2015 Annual Report

Malliao Industrial Complex Administration Building and Yunlin Chang Gung Memorial Hospital
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## Formosa Plastics Group · 2015 Financial Highlights

(In Thousands of US Dollars, persons)

<table>
<thead>
<tr>
<th>Company</th>
<th>Capital</th>
<th>Assets</th>
<th>Equity</th>
<th>Sales</th>
<th>Income Before Income Tax</th>
<th>Number of Employees</th>
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<tbody>
<tr>
<td>Formosa Plastics Corp.</td>
<td>1,925,162</td>
<td>12,117,933</td>
<td>8,692,763</td>
<td>4,849,893</td>
<td>1,056,921</td>
<td>6,024</td>
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<td>Nan Ya Plastics Corp</td>
<td>2,398,482</td>
<td>13,822,078</td>
<td>9,807,166</td>
<td>5,439,565</td>
<td>1,217,444</td>
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<td>Formosa Chemicals &amp; Fibre Corp.</td>
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<td>8,553,515</td>
<td>6,968,183</td>
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<td>Formosa Petrochemical Corp.</td>
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<td>12,759,831</td>
<td>8,065,355</td>
<td>18,992,086</td>
<td>1,592,919</td>
<td>4,891</td>
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<td>Nan Ya Technology Corp.</td>
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<td>3,130,528</td>
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<td>1,304,349</td>
<td>533,051</td>
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<td>Nan Ya PCB Corp.</td>
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<td>1,109,950</td>
<td>861,822</td>
<td>30,199</td>
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<td>Inotera Memories Inc.</td>
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<td>Formosa Sumco Technology Corp.</td>
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<td>317,181</td>
<td>46,411</td>
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<td>Formosa Taffeta Co., Ltd.</td>
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<td>1,593,756</td>
<td>839,590</td>
<td>91,906</td>
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<td>Formosa Advanced Technologies Corp.</td>
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<td>330,135</td>
<td>296,650</td>
<td>264,949</td>
<td>41,518</td>
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<td>Mai-Liao Power Corp.</td>
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<td>1,373,217</td>
<td>745,891</td>
<td>238,189</td>
<td>407</td>
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<td>Subtotal of Public Companies</td>
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<td>64,756,779</td>
<td>45,849,034</td>
<td>42,421,116</td>
<td>6,385,860</td>
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<td>Other Domestic Companies</td>
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<td>13,485,839</td>
<td>11,525,568</td>
<td>4,739,930</td>
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<td>Subtotal of Domestic Companies</td>
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<td>78,242,618</td>
<td>57,374,602</td>
<td>47,161,046</td>
<td>6,867,527</td>
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<td>Companies in U.S.A</td>
<td>933,026</td>
<td>9,496,613</td>
<td>7,663,405</td>
<td>5,657,762</td>
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<td>Companies in China</td>
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<td>5,147,845</td>
<td>6,174,994</td>
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<td>21,045</td>
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<td>Other Foreign Companies</td>
<td>1,141,621</td>
<td>4,401,848</td>
<td>2,465,399</td>
<td>1,448,566</td>
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<td>Subtotal of Foreign Companies</td>
<td>6,485,516</td>
<td>24,489,645</td>
<td>15,276,649</td>
<td>13,281,322</td>
<td>1,218,207</td>
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<td>Total of Formosa Plastics Group</td>
<td>21,222,531</td>
<td>102,732,263</td>
<td>72,651,251</td>
<td>60,442,368</td>
<td>8,085,734</td>
<td>110,677</td>
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</table>

*NOTE*: The financial data shown above is extracted from the individual financial statements of each company.
Formosa Plastics Group has placed equal emphasis on environmental protection and industrial development in order to contribute to society. At the same time, the safety of our products, employees, contractors, factories and the safety of the local community are the priority and primary responsibility of the company. It is also part of our corporate competitiveness; therefore, the company is tirelessly devoted to environmental protection and safety at the workplace.
The global economy in 2015 continued the recessionary trend of the previous year. Despite the positive economic outlook in the US and EU during the first half of the year, the optimism was short-lived, as multiple factors such as ambiguous US monetary policy, geopolitical conflicts, terrorist attacks as well as falling international oil and commodity prices significantly impacted international economic trends.

