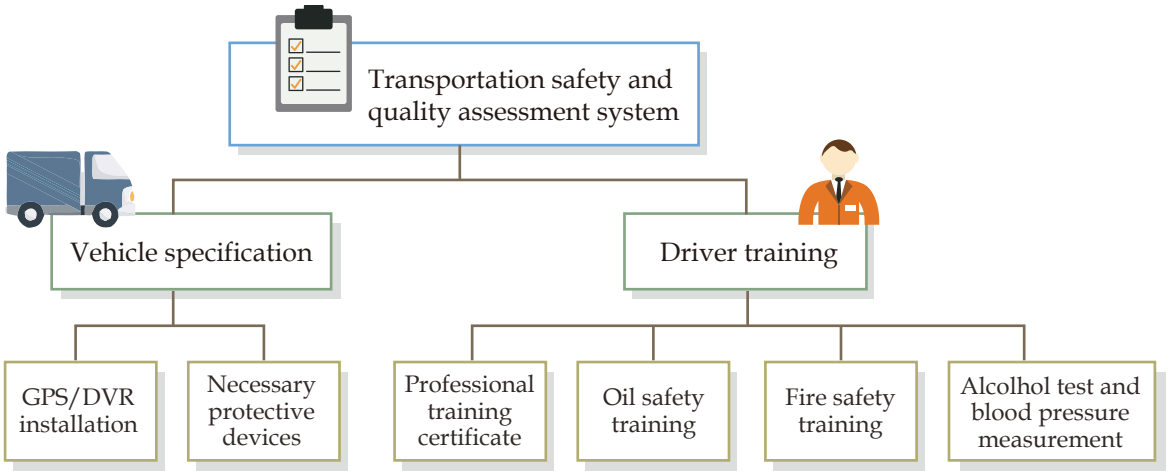
In addition to the 188 chemicals subject to specialist management, we classify and control the substances that might be harmful to health based on their hazardous level, consumption and extent to which they can spread around the air. We closely monitor the conditions of employees exposed to chemicals, periodically commission a testing company to assess

exposure, monitor the operational environment, and analyze the results to determine whether we require further onsite management, equipment maintenance and improvement according to the results. Where there is a change in process, disposal methods of use of chemicals, the assessment is conducted again to avoid potential exposure risks to employees.

Chemical filling and transportation

To ensure safety when transporting oil, all contractors (including self-collection customers) need to accept and pass the Safety and Quality Assessment System (SQAS) of the Corporation, which includes the supplier management SOP, driver experiences and training, vehicle safety facilities and maintenance, and emergency response assessment items. Contractors who fail to acquire the qualification are not permitted to contract nor collect oil on their own.

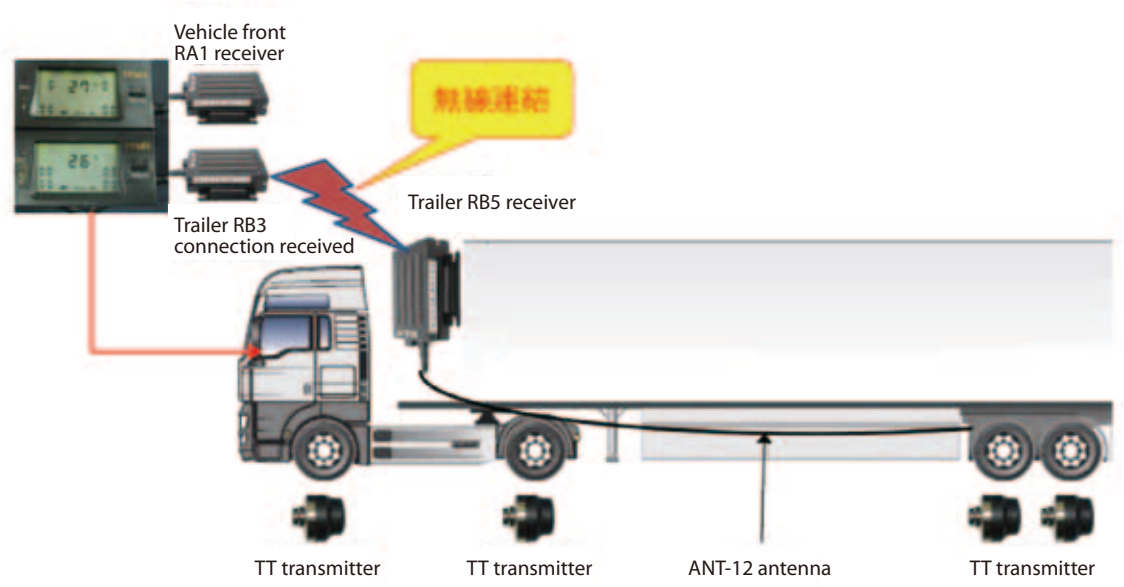
Eiligible carriers who pass the assessment must install GPS/DVR and necessary protective devices on all their vehicles. They may only access the plants with qualification certificate attached to the vehicle. Drivers must pass computer tests pursuant to the Corporation's regulations and accept control measurements at least three times. The test items include material loading and discharging safety, driving safety, first aid and personnel safety-related knowledge.



There were 236 people who completed the training in the transportation of gasoline and diesel products conducted in 14 educational training sessions in 2016, involving 7,977 training hours. Meanwhile, the alcohol tester and blood pressure monitor have been installed. Each driver collecting goods must take an alcohol and blood pressure test every time they wish to enter the plant and the vehicle will be prohibited from entering the plant (station) to fill if the alcohol test value is over 0.? Mg/liter or systolic pressure is greater than 180mmHg.

Carrier Vehicle check before driving

Safety check for carrier vehicle after entering the plant



3.2.4 Harbor safety

We have established and implemented the "Mailiao Industrial Harbor Facilities Security Plan" based on ISPS Code since July 2004. We also review and reinforce security measures based on six major factors of harbor security:

Item	Facility	Content
Enter/exit harbor security procedures	Barrier	1. Separate the Mailiao coast from the Sixth Naphtha Industrial Zone 2. Separate dedicated public facilities and harbor access roads from the southern wharf area
	Access control station	1. Two locked control doors and four control stations with harbor police and security guards stationed. 2. People who access the harbor need to apply for a certificate or work report

Item	Facility	Content
Restriction area	Monitoring system	1. The signal station must remain locked, and CCTVs are installed at the entrance and duty counter 2. The entrance of harbor affairs and logistic offices are monitored via CCTV
Loading & unloading of goods	Review	1. Loading and unloading of goods must be reviewed for approval
Vessel material delivery	Review	1. Enter harbor area after reporting to customs and checked by harbor police 2. Any vehicle entering or exiting the harbor area must apply for a work report before issuing the harbor pass to the harbor police
Loading and unloading of non-personal belongings	Review	1. Manage in accordance with the "Regulations Governing the Import of Personal Belongings Carried by Crew during Homeward Voyage or Coast Transfer"
Harbor facilities monitoring	Monitoring system	1. CCTV: aimed at harbor, sea-lane, jetty, waste stacking field, harbor building and harbor logistic building 2. Vessel traffic control system 3. Visual: monitor movement in the harbor area and nearby vessels
	Harbor administration area alarm monitoring system	1. Alarm monitoring system is installed in important facilities in the administration area
	Patrol	1. Assigned personnel are on day and night patrol on site every day 2. Offices are monitored with CCTV 3. Irregular patrol of harbor police and security guards 4. Radar and watch from a distance, incorporated with a harbor logistics vessel and coast guard for sea patrol

In addition, we have also sent 15 employees to complete harbor facility security training and conduct practices and drills as well, including fire drills, and disaster prevention (SARS, dengue fever, Zika) practices and drills. There have been a total of 5 relevant trainings implemented since 2015.

Harbor safety practice and drill

National airborne service corps dispatch helicopter to support ship hijack prevention drill.

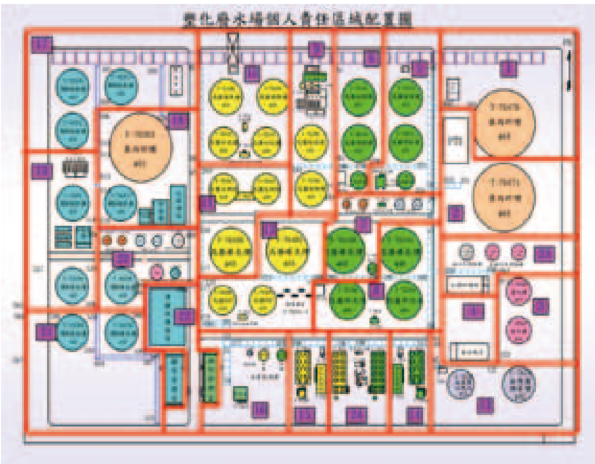
The explosion prevention personnel of 2nd investigation brigade of 5th crime investigation affairs division conducted system breaking emergency response practice

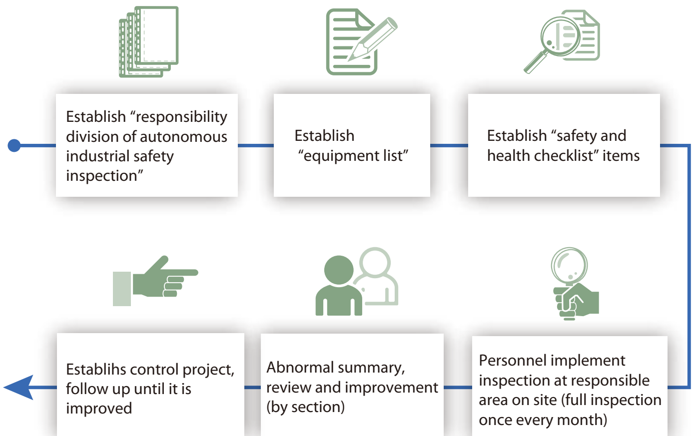
Speech from chief of inspector's office, NPA Keng, Chi-Wen

Drill commander, the vice director general of Yunlin County Police Bureau Kuo, Jen-Bin oversee the vehicle and ship practice

3.2.5 Autonomous management

Autonomous management in the employee responsible area






安全衛生檢查單

區域別：RCCIMC3　類別：D儲槽設備

代號	名稱		檢核基準	簡處標準	檢查數量	異常數量	異常地點 1	2	3
01	[illegible]	01	[illegible]	4	38	3			
04	[illegible]	01	[illegible]	4	19				

安全衛生檢查單

區域別：RCCIMC3　類別：E安全設施及裝置

代號	名稱		檢核基準	簡處標準	檢查數量	異常數量	異常地點 1	2	3
03	[illegible]	11	[illegible]	8	40				
03	[illegible]	13	[illegible]	6	20				

To encourage the identification and responsibility of employees to their plants or divisions, we promote autonomous management in responsible areas. Employees conduct autonomous checks of the equipment and facilities within the responsible areas one cycle a month. In the event any abnormalities are found, a project will be implemented to improve the situation and followed until complete. In addition, electronic process patrol is encouraged and key process equipment patrol results will be upload to the management platform via PDA to allow administrators to grasp the key equipment operation and maintenance conditions.

Contractor operation autonomous management

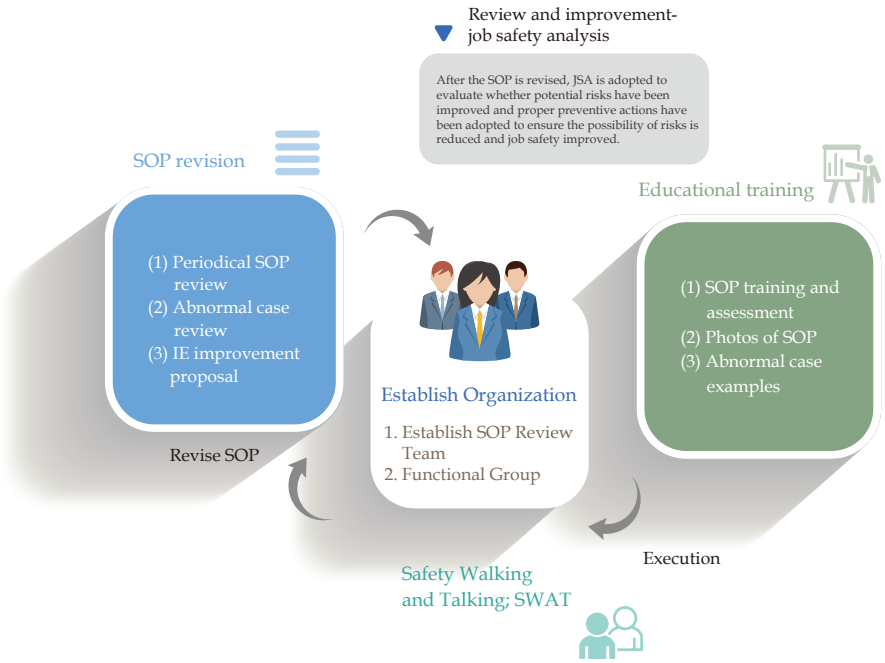
To ensure safe construction processes are followed by contractors, we request contractors to carry out autonomous checks on devices and equipment and record results before operation and actually conduct safety protection and corrective steps to restore the site to a safe level after construction every day.

Meanwhile, contractor job safety personnel is required to manage employees on site during operations to ensure construction safety by using a first in and last out daily system. During the construction period, the person in-charge and job safety personnel on the construction site must be stationed at the place of work (construction site) to manage their employees and ensure compliance with operational safety requirements.

3.2.6 Operation safety management

Employees must follow Standard Operating Procedures (SOP)

The Corporation encourages everyone to become involved with SOP, including the SOP review team organization, periodical SOP review and revision, and education training and safety walking and talking to reduce operational risks to employees.



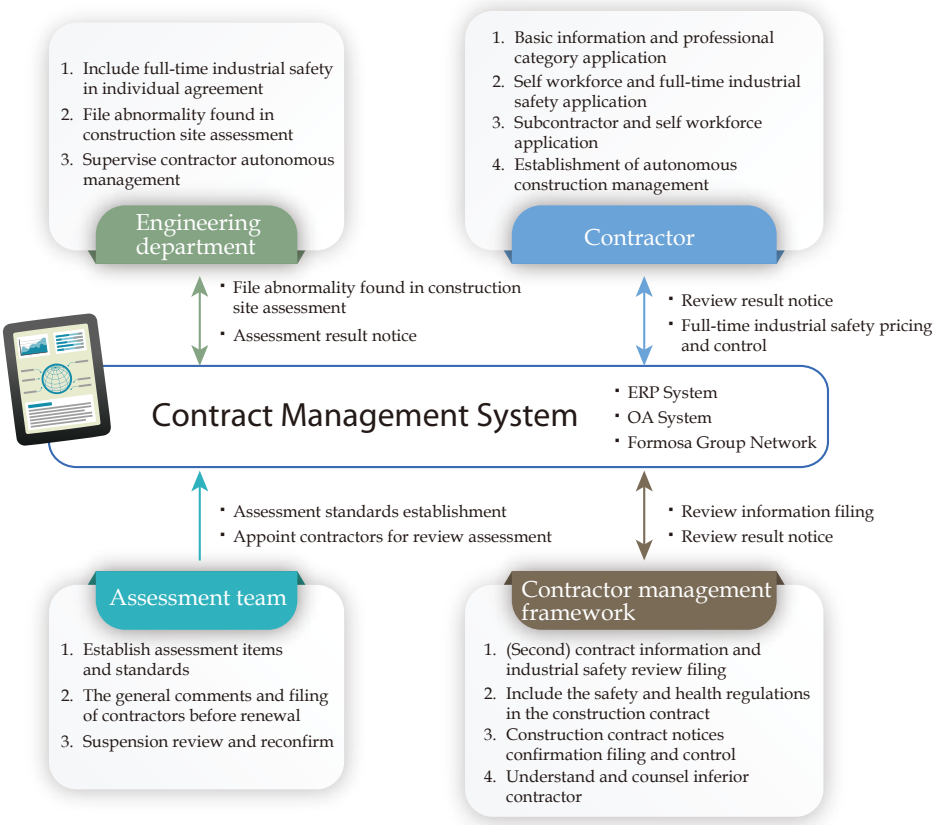
On the other hand, good practice teams of different departments will present their implementation approaches and achievements by way of a presentation to exchange experiences and enhance overall job quality, reduce the risk of accidents during operations and procedures and fulfill the original goal of implementing a job safety culture.