After the middle of the year, the decreased growth of the Chinese economy was worse than the experts had expected, coupled with the slow economic recovery in the US and the EU, economic growth in the emerging markets also exhibited recession, in turn threatening the global economic outlook. Furthermore, the IMF also reduced its forecast on global economic growth three times – an extremely rare phenomenon – therefore the global economic situation in 2015 was ridden with obstacles and setbacks.

To make matters worse, starting from the second half of 2014, in order to reach a balance between revenues and expenditures and to check the development of shale oil in the US, no reduction in oil was carried out by the Organization of Petroleum Exporting Countries (OPEC). This, in turn, caused a plummet in international oil prices. By early 2015, oil prices fell through US$50 per barrel mark, which was less than half of the price during the same period previous year. As a result, economies in many oil-exporting countries were devastated and came under immense pressure.

Fortunately, the low oil prices stimulated demand in global oil products. Although the prices of naphtha and petrochemical materials also dropped, they were not as severe as oil prices. Therefore, the price difference between the two actually increased the profit margins of the petrochemical industry. As far as petrochemical companies that rely on imported naphtha are concerned, this is a truly advantageous situation.

For Taiwan in 2015, the GDP growth rate plunged from “close to 4%” all the way to “scrambling to preserve at least 1%,” ultimately ending with 0.75%. This not only sets the lowest figure in six years but also once again ranks the country as the poorest performer of the four “Asian Dragons,” far below the average figure of 2.3% from the other three Asian Dragons. Not only so, at the end of 2015, after the Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan forecasted a GDP growth of 2.32%, the figure was immediately reduced to 1.47% in early 2016. Export also exhibited a recessionary trend with no signs of improvement in the foreseeable future. At the same time, with the continued decline of economic growth in China, the World Bank and IMF also decreased their forecasted global economic growth rates for 2016. Consequently, the economic situation in Taiwan in 2016 does not at all look promising.

Overview of company operations

In 2015, Formosa Plastics Group’s overall revenue was NT$1.9986 trillion, although this a decrease of 20.2% compared to 2014, the low oil price resulted in advantageous price difference for the petrochemical industry, therefore the overall profit actually increased. In 2015, the pretax profit was NT$267.4 billion, a significant increase of 24.1% compared to the year before, setting the company’s highest pretax profit since the 2008 financial tsunami.
Taiwan

In 2015, the combined revenue for various subsidiaries of Formosa Plastics Group was NT$1.56 trillion, a decrease of 21.7% compared to 2014, but the pretax profit of NT$227.1 billion was a considerable increase of 29.3% compared to the previous year.

In particular, in terms of oil-refining business and petrochemical materials, the company had to keep a close eye on market price differences and flexibly adjust our production and marketing approach. With advantageous conditions such as an increase in capacity utilization and profit in petrochemical products coupled with the successful development of high unit cost, niche and differentiated products, as well as successful strategy in developing the emerging markets, Formosa Plastics Group was able to expand our exportation empire to achieve outstanding profitability over the last few years.

Meanwhile, in resonance with the global agenda on sustainable development and the global trend in eco-friendliness, low carbon, and low emissions, the Formosa Plastics Group has committed to the R&D and production of roughly 140 high value products, including low-odor PVC for automotive applications, functional fibers, electrically conductive PC. Taking Formosa Plastics as example, a total of NT$1.45 billion was invested in R&D in 2015 to successfully differentiate PVC, PP, PE, and SAP products that can be applied to medical and high-end markets such as baby products, automobile, contact lens, optics and protective film. Profits contributed by differentiated products increased from 23% in 2014 to 34%, demonstrating the prolific outcome of this innovative R&D approach.

USA

The Formosa Plastics Group owns numerous vertically integrated petrochemical materials and plastics processing plants in the US. Benefiting from continual price decreases, the petrochemical products have generated increased profits. In 2015, the combined revenue for various subsidiaries in the US amounted to NT$187.1 billion, a 16.9% increase compared to 2014. The pretax profit of NT$48.4 billion was 18.8% more than that of the previous year. In addition, despite the low oil prices over the last two years, there are ultimately only limited oil reserves available. Therefore, with the massive reserve of shale gas in the US and the long-term low cost advantage, the company has invested in downstream petrochemical plants such as new ethylene cracking plant, PE plant and EG plants, all are slated for completion before the end of 2019. In turn, these facilities will inject new momentum for growth.
China

Formosa Plastics Group has set foot on the Chinese market since two decades ago and established numerous production sites in the country. Our investment categories include petrochemical materials, first and second plastics processing, electronic materials, heavy machinery, steel, etc. The combined turnover of various subsidiaries in China in 2015 was NT$204.2 billion, a 14.4% decrease over 2014. The pretax loss of NT$10.6 billion was a 71.4% decline from 2014. This is mainly attributed to the excess supply of petrochemical materials in China and shrinking of internal demand caused by the restructuring policy. However, with rapid improvements in the standard of living and internal demand market in China, Formosa Plastics Group has invested in the Ningbo petrochemical plant to conduct the phase 2 expansion project, which is scheduled for completion and production in 2016.

Vietnam

Formosa Plastics Group owns production sites in Dongnai Province and Longan Province, producing textiles, polyester fiber, nylon fiber, as well as secondary processing businesses including BOPP and PVC film. In 2015, the combined revenue was NT$26.6 billion, a reduction of 10.4% compared to 2014. The pretax profit of NT$1.7 billion was 13.6% higher than the year before. In the future, Formosa Plastics will cater to the increased demand in the Southeast Asian markets. Coupled with niche conditions such as tariff exemption in the regional economies, the company will continue to expand the production capacity of related products.

In addition, US$10.5 billion has been invested in Yongan Economic District in Hatinh Province to build the integrated steel plant with an annual production capacity of 7.1 million tons and the Shanyang deep-water port. By December 2015, trial production of the first roll of hot rolled coiled steel was successfully completed in December 2015. At the same time, projects including port, dock, cogeneration power plant, air separation plant, coke plant, and hot rolling mill have been completed already, while various facilities have also commenced a trial run. The first blast furnace will commence production in June 2016, transforming the area into a steel production hub in Southeast Asia.

Occupational safety and environmental management

In order to monitor international economic conditions as well as investment environment problems domestic and abroad, the Formosa Plastics Group is conscientiously committed to internal management. For many years, the
The company has placed equal emphasis on environmental protection and industrial development in order to contribute to society. At the same time, the safety of our products, employees, contractors, factories and the safety of the local community are the priority and primary responsibility of the company. It is also part of our corporate competitiveness; therefore, the company is tirelessly devoted to environmental protection and safety at the workplace. State-of-the-art technologies are employed for all related equipment, and the company constantly strives to make improvements by regarding it as a companywide goal. 

Taking the per unit electricity and steam consumption of products at our Mailiao plant as example, since operation started after the trial run in 1999, electricity and steam consumption has been reduced by 58% and 71% respectively in 2015. If calculated based on “Directions for Application Review on Proposal of Water Usage” released by MOEA in 2015, Mailiao plant’s R1 recycled water rate of 98.8% is far superior than that of other petrochemical companies in the country (71–90%).