Ensure operation safety by finding potential harzards via JSA

JSA team members make discussion aiming the operational harzards

JSA presentation

Contractor safety and health managment



1. Contractor assessment and screening

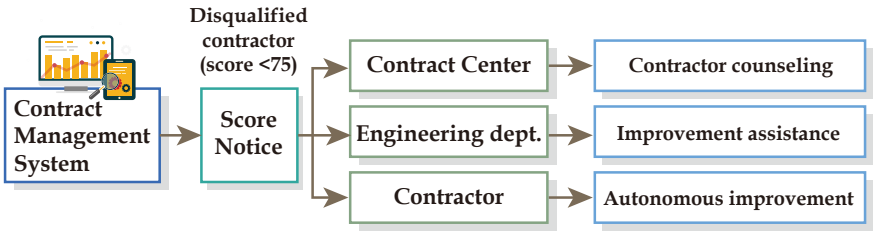
The business contract center will investigate the plants, construction site, construction equipment, health and safety management and techniques, contract performances and set their contract field category and contract ability before establishing basic information for the selection of onsite contractors. Through qualification review and assessment, good companies will be screed when providing a quotation for services. Contractors will be monitored after the execution of their contract. Contractors with a poor performance will be replaced to enhance the quality of contractors.

2. Contractors onsite health and safety management

The health and safety management personnel of the contractor must be regularly stationed on site to implement construction health and safety management. They must check and record the results in the "daily construction site health and safety patrol record" before, during (including morning and afternoon) and after construction on a daily basis. The contractor will be prohibited from entering the plant if the number oversights is more than 6 within half a year to urge the improvement of the quality of autonomous health and safety management.

3.Contractor construction assessment, withdraw system establishment

Establish a contractor construction assessment system, including construction health and safety, full-time job safety service rate, and self-worker turnover rate etc. If the assessment score reaches suspension criteria, the system will advance to the suspension control stage.



4. Contractor job safety analysis promotion

To ensure construction safety, the Corporation encourages contractors to conduct job safety analysis

Contractor JSA Management

Promotion items:

(1) Conduct job safety analysis focusing on high risk operations and include the analysis in the terms of contract

(2) Three parties (application department, engineering department and contractor) shall discuss and analyze potential risks and confirm construction procedures, tools and equipment, personnel, protection measures and emergency response safety matters before the construction.

(3) Provide educational training to all construction personnel based on the content and results of job safety analysis

(4) Check and confirm whether JSA safety measures on site meet requirements and ask onsite construction personnel JSA random questions to confirm expectations of the training

(5) Give feedback on the contractor assessment to the contracting department

Carry out contract JSA to ensure operation safety

JSA training and sign in record

Check water jet operator devices on site

Ask construction personnel for JSA questions

Compliance audit

The Corporation identifies the implementation effects and compliance of the health and safety system (e.g: OHSAS18001), and conducts process safety management, accident investigation, general health and safety management, automatic checks, operation site, equipment, dangerous mechanical equipment protection and hazard management, contractors, chemical and operational environment management on a monthly semiannual or irregular basis.

1. Monthly compliance audit: onsite safety management of all units, mean cases of abnormalities was reduced to 0.95 cases/plant in 2016 from 1.27 cases/plant in 2012.

Year	2012	2013	2014	2015	2016	Total
Abnormality	80	51	70	40	44	285
Access number	63	64	65	45	46	283
Abnormality/plant	1.27	0.80	1.08	0.89	0.95	1.00

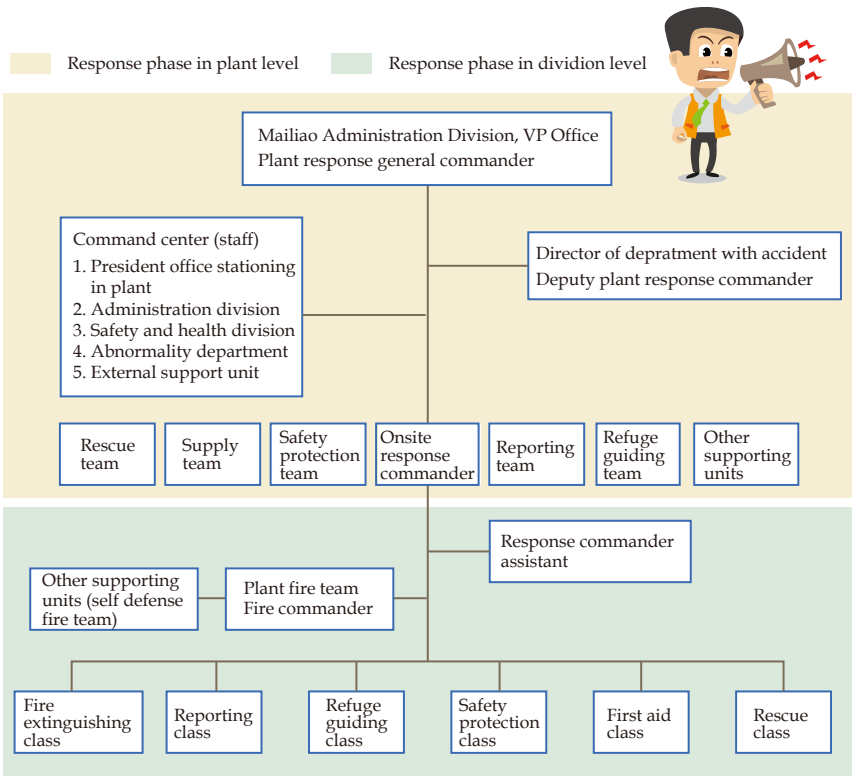
2. Semiannual compliance audit: the abnormality of management system was 1.30 cases/plant in 2016, 0.70 cases/plant of discrepancies in onsite operation management, which saw a decreases compared to figures from 2015.

Year	2012	2013	2014	2015	2016
Average abnormality of management system	0.90	0.43	_	1.28	1.30
Average abnormality of onsite operation management	0.60	0.89	0.86	1.34	0.70
Total	1.50	0.32	0.86	2.62	2.00
‧To cooperate with the job safety analysis audit, the management system compliance audit was not implemented in 2014					

3.3 Emergency response and practice

3.3.1 Emergency response management system

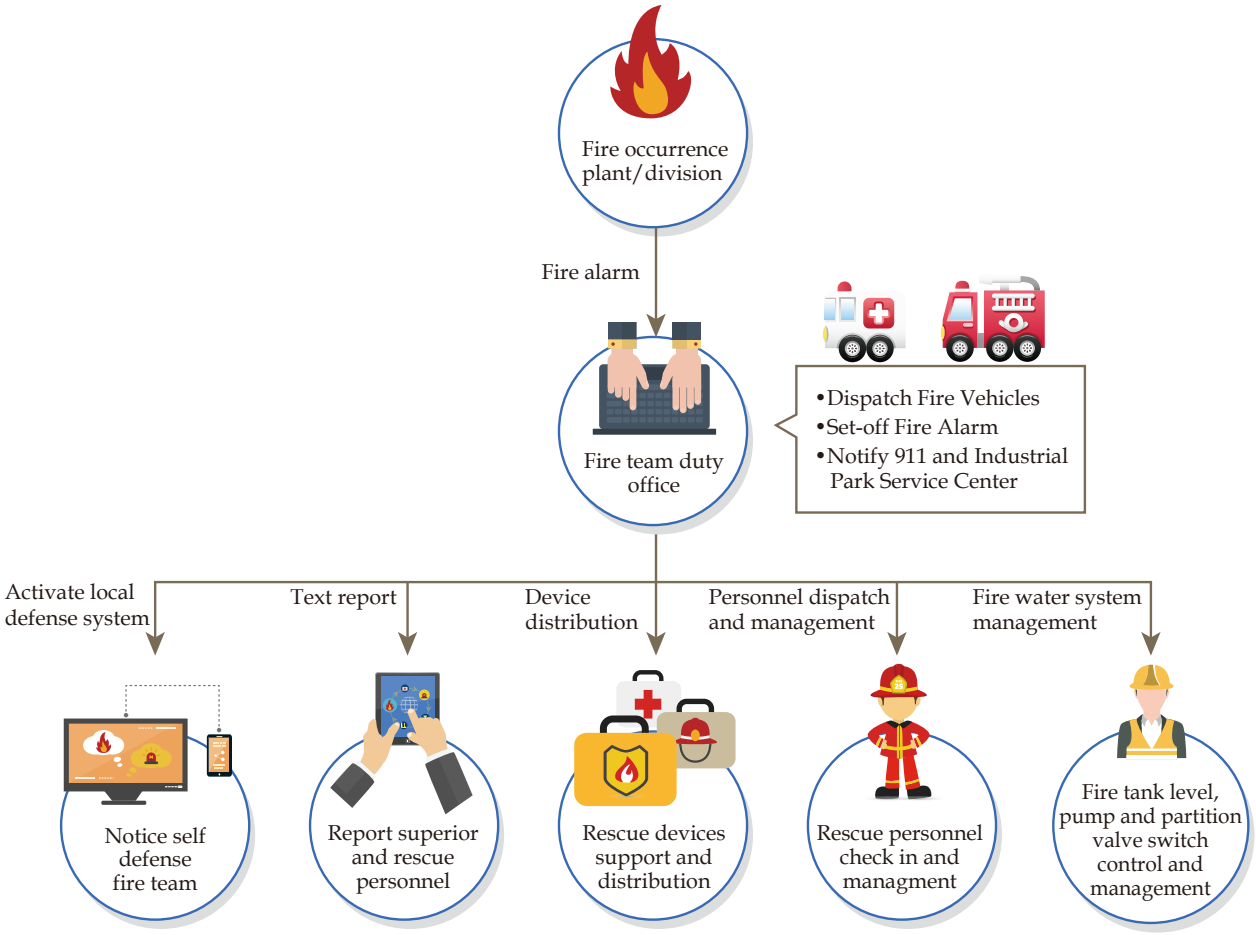
Implementation standards divide the implementation of all emergency response operations into two phases to ensure rapid and effective handling of accidents and emergencies and to minimize damages incurred to people, property and the environment. In the event an accident occurs, the plant or division personnel can respond earlier and report and organize the emergency response team to execute various operations to limit the scope of the accident and effectively reduce losses caused by disasters.



United regional defense organization

Formosa Petrochemical has divided areas into 4 united regional defense areas by region and plant. Each area has self-defense fire personnel totaling 424 people. If there is an emergency or accident in a plant, the "fire united regional defense computer reporting system" is immediately activated to notify responsible self-defense fire personnel to accept instructions from the dedicated fire team for joint rescue.

For emergency response and management, the control rooms of all plants have a "fire united regional defense computer reporting system" to set off the fire alarm and call different plants for support. Their functions are as follows: setting off the fire alarm, calling the self-defense team, message reporting, rescue device support, rescue personnel management, and fire pump reporting and management.



The shift of emergency response teams

To allow onsite shift operators to implement response operations within the shortest possible time, the on-duty superior shall appoint operators to serve in any emergency response work including handing over job items based on the labor demand for relieve the work of a shift in different plants and divisions for implementing emergency response functions and labor force control.

Personnel training

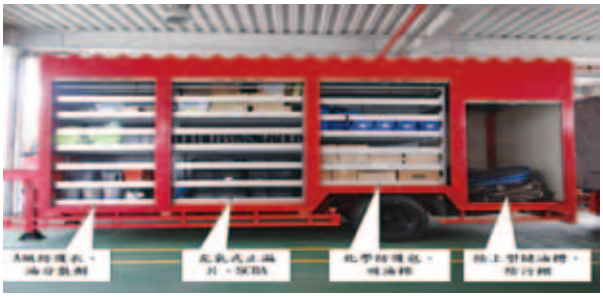
To allow onsite personnel to understand and become more familiar with emergency response steps, approaches, skills and handling measures, there are trainings on different levels from easy to difficult and advanced to continuously enhance onsite emergency response abilities.

Training level		Training item	Training subject	Training frequency
Level 1	General	Basic fire concept and reporting measures	Newly recruited personnel	Manage as checking in
Level 2	Operation	Portable extinguisher and smoke room training	Direct labor	Once every two years
			Indirect labor	Once every four years
Level 3	Technical	Self-defense fire team training (including fire hose, mobile barbette wade operation etc.)	Self-defense fire reserve personnel	Once every half year
		Periodical self-defense fire team training (various devices and large flow barbette operation etc.)	At service self-defense fire personnel	Once every quarter
Level 4	Professional	Various fire equipment, vehicle operation such professional training	Full-time fire time	Once every month
Level 5	Emergency response command	Various emergency response command operational training	Cadre of full-time fire team and onsite superiors in all levels	Irregular

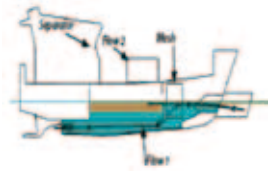
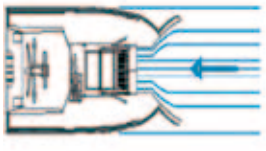
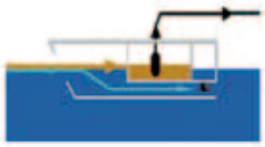
Fire vehicle and rescue equipment

There is plant fire team and a total of 30 various fire vehicles, devices and equipment as required for different rescues in the Park, including 10,000 gallon/minute large flow barbette to effectively extinguish a fire in a large tank.

There are also chemical disaster response vehicles with various chemical protection equipment (A-level firefighting garments, C-level firefighting garments, chemical protection kits, etc.), trash-removal equipment (decontamination awning, on-land oil tank), and leakage prevention equipment available for onsite emergency response personnel.



In addition, to respond to ocean pollution, the Corporation has purchased the "Mailiao Marine", which is the first decontamination boat in Taiwan made by the French ECOCEANE shipyard. The entire boat is made of aluminum alloy and is relatively light compared to a steel structured boat and it is safer reducing the risk of collision. Meanwhile, the patented drainage tunneling technology is used to absorb floating oil inside the boat and conduct oil separation directly via physical methods to replace the traditional oil skimmer.

1. Pollution removal theory	2. Pollution action	3. Floating arm	4. Oil storage and transportation
			
✔ The hull and waterflow tunnel design may allow oil, water flow in the ship automatically ✔ Collect recyclable oil with purification 99% without emusification	✔ The floating oil on sea may flow in the ship as driven by the turbine. There is grid filtering hurdle in front of tank to block the solid waste ✔ ● Flow 1: clean water flow underneath ● Flow 2: floating oil on top flow in the recycling oil tank (tank size is 150m^3)	✔ 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 ● The ship speed may reach 4~5knot in operation ● The operation may resist wind under Beaufort Scale 6 ● Recycle volume per hour: 120m^3	✔ To improve the continous working effect of oil removal ship, the floating oil may be pumped direatly to the oil transportation vessel for storage without treatment after the oil tank is fulled.
			

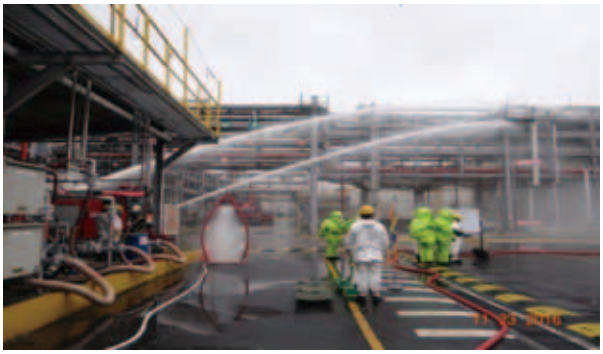
3.3.2 Emergency response practices

Formosa Petrochemical implements each practice prudentially and plans emergency response practices with standards exceeding laws and regulations. In addition to emergency response practices held by all plants and divisions once every six months, there are also joint practices, toxic chemical disaster practices, public area pipe frame practices, safety association emergency practices, and marine pollution practices held periodically in Mailiao Park and irregular relevant practices in cooperation with governmental agencies. There were a total of 142 emergency response practices managed in 2016.