Meanwhile, in an effort to materialize the goal of energy conservation and carbon reduction, the Formosa Plastics Group has long invested considerable manpower and resources in promoting water and energy saving projects. As of late 2015, the company has invested NT$8.04 billion to complete 2,131 water-saving projects, conserving a total of 114,220,000 tons of water annually, equivalent to a year’s worth of water consumed by 1.24 million people. At the same time, NT$17.05 billion was invested in the implementation of 6,915 energy-saving projects, reducing CO2 emissions by 10.199 million tons every year, equivalent to the carbon sequestration capacity of 1.361 billion trees. Furthermore, the company is expected to invest an additional NT$370 million in 179 water conservation projects to save an extra 3.184 million tons of water.
Preface

per year. NT$4.31 billion has been invested to launch 693 energy conservation projects to further decrease CO₂ emissions by 870,000 tons every year. The impressive performance fully demonstrates the company’s dedication and resolve in environmental protection.

Each year, the Formosa Plastics Group also participates in numerous environmental, energy conservation and occupational health evaluations conducted by the government. In 2015, the group received 18 awards, including Energy Conservation Outstanding Performance Award, Carbon Reduction Action Outstanding Award, etc. At the same time, the Formosa Plastics Group’s 14 subsidiaries received the Healthy Place Label, demonstrating that the company’s efforts in this regard has exhibited significant result and garnered considerable acknowledgment.

Social contribution

On the other hand, Formosa Plastics Group has long realized that the company’s accomplishment is attributed not only to our own endeavors but also to the support of the society; therefore, when a company becomes successful it should also “Give back what one takes from society.” In light of this, Formosa Plastics Group continues to lend a helping hand for people in need in the society during various stages of their development. Besides progressively founding three universities/colleges and Chang Gung Memorial Hospital over the last half century, the company has also established foundations and charitable trusts to conduct public welfare.

1. School reconstruction: After the September 21 earthquake disaster, the company has adopted and reconstructed 75 dilapidated and dangerous school buildings.

2. Senior citizens’ welfare: The company has purchased one million doses of pneumococcal conjugate vaccines valued at NT$850 million for seniors older than 75 years old. Since the start of donation in 2007 to 2015, we have saved the government over NT$11.1 billion in terms of medical expenses for pneumonia. At the same time, we also promoted senior citizen housing improvement projects, senior citizen health activity centers, lone senior citizen meal delivery and care projects, transportation vehicle donations, and house-call vehicle service as well as donation projects to help materialize senior citizen’s dreams.

3. Rainbow project and drug addiction anonymous classes: The company assisted the skill training, psychological counseling, and health education of inmates with drug addiction and AIDS in correctional facilities in Yunlin, Taipei, and Kaohsiung, thereby reducing the rate of recidivism from 70~80% to below 20%, in turn helping them to return to society after they are
discharged from prison. The program has demonstrated excellent results.

4. Women and children’s welfare: The company promoted rare disorder patient medical treatment and financial aid program, scholarship for low-income students, educational assistance program for child and youth care institutions (scholarships and grants), soup kitchen, young single mothers’ financial aid program, financial aid for households suffering from domestic violence and tuition fee subsidy for disadvantaged students living in remote townships. At the same time, since 2006, the company has also promoted the enhancement of child development early intervention projects, donated ecological farms for the disabled persons, and facilities for disabled care institutions. In total, the Formosa Plastics Group has offered assistance for approximately 15,000 disabled persons and children with developmental delays as well as donated to over 40 institutions each year.

5. Other social welfare activities: For many years, the company has sponsored the expenses for training numerous outstanding athletes, allowing them to participate in overseas competitions and training abroad. In promoting local culture, the company also sponsored public benefit performances by Ming Hwa Yuan Arts & Cultural Group, Paperwindmill Theatre and I Wan Jan Puppet Theater to provide Taiwanese citizens with arts and cultural feasts that appeal to the refined and popular tastes.

In particular, of the aforementioned public welfare events, many were new undertakings in Taiwan. By attaining the objective of total service quality enhancement and sustainable management for care institutions, the events have fully fulfilled the ideals of the two founders in contributing back to the society.

Concerns about the domestic business environment

Taiwan is a classic island economy with a lack of natural resources and small domestic market, and it is one of the most densely populated countries in the world. For decades, Taiwan has relied on exportation to maintain economic growth, this not only constantly improves the standard of living in the country, the citizens are also able to enjoy a peaceful and pleasant lifestyle. Thus the importance of economic development is evident. However, the long-term standoff between the ruling party and opposition has severely hampered economic performance. In particular, the trickiest issue is “environmental protection,” where major domestic investment projects have stalled or even abandoned for the sake of environmental protection.
Even if the investment projects are approved, companies are faced with the flaws of the system allocating government revenues and expenditures, while the local municipalities often place restrictions on the companies or demand all sorts of subsidies from them. In recent years, both the ruling party and opposition have proposed a series of policies that have neglected industry development or are unfavorable for the domestic economy, simply for the sake of vying for media exposure or support from their respective constituencies. For instance, propositions to decrease working hours, prohibit coal power generation, or enforce water consumption penalties not only increase the operating cost of businesses but also decrease foreign and domestic enterprises’ willingness to invest in Taiwan.

During the early years, foreign capital invested in Taiwan due to its unique position that can be used as a springboard to enter the Chinese market. Now, Taiwan no longer has such advantage and investors have turned to countries that have signed the Free Trade Agreement (FTA) such as South Korea or emerging nations in Southeast Asia. In particular, South Korea’s foreign direct investment (FDI) in 2015 was 10%, Vietnam’s figure spiked by 17.4% while Taiwan’s FDI diminished by 16.9%, demonstrating the foreign capital’s lack of willingness to invest in Taiwan.

Besides the lack of foreign capital inflow, Taiwan also exhibits the phenomenon of “capital flight.” According to statistics from the Investment Commission, the amount of foreign capital approved to invest in the country was only US$5.04 billion in 2015, compared to Taiwan’s external investment figure of US$21.71 billion, capital outflow was 4.3 times that of capital inflow. Whether the situation can be turned around depends on transforming the investment environment in Taiwan. Taking Formosa Plastics Group as example, domestic investment amounted to 75% between 2012 and 2014, but the figure dropped to 20% during 2015~2017, whereas foreign investment increased to 80%. In recent years, major external investments have been made by Taiwanese firms, including TSMC’s 12-inch wafer plant in Nanjing, China, Gulei Petrochemical Park in Fujian, China led by the Petrochemical Industry Association of Taiwan as well as ChangChun Group’s plant Petrochemical Complex on Jurong Island.
Island, Singapore. These examples illustrate the decisions made by domestic enterprises due to the adverse investment environment in the country.

The two prerequisites of “capital flight” are push (deterioration of internal investment environment) and pull (superior external conditions) factors. As far as Taiwan is concerned, the pull factor originates from the signing of FTA by major economies in the world, and this trend is only beginning to manifest itself. For many years, industries, experts, and scholars in Taiwan have raised this warning to the government to accelerate the progress of reform in Taiwan, especially with regards to our competitor South Korea, which shares a remarkably similar industry structure and 70% of its exports are identical to that of Taiwan’s. Currently, South Korea has demonstrated a significant advantage over Taiwan.

Within three years of implementing the US-Korea FTA in March 2012, South Korean exports to the US grew by 23.4%, while Taiwan exhibited a decline of 1.1%. Thus, the situation is quite critical. In addition, after China-Korea FTA came into effect in December 2015, South Korea has become the largest export country for China. In the future, as the China-Korea FTA preferential tariff increases in scale, Taiwan’s export to China, which constitutes 40% of the country’s exports, will gradually be replaced by South Korea, this is a threat not to be taken lightly.