Type of Practice	Statutory Number (every year)	Actual Implementation Number (every year)	Remark
Marine pollution practice	3	9	Mailiao Industrial Harbor manages joint practice with governmental rescue departments every year
Safety association united practice	No regulation	2	The emergency response practice jointly managed by the Mailiao united defense organizations to enhance understanding of mutual support and rescue among all united defense organizations

Type of Practice	Statutory Number (every year)	Actual Implementation Number (every year)	Remark
Public area pipe frame practice	No regulation	4	The united practice managed by the public area pipe frame, the pipeline proprietor and nearby plants and divisions cooperate with each other for response
Toxic chemical emergency practice	8	24	The emergency practice managed by the toxic chemical operation plant is mainly to reinforce onsite toxic chemical disaster handling process training, including reporting, hazardous regional division, environmental concentration monitoring and personnel decontamination
Plant and division emergency practice	46	103	The emergency response practice is held every half year pursuant to laws. The practice includes earlier response, irrelevant people evacuation, accident rescue, injured rescue etc. to enhance onsite response abilities
Total		142	

Marine pollution practice



Mailiao Industrial Park Safety Association United Practice

Public area pipe frame emergency practice

3.4 Occupational health management

Disclosure of Management Approaches (DMA)

Follow the requirements of safety regulations, implement case management and follow up by using scientific-healthy risk assessment results and prevent cerebral-cardiovascular diseases primed by work, ergonomic engineering evaluation and improvement, disaster prevention and first aid such occupational health management projects via systematic approaches

3.4.1 Employee occupational diseases prevention and management

Special hazardous operation

Special operational sites of Formosa Petrochemical have: high temperature, noise, ionizing radiation carbon disulfide, DMF, N-Hexane and other, totaling 11 items. The physicians providing services onsite evaluate the correlation between the health of employees carrying out special work and onsite work together with superiors, fellows, nurses and health and safety personnel and to conduct preventive work adjustment or competence evaluation for 54 people, 153 people for general illness consultation and educational trainings, and any other measures necessary. In addition, nurses conduct classified management and follow up for 540 people based on the results.

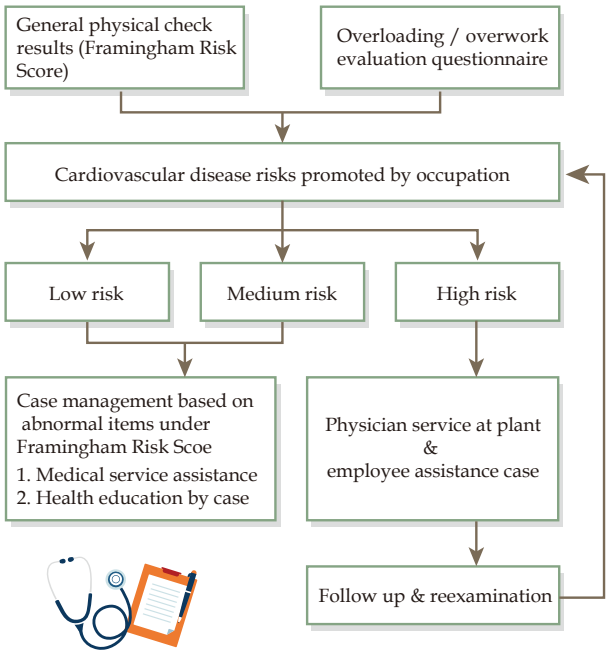
As colleagues become more familiar with the services of physicians on site, the number of people receiving services is increasing every year. Meanwhile, the abnormality ratio of special physical checks is decreasing; it was 0.09% decreased compared to the previous year. The number of people for classified management and follow up conducted by nurses based on results is also decreasing every year.

Among them, fourth management personnel (in relation to work) are engaged in noisy operations. We conduct hazard control and healthcare through job transfer, engineering, administrative improvement and reinforce personal protection equipment. Even management personnel at the fourth level have been transferred from the site of the noise, and the Corporation will continuously provide physical checkups every year to monitor their health conditions. The special physical check receiving rate was 100% in 2016 and no occupational illnesses have yet to be found.

Item		2014	2015	2016
Physician on-site services	Number of people for preventive work adjustment or competence evaluation	20	24	54
	Number of people for general disease consultation and educational training	54	52	153
The number of people for classified management and follow up (abnormality found in special physical check) conducted by nurses based on results		735	658	540
Total number of people receiving special physical checks		1,429	1,367	1,443
Number of 1st level management personnel		694	709	903
Number of 2nd level management personnel		733	653	536
Number of 4th level management personnel		2	5	4
Abnormality rate of special physical check (number of 4th level/total number of people)		0.14%	0.37%	0.28%

Work–induced cerebral-cardiovascular disease prevention management

Abnormal work loading follow up flow



Since 2014, a total of 4,972 people regarding the risk of work-induced cerebral-cardiovascular disease based on annual physical check data incorporated with questionnaires and working hours has been accumulated over three years. The questionnaire was computerized in 2015; each employee can receive his/her own health risk evaluation report and professional suggestions provided by nurses. The nurses provide health management and education to employees with low and middle risks, while the physician provides one-on-one consultations to employees with high risk. Meanwhile, the work adjustment of each case management is supplemented if necessary and such case management and health promotion activities will continue to help reduce the risk of cerebral-cardiovascular diseases to employees. We continuously followed and intervened employees with a high risk of work-induced in 2016. The number of employees with high risks after re-examination was reduced from 1.06% to 0.11% (remaining are middle and low risks)

E rgonomic hazard assessment and management

Since 2015, all employees have conducted a "subjective musculoskeletal syndrome survey" every three years, and health and safety personnel conduct on-site evaluations. For ergonomic hazard factors found, the corresponding improvement actions will be encouraged.

In addition, nurses arrange for the physician to visit "suspicious work related musculoskeletal syndrome" cases to clarify the correlation between work and musculoskeletal syndrome, work competence, and to provide health education and suggestions for rehabilitation exercises. There were 8 ergonomic engineering improvement projects in 2016 and a total of 5 people accepted the medical visitation. Meanwhile, the E-filling system design was launched in 2016, which will provide visualized experience in the future.

Ergonomic hazard improvement case (before)

Ergonomic hazard improvement case (after)

Contractor autonomous health assessment and management

To reduce potential accidents due to unpredictable physical conditions, we request contractors to carry out general and special physical check management and share the results according to contract regulations to prevent the occurrence of occupational diseases or disasters.

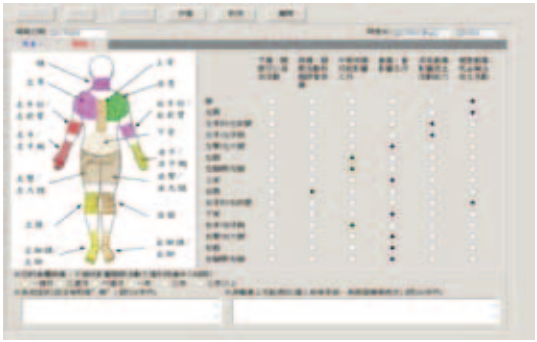
Ergonomic hazard improvement case (before)

Ergonomic hazard improvement case (after)

3.4.2 Other disaster prevention and rescue plan

Emerging contagious disease prevention

We actively cooperate with the local health office and disease control bureau, third branch, Mailiao Office, for emerging contagious disease prevention. In addition to health and safety and environment monthly reporting and the promotion of contagious disease prevention knowledge and skills to employees, we also engage in dengue fever mosquito prevention and free flu vaccine injection activities.



Electronic subjective musculoskeletal syndrome survey

Rescue training and AED preparation

To seize the golden rescue period, we not only have 1 statutory rescue personnel for every 50 employees pursuant to the Occupational Safety Act, but also 462 emergency medical technicians trained at level 1 (EMT-1) in the Mailiao Plant. In other words, there is one EMT-1 out of 8-9 people on site to actively carry out occupational health and safety management. Meanwhile, there are nurses taking 24 hours shifts at the security guard office to cooperate with ambulance for emergency rescue and protect the lives and health of employees and contractors.

Ffurthermore, there are 26 Automated External Defibrillators; AED for Cardiopulmonary Resuscitation; CPR + AED training for all people and 118 sessions have been held to date. There are also Hydrogen sulfide antidotes prepared, totaling 324 inhalers and 29 injections, available on site and in nearby hospitals.

CPR+AED training

CPR+AED training

Local implementation

4

Formosa Petrochemical has spared no effort in employee care, community feedback, and ecological conservation. In addition to providing good pay and welfare, educational training, communication channels, and friendly measures, we also care about employees' mental and physical health and give them assistance. Meanwhile, the employee care and protection network has been consolidated to build the Corporation's healthy and happy care culture. On the other hand, we promote health advancement, traffic improvement, and environmental education to our neighbors in local communities, provide physical subsidies to local public welfare activities, and increase the participation of residents to achieve one big plant and township family.

- Stakeholders: employees, local residents, government agencies
- Material Issues: employee overview and benefits; occupational health and safety, local community development and communication
- Major strategies: consolidate internal (employees) and external (local) relationships; build a healthy and happy culture; and promote sustainable local development

Goals set and annual achievements — employee care

Goals		2016 Achievements
Short-term goals	Employee mental and physical health promotion and care platform establishment	Periodical physical checks Special hazard physique checks Pressure test and health education Care and follow-up for groups at risk of getting cardiovascular issues Provide employees with lectures on communication skills and referral procedures "Comfortable work card" distribution and promotion
Mid-term goals	Consolidate the employee care protection network	Establish cooperation mechanisms between internal and external organizations Draw up and standardize accident, injury, and illness care service plans Severe accident restoration management Periodic group meetings for communication and discussion
Long-term goals	Build a healthy and happy care culture	Caregivers' training and periodic communication among all units Various lectures' organization and promotion (book, post, website, etc.) Establish cross-functional cooperation

Goals set and annual achievements — local feedback

Goals		2016 Achievements
Short-term goals	Carry out public welfare activities	♪ Financially support the breakfasts of minority families in the seven adjacent townships, a total of 36 schools (total cost 6.63 million) and children scholarships (1,954 people, total amount 5.57 million) ♪ Support traffic auxiliary police compensation, injury and illness condolence, social club sponsor, meals for the minorities, etc. (2.36 million) ♪ Distribute neighborhood funds (township office): distribute NHI and electric subsidies (total 388.72 million), benefit 47,690 residents ♪ Resident health care (township office): provide free physical checks for people in the community. For any abnormality found, notice will be actively given for a return visit (cost 86.58 million) ♪ Subsidy for forestation (141.66 million) and contribute to the road maintenance fund (60 million)
Mid-term goals	Enhance the participation of employees and nearby residents in public welfare activities, and improve local public welfare energy and quality	♪ Increase the number of public welfare volunteers; recruit employees to serve as volunteers, and to improve care to the adjacent seven townships ♪ Enhance participation in local folk activities: increase participation in local activities through Mazu pilgrimage and other such folk activities. Quality performance groups are invited to take part in local folk events. Provide subsidies for large local activities, a total of 18 events (Ming Hwa Yuan 8 sessions, Paper Wind Mill 6 sessions, If Kids 3 sessions, Da Long Dong 1 session), attracting more than 10,000 to attend those events.
Long-term goals	One big plant and township family	♪ Promote a human-based enterprise through the foundation over a long period of time. The dedicated foundation is organized for sustainable operation, supporting nearby townships to become happy cities that are "friendly to both the elder and the youth".

4.1 Employee Structure

4.1.1 Manpower structure

In 2016, the number of our employees was 5,153, and the average age of them is 40. Due to the corporation's industrial characteristics, the staff gender ratio(men to women) is around 12:1. Most of our employees are ranging in age from 40 to 49, and the headcount of college graduates or higher accounts for about 67% of our staff, while grassroots supervisors and subordinates and those who work in central Taiwan account for 80%, and the average seniority is 11.39 years. These statistics show the trust of employees in Formosa Petrochemical and their willingness to grow with the corporation. Senior employers are the heirs to our wise predecessors and the teachers of junior employees, and the continuous recruitment of new talents are the source for an innovative organization. This approach fulfills sustainable operations on the basis of labor structure.

The ratio of official employees was 96.4% in 2016, and that of unofficial personnel (e.g. consultants, contract personnel, student workers, directors) was 3.6%. The ratio of unofficial employees has been decreasing over the last four years, and that of official employees has been maintained at 93% or above; 100% of employees are Taiwanese citizens.

Ratios of Official and Non-official Employees during the Last Five Years

Unit: person

Type of employee	2012	2013	2014	2015	2016
Consultant	6	5	6	14	12
Contract personnel	322	215	178	172	147
Student worker	41	51	49	27	20
Director	8	8	8	8	8
Subtotal of unofficial employees (A)	377	279	241	221	187
Official employees (B)	4,885	5,029	4,864	4,891	4,966
Unofficial+ official employees Total (C)	5,262	5,308	5,105	5,112	5,153
Ratio of unofficial employees (A/C)	7.2%	5.3%	4.7%	4.3%	3.6%

In response to external factors and operational environment, we continuously innovate organizational management and maintain a simplified structure. A total of 104 official employees resigned (including 25 retired personnel) in 2016 for a turnover rate of 2.09%. The turnover rates of official employees over the past three years has been maintained under 3% and is apparently much lower than companies in the same industry, demonstrating the results of our contribution to employee care and work protection, as well as the trust and faith that employees have in the corporation.

The Age Distribution of Official Employees That Have Resigned

Year	Age Group	Male		Female		Petroleum and Coal Product Manufacturing
		Number	Ratio of Total Personnel	Number	Ratio of Total Personnel	
2014	Under 29	35	0.72%	4	0.08%	8.5%
	30~39	62	1.27%	1	0.02%	
	40-59	29	0.60%	0	0%	
	Above 60	19	0.39%	0	0%	
	Subtotal	145	2.98%	5	0.10%	
2015	Under 29	28	0.57%	3	0.06%	12.2%
	30~39	41	0.84%	11	0.22%	
	40-59	20	0.41%	0	0%	
	Above 60	30	0.61%	0	0%	
	Subtotal	119	2.43%	14	0.29%	
2016	Under 29	24	0.48%	6	0.12%	8.7%
	30~39	28	0.56%	7	0.14%	
	40-59	19	0.38%	0	0.00%	
	Above 60	20	0.40%	0	0.00%	
	Subtotal	91	1.83%	13	0.26%	

Note: source: Accounting and Statistics Department (time series data inquiry- separation rate)

Formosa Petrochemical recruits employees under the principles of fairness, justice, and transparency, and we never hire any child labor. Through diversified sources of recruitment, we hire individuals based on their performances in the interview and never treat them differently due to age, race, gender, sexual orientation, religion, party, native place, marital status, appearance, disability, or union membership. In 2016, 161 individuals were newly recruited, accounting for 32.4% of the total employees. Most newly recruited employees are under the age of 29, accounting for 2.78%.

The Age Distribution of Newly Recruited Employees in 2016

Type	Group	Male		Female	
		Number	Ratio of Total Personnel	Number	Ratio of Total Personnel
Age	Under 29	119	2.40%	19	0.38%
	30~39	17	0.34%	5	0.10%
	40-59	0	0%	1	0.02%
	Subtotal	136	2.74%	25	0.50%

Specific regulations govern the promotion, assessment, training, and reward and punishment system for all employees, all of whom enjoy fair treatment. Therefore, no discrimination or human rights violation or forced labor event occurred in 2016. The ratios of disabled employees hired during the past five years all satisfied the minimum 1% of total employees pursuant to the People with Disabilities Rights Protection Act.