Furthermore, with the founding of ASEAN Economic Community (AEC) in 2015, Trans-Pacific Partnership (TPP) headed by the US and CEP (Regional Comprehensive Economic Partnership headed by China, or ASEAN+6) will also be signed in 2016. Taiwan has not only failed to participate in the partnerships, our trade agreement negotiation with China has procrastinated for a number of years. This will inadvertently affect the willingness of other nations in signing FTA with Taiwan. As Taiwan is becoming increasingly marginalized, the country will be sunken into the pit of hollowing-out with no future in sight.

**Future outlook**

Looking ahead in 2016, Euro region and Japan will continue to ease their monetary policies in an effort to stimulate the economy; however, such policies have demonstrated very limited benefits, and it is widely speculated that the US will be raising the interest rate in 2016. This will prove to be extremely influential to other countries. Additionally, due to excess production capacity in China, it will continue to pursue “supply-side structural reform,” therefore the economic outlook tend to be conservative. On top of that, with dwindling momentum in global trade as well as the likely occurrence of geopolitical conflicts, there is a plethora of variables that can influence the global economic development in 2016.

In relation to the petrochemical industry, oil prices remain weak at during the first half of 2016, this is attributed mainly to excess supply and inventory. As a result, the price of materials will remain low, coupled with the pessimistic outlook in the petrochemical industry, downstream clients remain speculative and conservative, thus the oil price will not spike despite potential rebounds. Over the second half of the year, the U.S. Department of Energy forecasts a reduction in shale oil production, this, combined with the elimination of uncertainties such as the US interest rate hike, will be conducive for stabilizing the volatile oil prices. Moreover, International Energy Agency (IEA) also predicts an increase in the demand of oil products, which in turn helps to decrease inventory. Therefore, the international oil market is gradually reaching a balanced state. Generally speaking, the petrochemical industry outlook in 2016 is expected to remain on par with 2015.
For Taiwan, investment and export slump is a long-term, serious issue. The Formosa Plastics Group wholeheartedly hopes that the government can evaluate the circumstances in a conscientious manner and appreciate that Taiwan’s domestic industry investment and economic development are in a state of crisis. Thus, drastic changes are needed to improve the status quo, thereby creating a much better investment environment to foster industry development and rekindle domestic and foreign investors’ willingness to invest in the country. Once industry development is achieved, the economy will also prosper, while the society and people will be able to live affluenty and peacefully. This is a simple concept, one that a wise government should have when administering the country’s affairs.

As mentioned previously, the Formosa Plastics Group is always looking out for the best interest of our stakeholders and the sustainability of the company, therefore the company has no choice but to relocate and redeploy overseas. For future developments in Taiwan, besides continuing to expand into emerging markets, the company will adopt the development themes of “high value,” “differentiation” and “internationalization.” For example, Formosa Plastics will continue to reinforce products such as prepreg carbon fiber used in wind turbines and superabsorbent polymers (SAPs). The NPC invested in optoelectronic grade PET film; the FCFC developed medical grade γ-ray resistant PP and PC; the FPCC continued to invest in oil product optimization, hydrogenated styrenic block copolymers (HSBC) and C5 hydrogenated hydrocarbon resin (HHCR).

In addition, all of the company’s spinoffs are striving to develop the green energy industry, including UV LED, LFPO battery, wind and solar power integrated system battery, biotechnology and medical care industries etc. in response to the global trend of energy conservation and carbon reduction. Meanwhile, the DRAM industry is also introducing the 20nm production technology, which is slated for certification and production in 2017 in order to cater to the need for smaller, lighter mobile device components in recent years.

As far as overseas operations are concerned, construction of the stainless steel plant in Vietnam has already begun, and we are striving to start operation in June 2016. Meanwhile, in response to the continual expansion of the Chinese domestic demand market and the future prospect of shale gas in the US, the Formosa Plastics Group’s expansion projects in China and America are also being rigorously carried out. In the future, we will closely monitor various related trends to devise response strategies and breakthrough all operational challenges.