4.1.2 Parental leave

The parental leave program is promoted to cooperate with government policies and to fulfill the idea of a friendly workplace. Breastfeeding rooms help create a friendly office for employees' necessity during working hours. Meanwhile, parental leave is provided pursuant to laws, and eligible employees may adjust their work hours if necessary. The job resumption rate was 100% and the retention rate was 100% in 2016.

Unit: person

Status	2014			2015			2016		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Actual number of persons applying for parental leave	1	3	4	4	1	5	3	7	10
Number of persons resuming their jobs (A)	0	3	3	3	1	4	2	0	2
Number of persons applying for job resumption (B)	0	3	3	1	1	2	2	0	2
Job resumption rate% (B/A)	-	100%	100%	33%	100%	50%	100%	-	100%
Retention rate	-	100%	100%	100%	100%	100%	100%	-	100%

Note: "Retention rate" refers to the ratio of employees who have served more than one year after job resumption from parental leave

4.1.3 Local employment

Following its continuous business development, Formosa Petrochemical hires local residents first as a way to build relationship with local communities. We also actively cultivate local residents to become potential management talents. The ratio of local management members to all management members has been maintained above 33% over the last five years, presenting our attention and actual actions to local development.

Ratio of local residents serving as executive management over the last five years

Unit: persons

Year	2012	2013	2014	2015	2016
Individuals	343	360	362	360	373
Local ratio (%)	33.9%	34.3%	36.0%	35.5%	36.4%

4.1.4 Performance management and educational training:

Performance management

The performance management system allows superiors to review annual work performance together with employees to establish appropriate work targets. Through daily review and observation, superiors can provide work instructions and assistance to employees at any time, and offer job-related knowledge or skills incorporated with a complete training system to plan the future career blueprints for employees.

The scope of performance assessment covers all employees. The work performance is reviewed monthly as the basis for efficiency bonus distribution, and the summary is submitted to superiors by the end of the year as a reference for year-end performance evaluation to ensure objective work assessment. For those employees with outstanding performance, in addition to the opportunities and channels of promotion and pay raise, a year-end bonus will be distributed according to the operational performance of the corporation and individual performance of employees. Superiors link employees with business targets via performance management, review and assess the competence and development of employees, and further achieve a win-win situation for both the corporation and its employees.

Educational training

Training in all phases is completed through the e-training management system. Currently, the training system can be divided into orientation, basic job training, professional job training, and superintendent training. All the training courses required and the completion deadlines for all employees are included within the computer control, and training notices will be given to all departments via computer to carry out the goal of comprehensive employee cultivation.

Formosa Petrochemical values the career planning and growth of employees. After new hires join the corporation, various orientations and basic job training are arranged, and job rotation and various professional training are also held periodically. All units must draw up annual training plans aimed at important regulations, new technologies, and systems to grant employees the access to latest knowledge.

Formosa Petrochemical Employee Training System

Training Item	Orientation	Basic Job Training	Professional Job Training	Management Associate Training
Subject	New hires	A. Type B basic new hires / College and commercial school new hires B. Employees below senior supervisor / College and commercial school employees of transferred job	Employees below senior management	A. Supervisor Training B. Management Training C. Senior Management Training
Training Timing	After new hires are checked in	Three months from the date of on-board or of job transfer	When work condition alterations, including equipment updates, process improvements, or other such conditions , occur, all units shall conduct corporate training in response to actual needs	The training host unit arranges training batches and dates based on the number of persons recommended by each unit
Organizing Unit	A. The headquarter is in charge of training Type 1 and Type 2 employees B. The plant administration division is responsible for training grassroots employees	Departments of the new hires	A. Professional job training of the entire business is hosted by the President Office at the headquarter B. Professional job training of the entire corporation is hosted by the President Office of the headquarter C. Professional job training of each business department is hosted by the President Office of the corresponding business department D. Professional job training dedicated to each plant or division is hosted by the plant or division affairs office	A. The trainings for supervisors and senior supervisors are hosted by the President Office of each subsidiary company B. The reserve trainings for management and senior management members are hosted by the President Office at the headquarter
Training Method	Centralized training after on-board	Provide individual instructions or group class training during or after office hours, as the case may be	Lecture of practice during or after office hours	Training by business or company class via lectures
Course Content	The course content is set by the host unit based on personnel, payroll, attendance, welfare, and industrial safety	The department executives draw up training subjects, hours, and assessment methods based on rules of work, office planning, and job-related basic knowledge and technologies and submit it to the President for approval before implementation	A. Divide training courses and practices by functions B. Arrange selected job-related knowledge and technologies for individual training	A. Management associate training for supervisors: various management concepts, practice, and job instructions B. Management associate for management members: various management systems and practice C. Management associate training for senior management members: various management improvement cases and concepts

The average training hours of each employee were about 42.7 in 2016. Among them, the executive management members received 22.4 hours on average, while senior supervisors or below received an average of 47.8 hours.

(Unit: hour)

Level Year	Executive Management			Basic Superintendent and Under			Average Hours of Entire Corporation		
	Male	Female	Subtotal	Male	Female	Subtotal	Male	Female	Subtotal
2014	18.2	14.8	18.0	37.2	7.7	35.1	33.4	8.7	31.7
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

Note: The average male training hours were 45.1 in 2016 and only 12.8 hours for female employees. Female workers had fewer training hours because 54% of them hold affairs assistant jobs and require less professional training. The training hours of executive management was less than basic superintendent and under because they have already received most of the required training when they served as basic superintendent and under.

To fulfill the operational and safety needs of all units, employees are arranged and counseled to acquire relevant professional certificates. Thematic study courses, such as "commercial English seminar", "visual test training", and "safety supervisors training", are also held from time to time. Furthermore, to enhance awareness about human rights and work safety of employees, lectures on occupational safety and health, the Labor Standard Act, sexual harassment prevention, and gender equality of employment are held irregularly. The corporation organized a total of 3,400 training courses in 2016, with 57,560 employees attending the trainings and an average of 42.7 training hours per person.

e-learning and knowledge management system

The e-learning system and think tank management system has been developed since 2000. In addition to the "employee learning website" providing various online courses, articles, speeches, and other such learning resources, the "e-learning newspaper" has been issued since April 2005 to notify employees about online learning and provide them with the latest learning information. Regarding the think tank management system, various systems and knowledge, technological experiences, and documents for reference have been established on a sharing platform for employees to share and search. So far, 14 categories and over 20,000 records have been established by function.

Security guard training

The access security of plants subordinated to Formosa Petrochemical and Formosa Building is managed by internal security personnel. All security personnel must undergo professional security training, including the following: industrial safety (fire, first aid, safety, and health), security guard regulations, access rules and relevant regulations, related legal knowledge (criminal code, civil code), human rights related training, physical training and twisting, fire truck and other driving training, etc. Furthermore, regulation and physical tests are conducted monthly in order to maintain their good professional standards and physique. Practical cases and case studies will also be shared, including: emergency response handling, telephone manner, and on-duty manners in order to avoid legal violations or human rights infringement.

4.2 Employee welfare and care

Disclosure of Management Approaches (DMA)

In addition to providing good pay, welfare, and various communication channels, Formosa Petrochemical actively promotes friendly systems with standards higher than legally required. For example, the Company provides an employee assistance plan to provide care through a dedicated website, a service hotline, and regular health promotion activities with the goal of building a healthy life atmosphere and becoming an enterprise of happiness.

4.2.1 Salary and Welfare

To attract outstanding talents, our pay is not only higher than the statutory minimum pay but also stands in the middle and above in the industry. We participate in the market compensation survey every year to maintain a competitive salary. The remuneration standards of new hires are set based on job-related education and experiences without gender differentiation. An employee's salary raises and promotion will be evaluated every year according to work performance, and corresponding remuneration will be given. Take college graduates for example, their initial salary in the corporation is about 180% of the minimum wage, and the initial salary of clerks is 55% above the average. Furthermore, the "Remuneration Committee" has been organized to review the remuneration policies for management and the reasonableness of individual remuneration.

Unit: %

Position	Female	Male
Management members and above	100	134
Senior supervisors and below	100	135

Note: The salary of male employees was higher than that of females in 2016. The pay differences among management members were due to seniority, and that among supervisors and below were due to onsite shift work with shift allowances.

Welfare system

To serve and take care of all employees' needs in daily life, the plant has an administration department to handle backup support and welfare service-related issues. Furthermore, the service satisfaction survey is conducted every year to enhance service quality. An employee welfare committee has been organized by both laborers and employers pursuant to laws to manage various employee welfare matters. We also encourage social clubs to hold hiking, gardening, and other such activities together with employees' family members to provide channels for improving their physical and mental health while deepening social and cultural care.

Please refer to our website http://fpcc-csr.eorz.net/index.php for our detailed welfare system.

4.2.2 Communication channels

Under the principle of honest and transparent operations, Formosa Petrochemical manages notification procedures in accordance with the Labor Standard Act and other laws to ensure that employees enjoy earlier notice about important topics. Employees may provide suggestions to the corporation through periodic Employee Welfare Committee meetings, labor and employer meetings, union meetings, and occupational safety and health committee meetings, as well as share issues through the complaint system.

No human rights infringement on local residents occurred in 2016; the number of human rights issues filed through the official internal complaint system was zero as well. Meanwhile, through discussions with Labor-Management meetings and unions, several topics, such as salary raises and year-end bonuses, have been drawn. 100% of employees are covered as follows:

Committee Item	Welfare Committee		Labor and Employer Meeting		Union	Occupational Safety and Health Committee	
Purpose	Employee benefits promotion		Labor-Management relation reinforcement		Labor benefits protection	Implementation pursuant to occupational safety and health regulations	
Members	Employer	Laborer	Employer	Laborer	Member	Employer	Laborer
Number	5	12	9	9	3,300	26	13
Percentage	29%	71%	50%	50%	82%	66.7%	33.3%
Number of meetings held in 2016	Once/2 months		Once/2 months		Board meeting once/3 months	Once/3 months	
Proposals in 2016	134		49		31	4	
Items completed	132		46		26	2	
In progress	2		3		5	2	
Completion rate	98%		93%		83%	50%	

Welfare committee

Employees may reflect welfare related opinions through proposals of the employee welfare committee. We have physical opinion boxes installed in frequent access spots of employees, an online opinion box, and the "799" telephone number available for employees to share problems with work or life. Dedicated personnel are assigned for case opening and response in order to smoothly operate the communication channels with employees.

Labor-Management meetings

Labor-Management meetings have nine individuals representing laborers and employers. The related department attend meetings as representatives of the employer and fully communicate with labor representatives (elected by the union) through regular meetings held once every two months. Topics to be discussed include labor welfare planning, favorable change in labor conditions, labor and employer cooperation, and work efficiency enhancement; a total of 49 items were all solved efficiently.

Union

The union holds a board meeting once every three months. There were 31 proposals in 2016, among which the health and safety related issues were all handled and solved first. With regard to significant labor issues, the officer in the highest level would negotiate with the union to reach a consensus and ensure a coherent labor relationship and sustainable development of the corporation. No labor disputes or related losses occurred in 2016.

Occupational safety and health committee

The occupational safety and health committee has a total of 39 members and holds relevant meetings once every three months. Four proposals were made in 2016, two of which have been completed.

4.2.3 Employee care plan promotion

The "employee assistance plan" has been promoted since June 2014; the platform reflects, communicates, prevents, and identifies physical and mental problems affecting the work performance of employees. Furthermore, employee assistance operations are completed through promotional activities, determination of organization members at all levels, training implementation, the establishment of surrounding organizations, website establishment, and the promotion of related management rules. On the other hand, in order to cultivate the proficiency of related handling personnel, four employees have been assigned to accept the "Diploma of Employee Assistant Professional (DEAP)" course organized by the EAPA Taiwan Branch, and lectured by the chairperson of International EAPA in person. Subsequently, they will complete the Certified Employee Assistance Professional (CEAP) to reinforce the promotional proficiency of the corporation.

Dedicated website and service hotline

Assistance information and physical and mental health lectures will be sent or updated irregularly, and the service hotline and consultation of the "Teacher Change Foundation, Taichung Office" are provided to reduce personal challenges affecting employees to work at ease and fully elaborate their expertise.

Employees have made eight calls since June 2016, with seven employees aged between 30-44 years. Four individuals acknowledged the service channels through propaganda postcard and legal and emotional issues were major persecutions. A total of 44 callers accepted psychological and legal consultation during the period from June to December.

Website

Letter from Chairman

Employee card

Billboard

Promotional employee and caregiver training

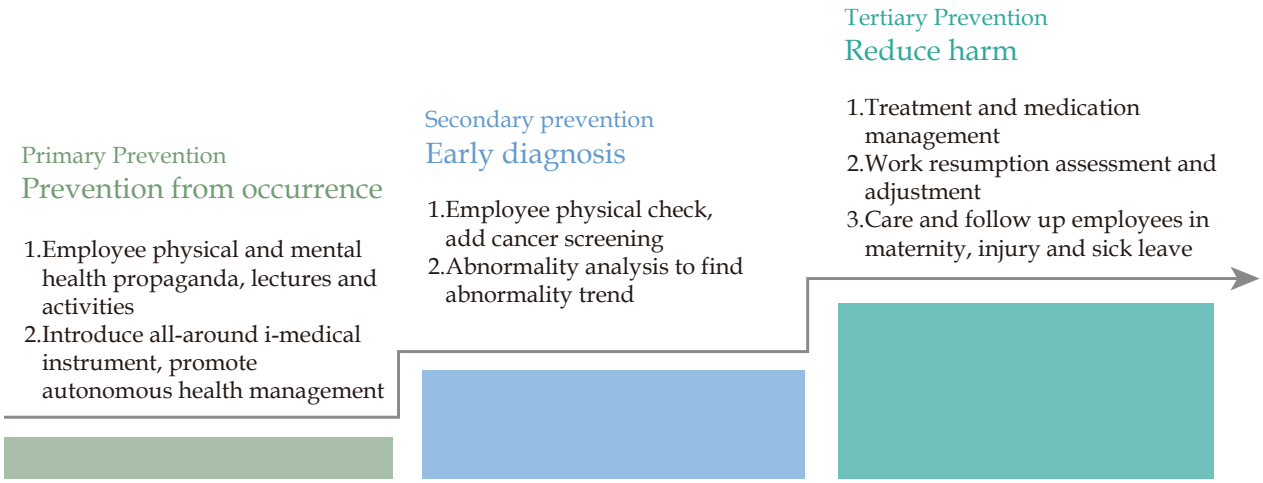
We have designated professor Wang, Jing-Wen of the College of Management, National Chung Hsing University to manage different trainings and lectures every month. External experts (e.g. Executives from Taipei MRT, Aerospace Industrial Development Corporation, Taiwan HSR, etc.) are invited to share their promotional experiences in order to enhance the skills of our promotional personnel and caregivers

Survey of basic superintendent knowledge and course demands

To further understand the suggestions of all superiors regarding the care plan as references for subsequent promotion, revision, and the writing of educational training cases, professor Wang, Jing-Wen writes cases after interviewing department managers and caregivers about the issues bothering employees. As for the knowledge and further course planning questionnaire, whose participants consisted of 80 foremen, the result indicated that the more senior foremen would have higher knowledge and identification toward the employee care plan promotion. Overall, employees have confirmed the effects of the care plan and the assistance provided to forefront superiors for helping employees. The courses most widely recommended are (1) common problems bothering employees; (2) handling skills; and (3) leader and care implementation outlines. The superiors can get correct knowledge via case practices and be prepared to respond to emergencies.