For enterprises, regardless of how the external environment changes, their rock-solid quality and the ability to adapt to change are undoubtedly the fundamental prerequisites for responding to the dynamic and rapid transformations of globalization. Over the past six decades, the Formosa Plastics Group has remained conscientious, diligent, and committed to rationalizing various management measures, thereby establishing a solid foundation. In addition, the company also strives to accomplish good results in various industry developments. In the future, even more unpredictable challenges await us that must be overcome by applying the company’s discretion and strategic resources. In the era of intensifying global competition, the Formosa Plastics Group will continue to develop our technologies and differentiated products, and the company will strive to transform and improve. At the same time, we will monitor the market dynamics closely while rigorously making sure that our deployments will generate a brighter future with greater potential.
In view of the sluggish global economic growth and an operating environment that is full of uncertainties, the Company will not only continue to accelerate its development and expansion on differentiated products, but also increase its competitiveness in the international market based on a forward-looking and innovative spirit. The Company will continue to work toward its target of “Global No.1”.
The Company (Formosa Plastics Corporation) generated consolidated sales revenue of TWD191.54bn in 2015, reaching 97% of its target of TWD197.47bn and was down 11.6% from TWD216.59bn generated in 2014. Consolidated pretax profit came in at TWD35.09bn in 2015, reaching 139% of its target of TWD25.12bn and was up 71% from TWD20.43bn generated in 2014.

Dubai crude oil price dropped from USD52.6/b at end-2014 to USD31.78/b at end-2015, sharply down by almost 40% due to slowing economic growth in China, rising shale oil production in the US, strengthening US dollars, and no oil production cut by OPEC aiming to balance their financial budget and put pressure on the development of shale oil production in the US. The correction of crude oil prices affected prices of commodity feedstocks and products. Accordingly, the Company lowered petrochemical product prices to reflect international market situation, which leads to lower revenues in 2015.

However, the Company’s consolidated operating profit of TWD15bn significantly increased by 90% YoY in 2015 due to the fact that (1) the Company was able to increase capacity utilization rate from 84% in 2014 to 88% in 2015 given smooth operations. (2) Petrochemical margin expanded as major petrochemical product prices decreased less than the drop of raw material cost. The average cost of feedstock ethylene and propylene decreased 23% and 38% in 2015, respectively. (3) Sales volume and profits from differentiated products increased 21% and 155% YoY in 2015, respectively, due to successful developments on high-price differentiated products and continuous marketing developments into Africa, South Asia, New Zealand, Australia, South America, Russia, and other emerging markets. Furthermore, equity investment income from Formosa Petrochemical Corporation (FPCC) and Formosa Plastics Corporation USA (FPC USA) reached TWD20bn in 2015, which was up by TWD10.9bn from 2014. Accordingly, the Company’s consolidated pretax profit increased in 2015 and reached its highest level since 2012.

Looking back at 2015, although the economies of the US and Euro zone have shown steady recovery, Japan’s economic growth has stagnated, China’s economic growth has slowed down and demand has decreased during the process of industrial restructuring, which deeply impacted the economy of emerging countries that mainly exports to China and resulted in
weaker-than-expected global economic growth. This has also impacted Taiwan's economy, with GDP growth rate drops below 1%, which is the lowest level since year 2000. Aside from slowing global economic growth, increasing integration of international and regional economics is another reason. Asian countries have been aggressively developing and signing free trade agreements (FTA) and enjoy reciprocal trade tariff benefits from each other. However, Taiwan has had low participations on this. Taiwan's FTA trading amount accounts for less than 10% of its total trades after ECFA was effective. This has created obstacles for Taiwan, which is an export driven economy, to compete on international trade. It is also seriously marginalizing Taiwanese industries. Korea in particular, which has similar industry structure with Taiwan with 70% of export products overlapping with Taiwan, has replaced Japan and become the second largest trading country in China market. Because China is the largest export market for both Taiwan and Korea, Taiwan's export to China, which accounts for 40% of Taiwan's total exports, will be gradually replaced by Korean exports with China-Korea FTA trade benefits gradually increase. In addition, ASEAN Economic Community (AEC) was established in 2015, Trans-Pacific Partnership (TPP) and "ASEAN plus 6" regional comprehensive economic partnership (RCEP) will be entering into force in 2016, and China, Japan, and Korea will restart FTA negotiation. Taiwan not only has not participated these regional FTAs but also could not sign the trading agreement with China. This is likely to affect Taiwan signing FTA with other countries. If Taiwan government does not seek ways to overcome these obstacles, Taiwan is likely to be marginalized in the international trading market in the future, which is very negative for the survival and developments of Taiwan's industries.