4.2.4 Employee health management and promotion

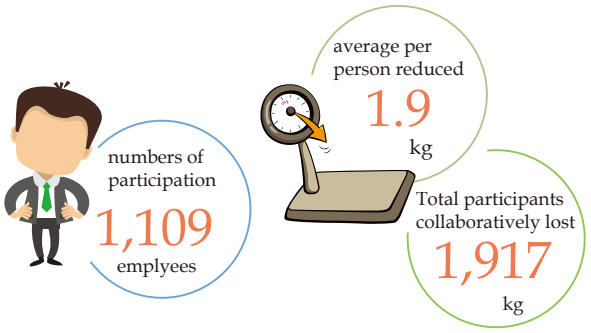
We conduct employee health management according to the three-step disease prevention as set forth in the Public Health Theory, specifically, primary prevention, secondary prevention, and tertiary prevention phases for employee health management. Thematic health promotion activities and lectures, on-site physician consultations, and plant medical rooms can be planned separately to facilitate medical visitations after analyzing the abnormality rate and trends. To further integrate business resources, we cooperate with Chang Gung Memorial Hospital to provide medical treatment and care services equal to those of the medical center, promote preventive medical and disease prevention, and consolidate employee health consciousness to achieve the goals of healthy lifestyles.



Health promotion activities to form a healthy life atmosphere

The "healthy lifestyle competition", designed with the two themes of "body shaping" and "healthy lifestyle", was held from July to December 2016. Through dietary examples of a health spokesperson, exercise lectures, and cooperation with 18 exercise clubs of the corporation, the healthy lifestyle atmosphere has been consolidated to improve employees' health conditions. A total of 1,109 employees passionately participated in this activity, accounting for one-fourth of all employees. The participants collaboratively lost a total of 1,917 kg, an average of 1.9 kg per person, body fat was reduced 2.1%, systolic pressure was reduced by 3.4 mmHg, and diastolic pressure was reduced by 1.7 mmHg. In further analysis, such physical indicators as cholesterol, acid glycerol, uric acid, and blood sugar were all improved as well.

Furthermore, we encourage employees to develop autonomous blood pressure measurement habits and screen out employees in the prophase of high blood pressure or those with blood pressure reaching prescription standards through establishing "blood pressure measurement month". Subsequently, nurses help with references and case management. In addition to the originally controlled cases, 182 employees required intervention (blood pressure over 140/90 mmHg), and follow-up management and assistance were provided in 2016.



Diet lecture

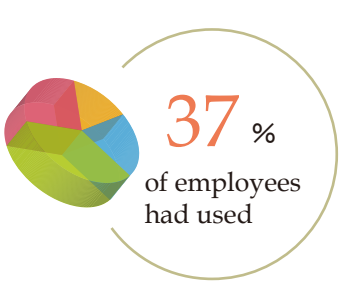
Exercise lecture

Diet example of health spokesperson

Activity Post

All-round i-medical instrument is introduced to carry out autonomous health management

The "all-round i-medical instrument" was introduced in both Taipei Building and Mailiao plant in June 2016, thus providing autonomous, real-time, continuous, and accumulative measurement tools for employees to independently measure their blood pressure, blood oxygen, electrocardiogram, blood sugar, cholesterol, acid glycerol, uric acid, and body composition. Such instruments actively evaluate health risks and provide simple health education aimed at individual measurement results. Meanwhile, nurses can monitor these results via the back-end information system anytime and actively contact employees. The corporation has accumulated 1,598 users and 4,062 diagnoses so far; and approximately 37% of employees had used the "all-round i-medical instrument" for autonomous health measurement.



Nurses also use the "all-round i-medical instrument" for the follow-up of employees with abnormal physical check results, and for assisting employees to monitor their blood pressure, blood sugar, cholesterol, acid glycerol, uric acid, etc. based on the advice of on-site physicians/ occupational specialists/plant medical room to understand how to control theirdisease and drug use conditions.

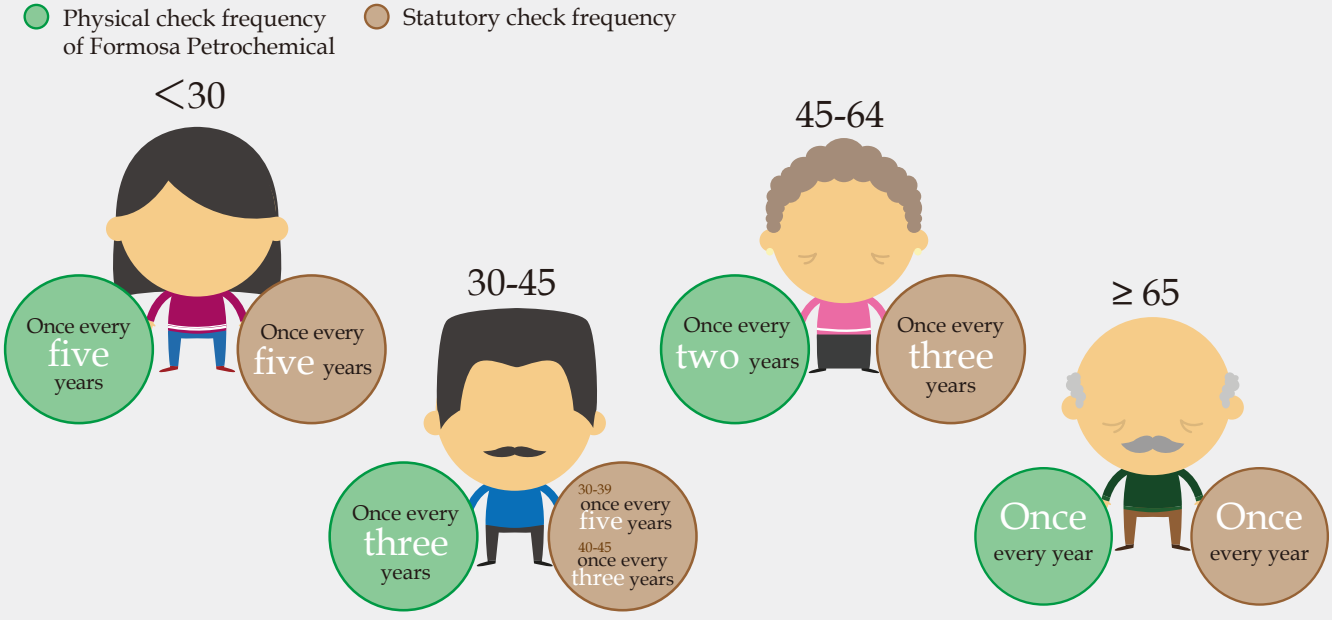
All-round i-medical instrument appearance

All-round i-medical measurement

Employee physical check and prophase disease screen

Taking care of employees and considering the national disease trend that an ounce of prevention is worth a pound of cure, the corporation offers physical checks at a frequency higher than the statutory regulation requires. Each year, the physical check is implemented for all employees based on their actual ages, α fetal protein (AFP), and carcinoembryonic antigen (CEA); screening for oral cancer, colorectal cancer, breast cancer, and cervical cancer are also added to provide employees with convenient and free services.

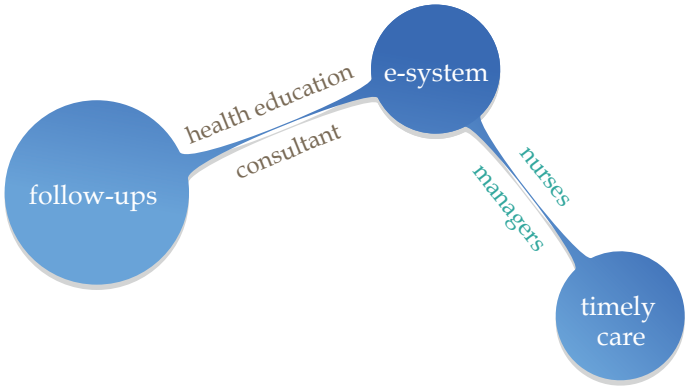
Physical check frequency (art edition help with picture visualization)



Scientific employee health management and effects

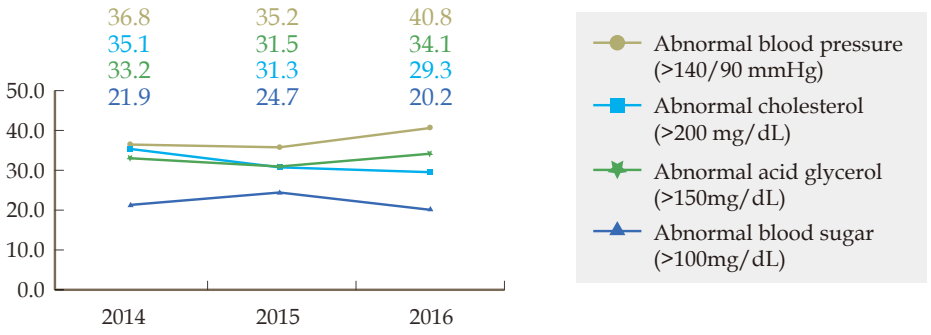
Nurses perform health risk classification based on the physical report of each employee and refer employees that require a prescription to the plant medical room or Yunlin Chang Gung Hospital. Furthermore, the nurses would interview employees who have abnormal test results in person or via phone-calls to provide personalized health education and follow-ups. Health promotion information posts, comics, and slogans are used to remind employees to watch over their health; a series of thematic propaganda, lectures, and activities is systematically planned to enhance employees' health consciousness. We also integrate the physical check service institution and office OA system to design an e-system for health care, maternity, and sick leave reminders. The notices of employee health care results are sent to the direct superior of such an employee so that he/she can provide timely care and appropriate work allocation according to the employee's health conditions.

We perform abnormality rate analysis after the physical check is completed as a reference for employee health promotion activities next year. We also report employee health risks to the managers of all units and include employee health in our annual management goals. According to the physical check results in 2016, abnormal blood lipids (cholesterol, acid glycerol) were found to be the biggest problem of the three-hyper, and the data was worse than in 2015. Therefore, carrying out case management and promoting a healthy lifestyle will be continuous goals in the future.



Year	Abnormal blood pressure (>140/90mmHg)	Abnormal cholesterol (>200mg/dL)	Abnormal acid glycerol (>150mg/dL)	Abnormal blood sugar (>100mg/dL)
2014	35.1%	36.8%	33.2%	21.9%
2015	31.5%	35.2%	31.3%	24.7%
2016	29.3%	40.8%	34.1%	20.2%

Three-hyper abnormality rate of Mailiao plant in the historical physical check



4.3 Local community development and communication

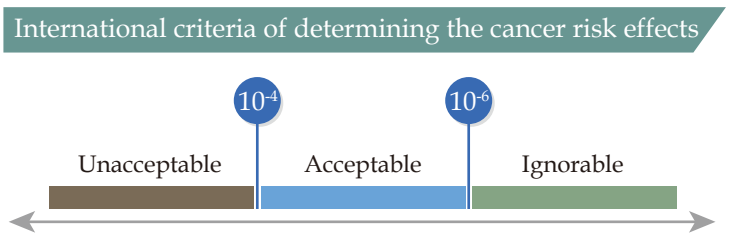
Disclosure of Management Approaches (DMA)

Employees are recruited to serve as volunteers, and the resources from Chang Gung medical system are integrated in order to promote the health and education of local residents based on the idea of deep community involvement. We provide free physical checks to improve the medical standards and health of residents in the coastal area; we also improved noise, traffic, and other living conditions and engage in environmental knowledge promotional activities.

4.3.1 Residents' Health Care

Health risks evaluation

Cheng Gung University has been designated to develop an evaluation plan for health risks arising from hazardous air pollutants since 2009. The health risks evaluation aimed at 64 specific hazardous air pollutants was completed in 2016. The original scope of evaluation covered a 400 sq km area of the Sixth Naphtha Industrial zone, including Mailiao, Taixi, Tungshi, Lunpei, and Baochung townships. To expand the review of effects on more townships, the simulation area has been expanded to a 900 sq km area and also includes all of Sihu Township and Changhua Dacheng Township. According to the simulation results, the average cancer risk value was 5.07×10-7, and the maximum cancer risk was 6.38×10-6, both of which were in between 10-6 and 10-4. The maximum non-cancer risk values were all below 1, and the effects to human health were all within acceptable area.



Health promotion

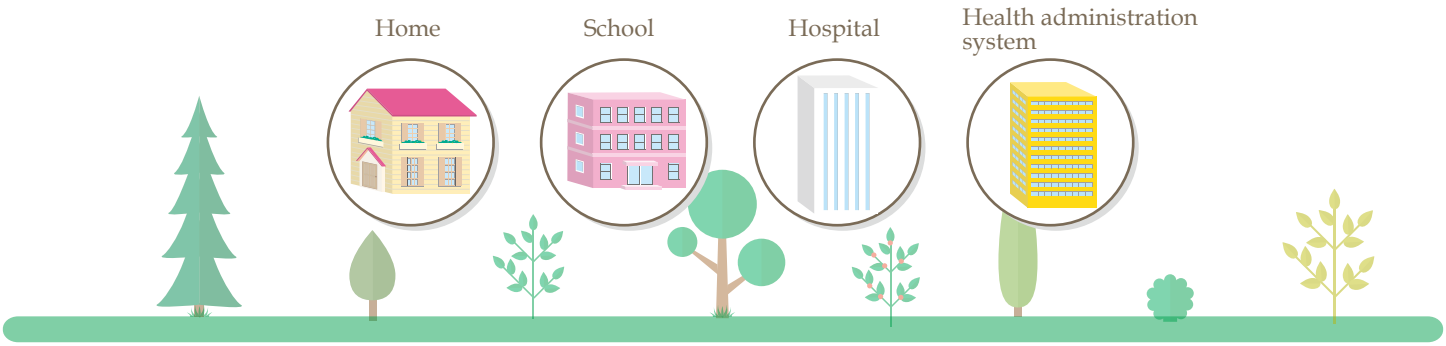
For the health of local residents, Yunlin Chang Gung Hospital was established in December 2009 to provide complete medical services for local people. The resources of Chang Gung medical system have been further integrated to promote the health and education of local residents based on the idea of deep community involvement. Together, is the Company expects to build a benchmark community for health promotion in the Mailiao area.

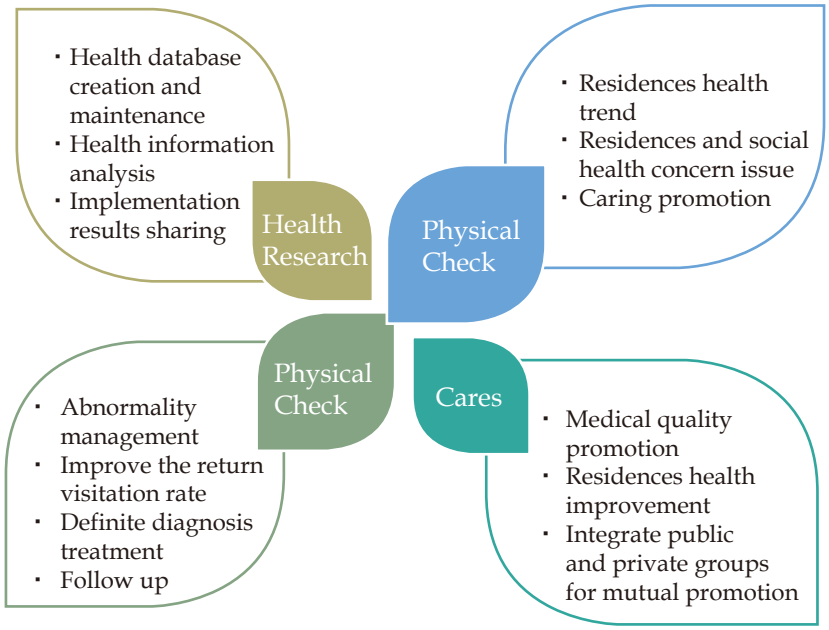
Beautiful New World

the vision of Example of Yunlin Coastal Healthy Community

Pregnant, maternal, children, youth, adult and senior health promotion plan

- Promote balance diet ratio
- Promote regular exercise ratio
- Promote pressure handling ratio
- Reduce smoking, drinking and beetle nut chewing ratio
- Reduce obesity ratio
- Enhance life quality





In cooperation with Yunlin Chang Gung in December 2009, the resources from Chang Gung medical system have been integrated to jointly promote health and disease prevention for local residents in Mailiao. There were 3,633 residents participated in community health educational in 2016. The physical check data shows the health of residents has continuously improved. In 2016, 219 residents have accepted the hepatitis B vaccine, and 78 individuals have shown the antibody in a follow-up visit. Healthy weight loss classes were managed in six elementary schools, and the total waistline of the 130 participants was reduced 182 cm. The health of local residents is continuously improving.

Community health education has been managed from 2010 to 2016, a total of 22,578 person-times participated, and the health of residents has continuously improved. We will continuously promote healthy behaviors.

Healthy weight loss classes for students in elementary schools have been organized since 2012. A total of 1,002 students have participated in the event, and the total waistline has been reduced 1,360 cm. The aim is to develop correct knowledge of students toward a healthy physique.

Yunlin Chang Gung Hospital established the Hepatitis Prevention Center in 2012. 2,044 person-times received the hepatitis B vaccine by 2016, and 383 individuals have shown the antibody in a follow-up visit.

Medical quality enhancement

In 2016, Yunlin Chang Gung Hospital had 260 individuals on its medical team, 522 beds, and 24 western medicine and Chinese medicine clinic services. The medical services provided in 2016 included 115,220 outpatient services, 15,369 times of emergency services, and 19,944 bed-days for hospitalization. The service scope and scale will be continuously expanded to improve the quality of medical care in the Yunlin coastal area.

Yunlin Chang Gung Hospital undertakes the responsibilities of providing 24-hour emergency services and improving the quality of local medical care in the coastal area.

Free physical checks

We aim to provide the most physical and most friendly medical assistance and care. Yunlin Chang Gung Hospital has been designated as a location for free physical checks of residents in Mailiao and Taixi Townships since 2010. During the period from 2011 to 2016, 54,448 physical checks were conducted, which do not even include residents participating in two or more years; 33,258 residents received the services, accounting for 48% of persons registered in the household office. These services have been highly valued and praised by local residents. 11,029 persons accepted physical check, and 784 residents in the two townships were in follow-up treatment, with a cost of 86.58 million provided to local residents for their free checks. Residents can understand their own health conditions through the physical check and find out the potential threat of disease earlier so that they can receive treatment as soon as possible.

2016 Mailiao Area_Local Community Feedback_Free Physical Check

The physical check for residents in these two townships covers vision, liver function, cancer screening, breast filming, and 21 other items, as well as 1-OHP and petrochemical metabolic substances in the human body. Local people may make reservations with experienced physicians for free consultation about abnormalities or things that they don't understand. This service fully shows our attention to local people's health.

Physical check results

According to the physical check results from 2010 to 2016, the Company's local operations did not have any significant effects on people's health.

Preliminary judgment via lung x-ray and follow-up examination in return visits have been adopted for lung cancer screening. No lung cancer cases were found in the past checks.

Abnormality rate of physical check for residents in Mailiao and Taixi Townships

	2010	2016
Lung cancer	0%	0%

The research shows that possible effects of PM2.5 on the abnormal rate of lung and cardiovascular issues are decreasing.

The pulmonary function test was added upon the suggestion of Yunlin County Government in 2012; the abnormality rate was 21% in 2012.

Abnormality rate of physical check for residents in Mailiao and Taixi Townships

	2010	2016
Pulmonary function	Not included	12%
Blood pressure	56%	29%
Metabolic syndrome	26%	20%

The uric heavy metal test was added upon the suggestion of Yunlin County Government in 2012; no significant differences were found among historical test results.

Abnormality rate of physical check for residents in Mailiao and Taixi Townships

	2012	2016
Copper	0.4%	0.3%
Zinc	6.7%	7.6%
Lead	0.0%	0.0%
Cadmium	5.9%	7.3%
Arsenic	25%	23%
Mercury	0.3%	0.2%

To clarify the effects of the petrochemical plant on the health of local residents, the uric metabolism 1-OHP test was added upon the suggestion of Yunlin County Government in 2012. Since such a diagnosis has no referential value, the test results of the residents in the two townships do not differ significantly from the test results of people in Europe and the United States when compared to international research data.

Average of residents in Mailiao and Taixi Townships in physical check

	2012	2016
1-OHP (μg/g cre)	0.15	0.16

Average residents in Europe and the United States	0.06～0.52

4.3.2 Mailiao Area_ Living environment improvement：

Noise improvement actions and performance

To understand the noise change in Mailiao area, a qualified inspection institution was designated to periodically conduct monitoring operations in Beiti, Nanti, Mailiao dormitory, West Coast Bridge, Chiaotou Elementary School, Hsutsu Branch (former site), Fong An Elementary School, Chiaotou, and Haifong near the Park. The monitoring results show that, except for occasional high values found in some test spots due to the night market, temple fair, school bells, and other human activities, as well as cicadas buzzing and frogs croaking, all remaining test values were satisfactory to control standards. This apparently shows that the operations of Mailiao Park have had no significant effect on local noise.

Note: Noise monitoring spots near Mailiao Park

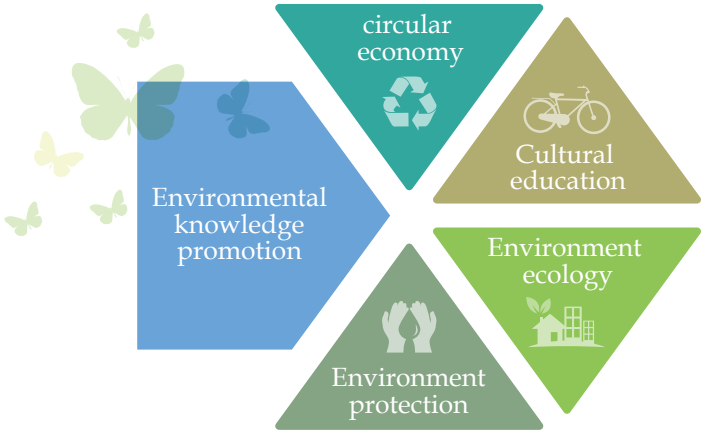
Traffic improvement actions and performance

To relieve the traffic jams caused by employees and contractors' access during rush hours, we actively implement separate working hours for employees and contractors, employee shuttle buses, a special road for dump trucks and Route No. 1 connected road, and traffic control volunteers directing traffic at important intersections to maintain good traffic order. Furthermore, to ensure the safety of students, lollipop ladies are invited to help children cross the road.

To protect air quality in Yunlin Country, the diesel vehicles accessing Mailiao Park need to present their exhaust emission qualification certificates when applying for a pass. If the exhaust of diesel vehicles is reported by a competent authority, the supplier needs to undergo testing again and acquire a qualification certificate; otherwise, it will be prohibited from entrance. According to the statistics of past diesel vehicle exhaust tests conducted by the Environmental Protection Bureau of Yunlin County, 17 pull-over inspections were carried out roadside near Mailiao Park in 2016. A total of 375 diesel vehicles were inspected, and only two vehicles failed the test (failure rate of 0.5%). The past pull-over inspection results are shown below:

Year	Vehicle flow (A)	Pull-over inspection No. (B)	Test number (C)	Failure no. (D)	Failure rate (D/C)	Pull-over inspection Failure rate (D/B)	Vehicle flow failure rate (D/A)
2012	1,558	328	101	34	33.7%	10.4%	2.2%
2013	714	95	28	2	7.1%	2.1%	0.3%
2014	1,125	206	57	4	7.0%	1.9%	0.4%
2015	1,650	330	101	8	7.9%	2.4%	0.5%
2016	1,875	375	126	2	1.6%	0.5%	0.1%

Environmental knowledge promotion



To drive a circular economy and water and energy saving effects in Sixth Naphtha, as well as to allow the public to understand the efforts of Formosa Petrochemical in terms of environmental protection, the environmental education facilities certification is to be promoted in Mailiao Park. In cooperation with government regulations, high school students and below shall receive at least four hours of environmental education and extracurricular activities. All students from different places are invited to observe and learn through personal experiences in Mailiao Park and share their knowledge with parents and relatives afterward to carry out environmental protection, water and electric saving, and ecological conservation in daily life. Students are educated to understand the importance of environmental protection and ecology at young ages to build the right thoughts and ideas after growing up and achieve the goal of "equal environmental protection and industrial development".

After the chief of the Central Environmental Education Center of the EPA and the team of professor Lin, Ming-Juei were invited to Mailiao Park for onsite inspection and understanding, the environmental monitoring center and ecological lab of Grandmother Park and Administration Building were considered equipped with a quality infrastructure for environmental education. It will serve as an environmental education venue available for observations and studies of all circles and will be supplemented by environmental personnel training, proper teaching plan writing, and other additional facilities.

The environmental knowledge promotion plan in Mailiao Park is divided into four major topics:

(1) Cultural education: Explain the industrial development in Taiwan and the construction process of the Sixth Naphtha Plant; the bronze statue of the grandmother growing vegetables allows students to understand the diligent and simple history of the two founders and inspires young children to exert themselves.

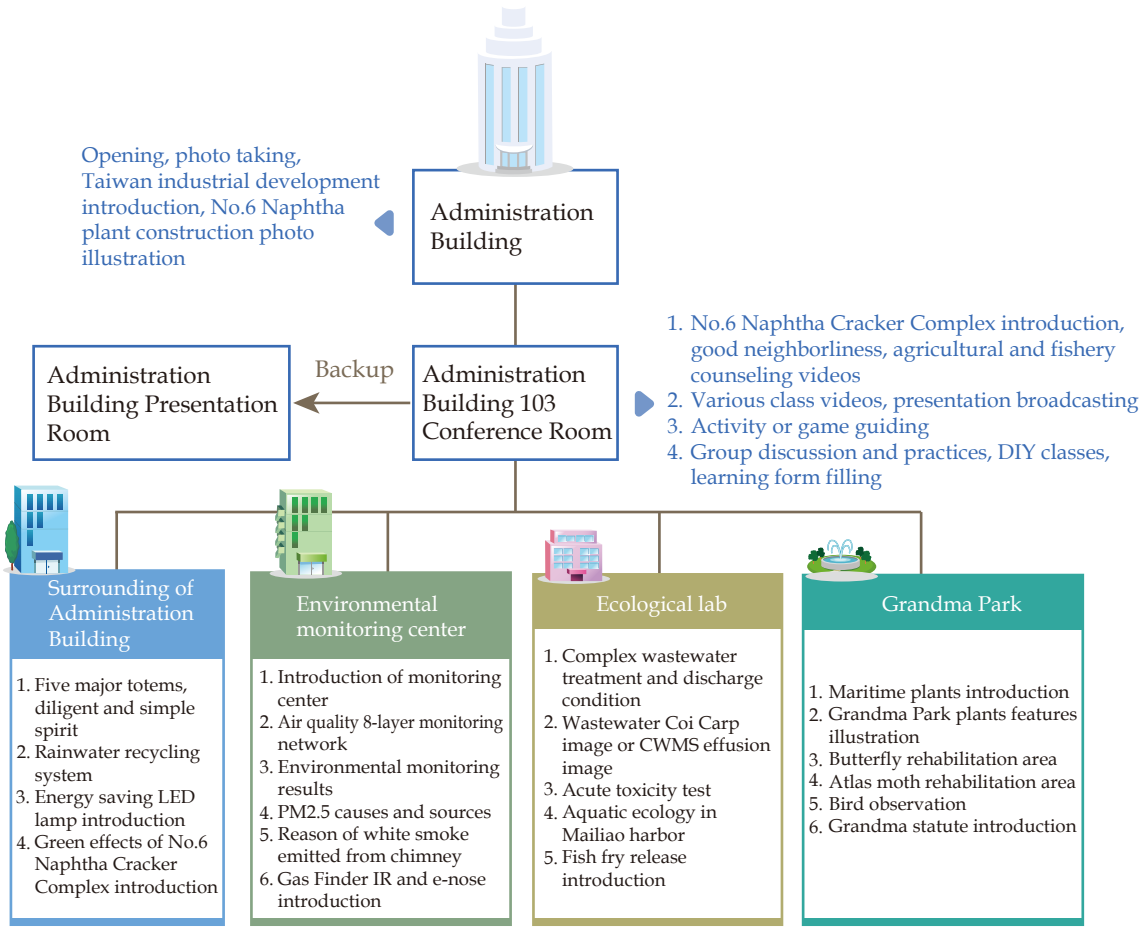
(2) Environment ecology: Explain that the Grandmother Memorial Park, which has been established over the years, covers a large area of wind-resistant and cold-endurance trees, ecological ponds, and unique geographical environments which are also the best habitats for living creatures.

(3) Environment protection: Explain the monitoring facilities in the Environmental Monitoring Center can monitor the environment quality in real time and take effective actions for abnormality prevention. Furthermore, living aquaculture cultivation tests in the ecological lab have proven that the quality of water drained from Mailiao Park is good and would not affect the marine life in the surrounding ocean. Furthermore, Sixth Naphtha also actively promotes marine resources restoration. The Corporation also cooperates with Yunlin Fishermen's Association to release fry every year and contributes a lot to the income of nearby fishermen.

(4) Water and energy saving and circular economy: Educate participants to start energy saving and carbon reduction from their attitude toward life by using circular economic measures and physical water and energy saving actions in administrative living areas, developing the correct concepts of waste recycling, and gradually enlarging the scope to their families so as to complete the environmental protection responsibilities altogether.

Environment education facility plan in Mailiao Park：

The existing Grandmother Park, Administration Building, Environmental Monitoring Center, and Ecological Lab are used to cooperate with educational plans and environmental education led by dedicated personnel and volunteers. The related plans are as follows:

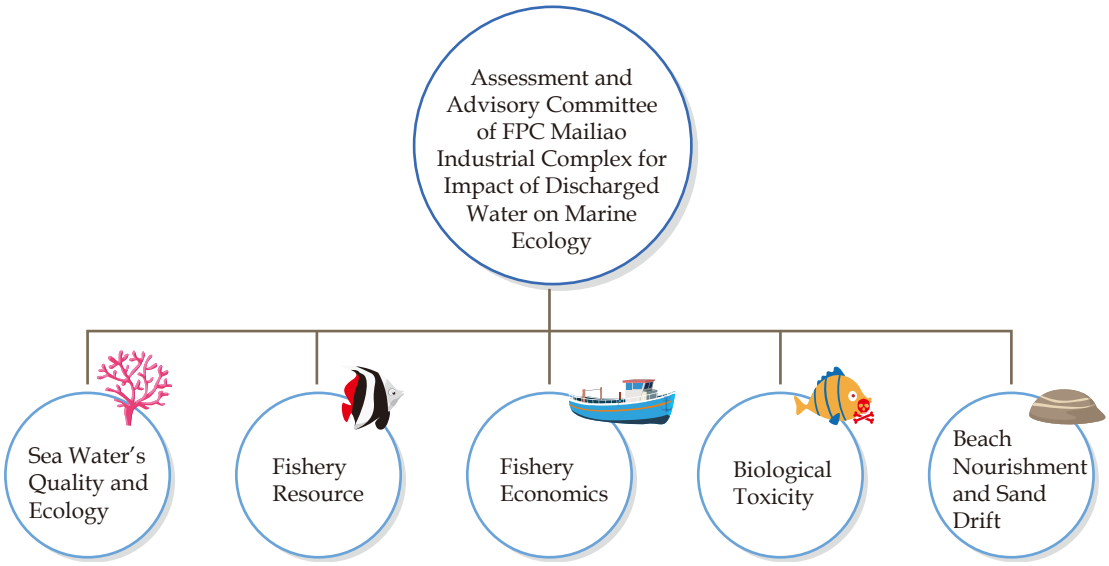


4.4 Local ecological conservation

4.4.1 Marine ecology impact assessment and consultation committee

Since the establishment of the "Formosa Petrochemical marine ecology impact assessment and consultation committee" in 2010, domestic and overseas experts and scholars have been invited for joint review to assist the Corporation in further clarifying the effects of water discharged from Mailiao Park to the surrounding ocean by effectively using scientific argumentation.

The committee convenes a meeting once every half year. According to the survey results as of 2016, Mailiao Park has had no sensible effect on water quality, ecology, aquatic products cultivation period, fishery resources, or beach nourishment of the nearby ocean. The survey and analysis will be continued and the counterplot will be studied regarding whether any effect has been found to reduce the impact on marine ecology and ensure the living quality of local people and a sustainable and stable marine environment.



4.4.2 Mailiao Harbor Ecological Survey and Environmental Maintenance

The ideas of Green Ports and Eco Ports have become increasingly valued by world harbors in Europe, the Americas, Japan, and Australia in recent years, and the goals are oriented to green values, ecology, and sustainability in the future.

Mailiao Harbor is the biggest industrial harbor in Taiwan. To fulfill the ideas and goals of sustainable operations, we pay attention to ecological environment in the harbor area over the long run. We strictly ask that vessel loading and discharging procedures satisfy safety and environmental regulations, conduct autonomous management, and decrease possible environmental impacts to achieve the goal of a green sustainable port

"National Kaohsiung Marine University" has been designated to implement marine ecological surveys and environment photo shooting plans. A total of 105 marine species have been identified via underwater survey so far, showing rich underwater ecology at Mailiao Harbor. Mailiao Harbor is now applying EcoPorts certification with the EU to be geared toward international standards and oriented to the goals of green ports and sustainable development.

Scientific name:
Tubastraea aurea

Scientific name:
Acanthogorgiidae sp.

Scientific name:
Perna viridis

Scientific name:
Chromodoris orientalis
Rudman、1983

Scientific name：
Tripneustes gratilla

Scientific name：
Pomacentrus coelestis

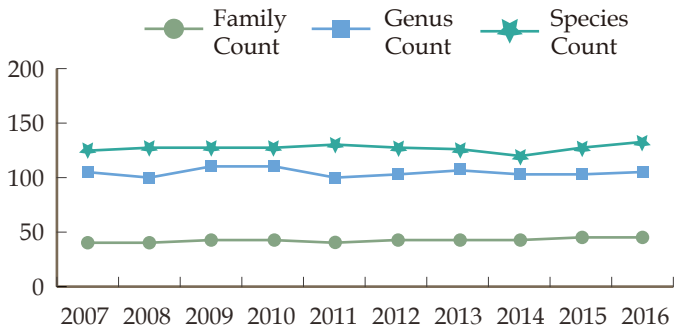
Scientific name：
Panulirus homarus

Scientific name：
Dendrochirus zebra

4.4.3 Inland Ecological Impact Assessment

To understand the impact of Mailiao Complex on nearby animals, plants' ecological movements, and the overall environment, a specialized institution has been designated to conduct surveys of birds, mammals, amphibians, reptiles, butterflies, and plant ecology, and to analyze their species, genera, group movement, and quantity changes for understanding the current conditions of these animals and plants within the survey area, and of the impact of Sixth Naphtha operations on the local environment. According to past survey results, the numbers of families, species, and genera of plants are stable, while the number of animals flunctuates along season changes without obvious influences from the establishment of plants in Mailiao.

The change in statistics of families, species, and genera recorded in the plant ecological survey in 2007~2016



4.5 Social feedback policies

4.5.1 Social care of Formosa Petrochemical

The Southern Taipei Family Helper Project held the "Winter Blessing Fair" at Taipei Int'l Flora Expo—EXPO Hall on December 11, 2016. Formosa Petrochemical also had a booth there to cooperate with the great event and allow the families being supported to feel full love and warmth at winter!

4.5.2 Local participation and contributions to the community

To provide care to local residents in Mailiao, employees of Formosa Petrochemical serve as volunteers to participate in care activities in the seven nearby townships (Mailiao, Taixi, Lunbei, Tungshih, Baochung, Sihu, and Dacheng); a total of 172 employees participate, with a total of 1,006 volunteer hours. The local public welfare activities that the Corporation attended and provided subsidies for in 2016 were as follows:

(1) Support breakfasts for minority families in the nearby seven townships, a total of 36 schools and a cost of 6.63 million; distribute children scholarships 1,954 person-times with a total amount of 5.57 million.

(2) The compensation to traffic control volunteers, injury or disease condolence, social club sponsorships, and meals for minority parties, a total of 2.36 million

(3) Distribute neighborhood funds (township office): Distribute NHI and electric subsidies (total 388.72 million) to benefit 47,690 residents

(4) Resident health care (township office): Provide free physical checks for local people. For any abnormalities found, notice will be actively given for a return visit (cost 86.58 million)

(5) Exercise social responsibilities (county government): To increase the forestation area for air quality improvement and greening, we have subsidized 141.66 million for forestation as referenced to the government; to improve the safety of roads damaged by heavy trucks, we have contributed 60 million to the road maintenance fund

(6) Promote traditional arts: Increase participation in local activities through the Mazu pilgrimage and other such folk activities. Subsidize large local activities, a total of 18 events (Ming Hwa Yuan 8 sessions, Paper Wind Mill 6 sessions, If Kids 3 session, Da Long Dong 1 session), a total cost of 2.43 million, attracting more than 10,000 person-times attending those events.

Mazu sedan carry, Mailiao Kungfan Temple

Elderly care activities of Mailiao Elderly Association at Double Ninth Festival

Dalongdong Golden Lion Team

Ming Hwa Yuan Troupe

4.5.3 The Efforts of Formosa Group

Formosa Group has been deeply involved in various fields during its 60-year development. We understand the social needs at all levels and actively cooperate with the government and all private groups to further understand social demands and care for and help minority groups. We have contributed approximately 53.26 billion to education, medicals, and social welfare programs in the past and will continue to reach out to those in need.

Summary of Contributions to Public Welfare

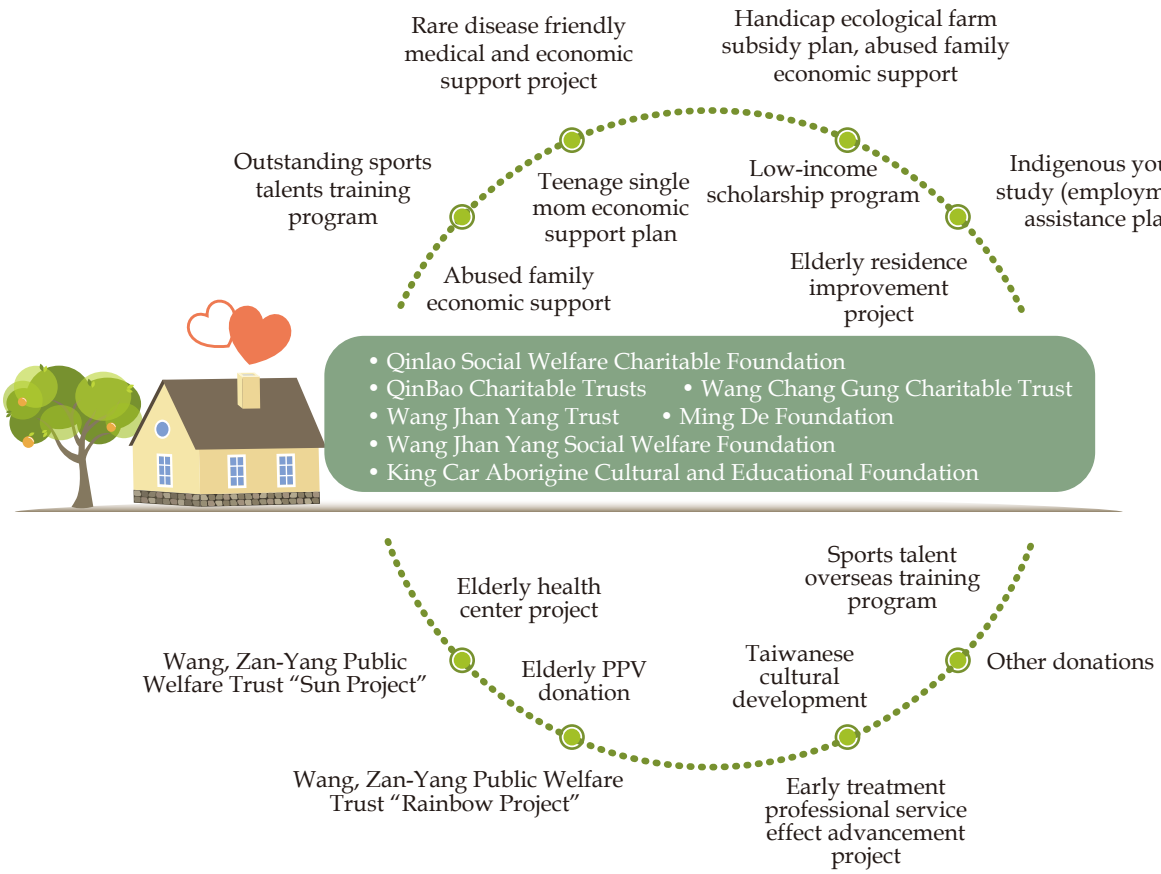
Unit: NT$ 100 million

Year	Category	Content	Contribution Amount
1960-1980	Education	Establish and continuous donations to Ming Chi University of Technology	278.6
		Establish and continuous donations to Chang Gung University	
		Establish and continuous donations to Chang Gung University of Technology	
	Medical	Establish Chang Gung Hospital	28.4
		*Assist poor patients with medical visitations	
1990	Minority Group Care	Assist indigenous students with study (employment) and relevant sponsorship	32.0
		*Donate cochlear implants for 822 persons	
2000~		Enhance the service quality of handicap welfare organizations and other social welfare units	
		Children and women welfare	
		Donate to the rainbow project for drug addicted and AIDS inmates in Yunlin Second Prison, Taipei Prison, and Kaohsiung Prison. Donate to the sun project for drug-dealing inmates in Yunlin Second Prison and Kaohsiung Prison	
	Environmental Care	Composting of leftovers	12.4
		Organic vegetable planting	
		Forestation	
2000~	Elderly care	*Establish Chang Gung Health and Culture Village	5.4
		Donate 1.055 million Pneumococcal Vaccines, with a market value of over 900 million; elderly residence improvement, meals for solitary seniors, Elderly Health center, and other such elderly benefit items	
	Disaster restoration	1. Reconstruction of old and dangerous schools in disaster areas (76 schools) 2. Donation to restoration funds after typhoons and earthquakes	47.9
	Cultural promotion	Donation to featured cultural troupes in Taiwan	0.7
	Physical education promotion	Promote sport activities and train outstanding sport talents	1.8
	Health promotion	Engage in various health promotion research projects and academic research of the three schools	2.0
	Local contribution	Contribution to areas around Company plants	115.6
	Other	Chang Gung social welfare fund and other donations	7.9
Total			532.6

Note: 1.「*」refers to an extended donation of Chang Gung from its income, which is excluded from the total donation amount
2. This table only discloses donations made in Taiwan.

Formosa Group has continuously organized seven foundations and a public welfare trust and collectively contributes the fund to minority groups and social welfare organizations. Furthermore, private professional groups, scholars, and experts are integrated to gradually advance the overall operation efficiency of public welfare organizations in due order, allowing contributed resources to develop greater effects. Each project is not only a pioneering work within the country but can also reach the goal of overall service quality enhancement and sustainable operations.

Severn Foundations, Public Welfare Trust, and Implementation Plan



Early treatment professional plan

Since the age under 6 is the golden period for early treatment and the treatment effects of children aged under 3 are 10 times those after 3, children who receive proper treatment may even return to a normal education, be socially integrated, and decrease the burden on their families and society. Through physical participation in planning and devotion to various projects, we hope to advance the quality of organizations, personnel proficiency, and family treatment knowledge within the shortest time and allow more children to receive quality treatments. During the period from 2006 to 2016, we have contributed more than NT$500 million, benefited 2,0382 children, and supported 66 organizations.

Elderly welfare

Elderly PPV donation

Formosa Group has donated PPV to the "Centers for Disease Control, MOHW" since 2007 to jointly promote free PPV for seniors over the age of 75 years. As of the end of 2016, a total of 160 million vaccines were donated, and it is estimated that the government may save around 12 billion in pneumonia medical treatment.

Elderly residence improvement

The Diligence Foundation and Chin Bao Public Welfare Trust has cooperated with the "Elderly Welfare Promotion Federation" and "Yunlin Elderly Welfare Protection Association" since 2011 to promote elderly residence improvement projects in Pingtung County, Taitung County, Taoyuan City, Chiayi County, Hualien County, Yunlin County, Ilan County, Hsinchu County, Changhua County, Miaoli County, and Nantou County to enhance residential safety. As of the end of 2016, 609 households had completed home maintenance, and 61 households are under construction. The service scope is planned to be subsequently expanded to serve more senior minorities.

Inmate support- rainbow project and sun project

The rainbow project is subsidized by the "Wang, Zan-Yang Social Welfare Foundation" to fully support drug-addicted AIDS inmates in Yunlin Second Prison, Taipei Prison, and Kaohsiung Prison in learning professional skills and adapting to normal social and family life. Meanwhile, the sun project is subsidized by the "Wang, Zan-Yang Public Welfare Trust" to Yunlin Second Prison and Kaohsiung Prison to aid general drug-dealing inmates return to normal lives.

Scholarship

The Diligence Foundation has been supporting high school and college students with economic difficulties (from low-income households) and outstanding academic and moral performance since 2011. It enables students to receive support to complete their studies without worries. These students are also encouraged to help other people when they are capable to do so in the future. As of the end of 2016, we have supported 5,641 poor students.

Appreciation cards from students receiving support

Education- the idea and current conditions of the three established schools

With the industrial and economic rise in the 1960s, the founders of Formosa Group had an increasing need for technological talents. Therefore, the corporation established "Ming Chi Industrial College" (presently "Ming Chi University of Technology") to actively cultivate major industrial cadres. Noticing the inadequate medical resources in Taiwan after the establishment of Chang Gung Hospital in 1976, the founders successively established "Chang Gung Medical School" (presently "Chang Gung University") and "Chang Gung Nursing College" (presently "Chang Gung University of Technology") in 1987 and 1988, respectively, to develop proper medical personnel and improve domestic medical standards.

Appendix

- Comparison table of GRI G4 indicators
- Statement of independent third party verification

Appendix

Comparison table of GRI G4 indicators

：Completed Disclosure ：Partial Disclosure

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
Strategies and Analysis				
G4-1	The sustainability statement from highest decision maker of the organization aimed at organization and strategies		Letter from the Chairman	
G4-2	The key impacts, risks and opportunities		Letter from the Chairman 1.3 Business risk management	
Organization				
G4-3	Name of the organization		1.1 Corporate governance	
G4-4	Major brands, products and services		1.2 Sustainable development business model	
G4-5	Location of headquarters		1.1 Corporate governance	
G4-6	Number and names of countries of operational organizations		1.1 Corporate governance	
G4-7	Ownership nature and legal entity		1.1 Corporate governance	
G4-8	The markets in which the organization provides services		1.2 Sustainable development business model	
G4-9	Scale of organization		1.2 Sustainable development business model	
G4-10	Number of workers and composition		4.1 Personnel structure	
G4-11	The percentage of workers protected by group agreements through negotiations		4.2 Personnel welfare and care	
G4-12	Organizational supply chain description		1.2 Sustainable development business model 1.4 Customer and supply chain maintenance	
G4-13	Disclose any important change regarding the scale of the organization, structure, ownership or supply chain during the report disclosure period		1.2 Sustainable development business model	None
G4-14	Explain whether the organization has emergency policies or principles		1.3 Business risks management	
G4-15	The economic, environmental and social statues, principles or other proposals established externally and signed or approved by the organization		Report explanation	
G4-16	List the membership qualification of public associations (e.g. Business Association) and national or international supported institutions in which the organization has participated		1.1 Corporate governance	

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
Indentify Significant Considerations and Boundaries				
G4-17	a.List the entities contained in the consolidated financial statements or equivalent documents of the organization b.Explain whether the entities contained in the consolidated financial statements or equivalent documents of the organization are excluded from this report		Report explanation	
G4-18	Explain the process of identifying the contents of the report and due consideration of the limitations and the methods of following the principles of identifying the contents of the report"		Negotiation with stakeholders	
G4-19	List all significant considerations determined from the process of identifying the contents of the report		Negotiation with stakeholders	
G4-20	The limitations of each significant aspect of the organization inside the organization		Negotiation with stakeholders	
G4-21	The limitations of each significant aspect of the organization outside the organization		Negotiation with stakeholders	
G4-22	The effects and reasons for restatement of any information provided in previous report		Report explanation	
G4-23	Compared to the previous report period, identify whether there is a significant change to the scope and limitations of significant aspects of the organization		Report explanation	
Negotiation with stakeholders				
G4-24	The groups of stakeholders engaging in negotiation		Negotiation with stakeholders	
G4-25	Focusing on the stakeholders under negotiation, explain the approaches to identification and selection		Negotiation with stakeholders	
G4-26	The method of negotiation with stakeholders		Negotiation with stakeholders	
G4-27	The key issues and concerns proposed during the negotiation with stakeholders and how the organization responds		Negotiation with stakeholders	
Basic information				
G4-28	Report period of information provided		Report explanation	
G4-29	The date of previous report		Report explanation	
G4-30	Report cycle		Report explanation	
G4-31	The contact person for issues regarding the report or its contents		Report explanation	

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
G4-32	The compliance options, index and external certification		Report explanation	
G4-33	The policies and current methods of seeking external validation		Report explanation	
Governance				
G4-34	Governance structure of the organization		1.1 Corporate governance	
Ethics and integrity				
G4-56	The values, principles, standards and code of conduct of the organization, e.g. the code of conduct and code of ethics		1.1 Corporate governance	
Disclosure of specific standards				
Category: economics				
Consideration: economic performance				
DMA			1.2 Sustainable development business model	
G4-EC1	The direct economic value generated and distributed by the organization		1.2 Sustainable development business model	
G4-EC2	The financial impact and other risks and opportunities derived from climate change on the activities of the organization		1.3 Business risk management	
G4-EC3	The scope of the obligations of the organization toward benefit plans		4.2 Personnel welfare and care	
Consideration: market image				
G4-EC5	Focusing on important operational locations, the percentage of standard pay of basic employees organized by gender compared to local minimum wage		4.2 Personnel welfare and care	
G4-EC6	Focusing on important operational locations, the percentage of local residents employed as executive managers		4.1 Personnel structure	
Consideration: indirect economic impact				
G4-EC7	The investment on fundamental facilities and the development and impact of supporting services		1.2 Sustainable development business model	
G4-EC8	Significant indirect economic impact, including the extent of any impact		2.2 Environmental protection strategies and policies 4.3 Local community development and communication	
Category: environment				
Consideration: energy				
DMA			2.3 Greenhouse gas emission and energy management	

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
G4-EN3	The energy consumption of the organization		2.3 Greenhouse gas emission and energy management	
G4-EN5	Energy density		2.3 Greenhouse gas emission and energy management	
G4-EN6	Reduction in energy consumption		2.3 Greenhouse gas emission and energy management	
G4-EN7	Reduction of energy requirements for products and services		2.3 Greenhouse gas emission and energy management	
Consideration: water				
	DMA		2.5 Water resources and waste management	
G4-EN8	The total water intake divided by sources		2.5 Water resources and waste management	
G4-EN9	The water sources seriously affected by water intake		2.5 Water resources and waste management	
G4-EN10	The percentage and total volume of water recycling and reuse		2.5 Water resources and waste management	
Consideration: emissions				
	DMA		2.3 Greenhouse gas emission and energy management	
G4-EN15	Direct greenhouse gas emissions（field 1）		2.3 Greenhouse gas emission and energy management	
G4-EN16	Indirect energy greenhouse gas emissions (field 2)		2.3 Greenhouse gas emission and energy management	
G4-EN18	Greenhouse gas emission intensity		2.3 Greenhouse gas emission and energy management	
G4-EN19	Reduction in greenhouse gas emissions		2.3 Greenhouse gas emission and energy management	
G4-EN20	The emission of ODS, the ozone layer-breaking substance		2.4 Air pollution prevention	
G4-EN21	The emission of nitrogen oxide, sulfur oxide and other significant gases		2.4 Air pollution prevention	
Consideration: sewage and waste				
	DMA		2.5 Water resources and waste management	
G4-EN22	Total water drainage divided by water quality and the purpose of drainage		2.5 Water resources and waste management	
G4-EN23	The total volume of waste by category and disposal methods		2.5 Water resources and waste management	
Consideration: products and services				
G4-EN27	The reduction of the impact of products and services on the environment		2.2 Environmental protection strategies and policies	

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
Consideration: legal compliance				
G4-EN29	The amount of heavy fines imposed due to violation of environmental laws and regulations as well as the times of sanctions other than fines received.		2.2 Environmental protection strategies and policies	
Consideration: transportation				
G4-EN30	The significant environmental impact caused by transportation of products, commodities, materials and employee transportation from organizational operations		2.2 Environmental protection strategies and policies	
Consideration: overall condition				
	DMA		2.2 Environmental protection strategies and policies	
G4-EN31	The total environmental expenditure and investment by category		2.2 Environmental protection strategies and policies	
Consideration: complaints related to environmental issues				
G4-EN34	The number environmental complaints constituted, managed and solved through the formal complaint system			No such event in 2016
Category: society				
Sub-category: labor practice and esteem of labor				
Consideration: employment relationship				
	DMA		4.1 Personnel structure	
G4-LA1	The total number and percentages of newly-recruited and resigned employees by the categories of age, gender and region		4.1 Personnel structure	
G4-LA2	The benefits provided only to full-time employees (excluding temporary or part-time employees) by important operational locations		4.2 Personnel welfare and care	
G4-LA3	The percentage of employees resuming their positions following parental leave		4.1 Personnel structure	
Consideration: labor/employer relationship				
G4-LA4	Explanation of the shortest advance notice of changes to material operations		44.2 Personnel welfare and care	
Consideration: occupational health and safety				
	DMA		3.4 Occupational health management	
G4-LA5	The percentage of labor representatives helping with supervision and suggestions for occupational health and safety related planning at the formal Labor Health and Safety Management Committee		4.2 Personnel welfare and care	

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
G4-LA6	Report of workplace injuries, frequency, occupational illnesses, percentage and absence rate for days divided by region and gender and the total number of deaths in the workplace		3.1 Establishment of work safety culture	
G4-LA7	The high incidence rate of illnesses in related with work and high-risk jobs		3.4 Occupational health management 4.2 Personnel welfare and care	
G4-LA8	Health and safety related issues included in formal agreements of the union		3.2 Work safety risks management 4.2 Personnel welfare and care	
Consideration: training and education				
G4-LA9	The average hours of training of each employee per year divided by gender and position		4.2 Personnel welfare and care	
G4-LA10	Employees' continuous employment ability, retirement management and lifetime learning assistance		4.2 Personnel welfare and care	
G4-LA11	The percentage of employees accepting periodical performance and career development reviews by gender and position		4.2 Personnel welfare and care	
Consideration: employee diversification and equal opportunities				
G4-LA12	The corporate governance members and composition of employees by gender, age, minority groups and other categories		4.1 Personnel structure	
Consideration: equal pay				
G4-LA13	The basic pay and remuneration percentage of female and male employees by employee categories and important operational locations		4.1 Personnel structure 4.2 Personnel welfare and care	
Consideration: labor complaint system				
G4-LA16	The number labor complaints constituted, managed and resolved through the formal complaint system		4.2 Personnel welfare and care	
Sub-category: human rights				
Consideration: investment				
G4-HR1	The total number and percentage of material investment agreements and contracts regarding human rights and/or screening of human rights			Formosa Petrochemical did not have material investment of contracts concluded in 2016
Consideration: no discrepancy				
G4-HR3	The total number of discrepancies and the improvements made by the organization		4.1 Personnel structure	

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
Consideration: freedom of association and group negotiation				
G4-HR4	The operational location or supplier found to be in potential violation of or seriously endangering the freedom of association and group negotiation as well as actions taken to protect such rights		4.2 Personnel welfare and care	
Consideration: forced or compulsory labor				
G4-HR6	The operational location or supplier identified as forcing work upon laborers, and actions taken to reduce compulsory labor of any manner		1.4 Customer and supplier chain relationship maintenance	
Consideration: security practice				
G4-HR7	The percentage of security guards accepting organizational human rights training in relation to operations		4.1 Personnel structure	
Consideration: indigenous rights				
G4-HR8	The total number of events impairing the rights of indigenous peoples and actions taken by the organization		4.1 Personnel structure	
Consideration: assessment				
G4-HR9	The total number and percentage of operational locations accepting human rights review or impact assessment		4.1 Personnel structure	
Consideration: human right complaint system				
G4-HR12	The number human right complaints constituted, managed and resolved through formal complaint system		4.1 Personnel structure	
Sub-category: society				
Consideration: local communities				
	DMA		2.4 Air pollution prevention 4.3 Local community development and communication	
G4-SO1	Among the operational locations, the percentage of locations that have implemented local communication negotiation, and conducted impact assessments and development plans		2.4 Air pollution prevention 4.3 Local community development and communication	
G4-SO2	The operational locations that have a significant actual or potential negative impact on local communities		2.4 Air pollution prevention 4.3 Local community development and communication	
Consideration: anti-corruption				
G4-SO3	The total number and percentage of operational locations that have conducted corruption risk assessment and the significant risks indentified		1.1 Corporate governance	

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
G4-SO5	The corruption event identified and actions taken		1.1 Corporate governance	No corruption occurred in 2016
Consideration: public policies				
G4-SO6	The total political contribution by countries and the receivers/beneficiaries		1.1 Corporate governance	
Consideration: anti-competition				
G4-SO7	The total number and results of legal actions regarding anti-competition, antitrust and the monopoly involved			No such event
Consideration: law compliance				
G4-SO8	The amount of heavy fines imposed due to violation of laws and regulations as well as the times of sanctions other than fines received.		2.2 Environmental protection strategies and policies	
Consideration: social impact complaint system				
G4-SO11	The number of social impact complaints lodged, managed and resolved through the formal complaint system			No such event
Sub-category: product liabilities				
Consideration: product and service label				
G4-PR3	Information regarding products and services divided by organizational division and labeling procedures as well as the percentage of important product and service categories necessary to meet information regulations		1.4 Customer and supplier chain relationship maintenance	
G4-PR4	The number of events violating product and service information label regulations and voluntary regulations divided into categories.			No such event
G4-PR5	Results of customer satisfaction surveys		1.4 Customer and supplier chain relationship maintenance	
Consideration: Marketing communication				
G4-PR6	The sales of prohibited products or products in dispute			Most products of Formosa Petrochemical are not sold directly to general consumers and therefore the media advertisement and promotions are relatively few. Where there is legal promotional activities involved, all departments consult the legal affairs office of the enterprise to avoid any violation of laws

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
G4-PR7	The total number of events violating marketing and promotional laws and regulations (including advertisements, sales promotions and sponsors).			No violation of laws occurred in 2016
Consideration: customer privacy				
G4-PR8	The number of complaints confirmed in relation to the violation of customer privacy or missing customer information		1.4 Customer and supplier chain relationship maintenance	
Consideration: law compliance				
G4-PR9	The amount of heavy fines due to the provision and use products and services in violation of relevant laws and regulations			No violation of law occurred in 2016
Category: Oil and Gas Sector Supplement				
Consideration: oil gas industry				
G4 Consideration: indirect economic impact				
G4-OG1	The types, volume and value of storage and production estimates verification			Formosa Petrochemical mainly engages with local businesses in Taiwan without oil field drilling or exploitation involved, hence this is not applicable.
G4 Consideration: energy				
G4-OG2	The investment amount of renewable energy		2.2 Environmental protection strategies and policies	
G4-OG3	The total renewable energy generated from green energy materials		2.2 Environmental protection strategies and policies	
G4 Consideration: sewage and waste				
G4-OG5	The volume and disposition of sewage containing oil and collection of sewage with oil		2.2 Environmental protection strategies and policies	
G4-OG6	The combustive and diffusive emissions of hydrocarbons		2.2 Environmental protection strategies and policies 2.3 Greenhouse gas emission and energy management	
G4-OG7	Drilling mud volume and processing policies			Formosa Petrochemical does not engage in oil field drilling or exploitation of businesses in Taiwan

Indicator	Disclosure Item	Status	Corresponding Chapter	Note
G4 Consideration: products and services				
G4-OG8	Petrol, lead and sulfur contained in fuel		2.2 Environmental protection strategies and policies 2.3 Greenhouse gas emission and energy management	
G4 Consideration: indigenous rights				
G4-OG9	The corresponding measures for operations affecting indigenous peoples			Formosa Petrochemical did not have an event that affected indigenous peoples in 2016
G4 Consideration: local communities				
G4-OG10	The number and description of disputes with local communities and indigenous peoples		2.4 Air pollution prevention 4.3 Local community development and communication	Formosa Petrochemical mainly engages with local businesses in Taiwan without oil field drilling or exploitation involved. However, events regarding operations in Taiwan were disclosed
G4-OG11	The number of disused or to be disused mining areas			Formosa Petrochemical does not have a business involved in mining exploitation in Taiwan
Industrial consideration: non-voluntary moving				
G4-OG12	Non-voluntary relocation of operations and the impact of relocation		3.4 Occupational health management 4.2 Personnel welfare and care	Formosa Petrochemical did not cause non-voluntary relocation in 2016
Industrial consideration: process safety				
G4-OG13	The number and types of process safety events during operational activities		3.2 Work safety risks management	Formosa Petrochemical mainly engages with local businesses in Taiwan without oil field drilling and exploitation involved. However, events regarding operations in Taiwan were disclosed
Industrial consideration: fossil fuel replacement				
G4-OG14	The biomass energy is satisfactory to sustainable development standards and procurement volume		2.2 Environmental protection strategies and policies	

The information and data disclosed in this report has been reviewed independently by the third-party international verification institution the British Standard Institution (BSI) according to GRIG4 core options. Please refer to the review statement for details.

Statement of independent third party verification

INDEPENDENT ASSURANCE OPINION STATEMENT

FORMOSA PETROLCHEMICAL CORPORATION 2016 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 2016 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 2016 Corporate Social Responsibility Report provides a fair view of the FPCC CSR programmes and performances during 2016. 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 2016 economic, social and environmental performance indicators are fairly represented. The CSR performance indicators disclosed in the report demonstrate FPCC's efforts recognized by its stakeholders.

Our work was carried out by a team of CSR report assurors 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 G4 guidelines: 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 issues 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 on approach to stakeholder engagement. However, we had no direct contact with external stakeholders.
- 9 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 G4 guidelines 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 issues.

Materiality

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

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. Issues that stakeholder concern about have been responded timely. In our professional opinion the report covers the FPCC's responsiveness issues.

GRI-reporting

FPCC provided us with their self-declaration of 'in accordance' with the G4 sustainability reporting guidelines: the Core option (at least one Indicator related to each identified material Aspect). Based on our review, we confirm that social responsibility and sustainable development indicators with reference to the GRI Index are reported, partially reported or omitted. In our professional opinion the self-declaration covers the FPCC's social responsibility and sustainability issues.

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 chairman as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence

The assurance team was composed of Lead Auditors and Carbon Footprint Verifiers 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:

Managing Director BSI Taiwan
2017-05-17

bsi.

AA1000
Licensed Assurance Provider
000-4

Taiwan Headquarters: 5th Floor, No. 39, Ji-Hu Rd., Nei-Hu Dist., Taipei 114, Taiwan, R.O.C.

BSI Taiwan is a subsidiary of British Standards Institution.

台塑關係企業
FORMOSA PLASTICS GROUP

Formosa Petrochemical Corporation
Add: RM.377, 4F, 201, TUNG HWA N.RD, Taipei
Tel: 886-2-27122211
Email : fpccpre@fpcc.com.tw
www.fpcc.com.tw