Furthermore, Taiwan has been long suffering from fights and opposition between political parties, ineffective economic reform, inappropriate financial and tax planning, and environmental protection pressuring industry developments, which has negatively impacted both domestic and foreign investments. Overtime, Taiwanese companies are forced to invest overseas, which will create a hollow effect on Taiwan industries.

In view of all these risks, we sincerely expect Taiwan government to seriously face those issues and seek for solutions. On the external factors, Taiwan should try to sign the trade agreement with China as soon as possible, and this trade agreement should include the 5 major plastics and fiber raw materials for tariff reduction. Meanwhile, Taiwan should aggressively try to participate TPP and RCEP and sign FTA with major trading partners.
partners in order to create an equal competitive position in the international trading market. On the internal factors, Taiwan government should try to improve the investment environment by balancing environmental protection and business. The government should also establish environmental protection regulations that are applied throughout the whole country and provide tax policies that will attract investments, so that the local governments will not establish different regulations based on their own interest, and then companies can operate and invest in a healthy business environment to increase their competitiveness. This will help Taiwan’s economy to catch up with other countries and ensure sustainable economic development.

The major challenges in 2015 were slowing economic growth in China, rising competition pressure with regional economic integration, and falling petrochemical product prices given tumbling crude oil prices. Based on Formosa Plastics Group core value, we have not only accelerated on development of high value-added differentiated products and increased its sales contribution, but also aggressively diversified our market concentration risk. We have also developed strategic partnerships with our downstream customers to jointly develop new markets. Meanwhile, we have reviewed production, sales, and R&D of poor performance products in order to increase business efficiency. In addition, we adjusted our production and sales strategy along with the changes of macro-economic situation, raw material and product prices. We also re-exam the inventory levels of our raw material, finished goods, maintenance back-up, and accelerated disposal of pending materials and pending finished goods as well as spare materials in order to reduce the risk of falling inventory valuation and rising financial burden. Separately, we have set
up a technical unit to review the exclusive purchasing and contracting projects in order to reduce purchasing cost. In addition, we have established business, production process, and maintenance big data and industrial internet of things promotion unit to forecast future trends and find out potential problems and prepare for it. Through all the improvement measures discussed above, we are step by step seeking effective business process and enhancing our business operations in order to reduce the impact on the company from toughing business environment. In addition, we will continue to develop consolidation of our subsidiaries in Ningbo China (expect to be completed by end of 2016) in order to improve business operation and reduce tax expenses from trades among our China subsidiaries.

The Company and its subsidiaries in Ningbo, China mainly produce raw materials for plastics and fibers. Production volume of PVC in 2015 increased 113,000 tons from 2014 due to Ningbo PVC paste plant started production. Total sales of PVC reached 1.56 million tons in 2015, up 12% from 2014, as ethylene-based PVC production has become more competitive than carbide-based PVC production in China with falling ethylene price along with crude oil price correction. In addition, the Company’s PVC exports to India are exempted from India's anti-dumping duties. Sales volume of caustic soda reached 1.436 million tons in 2015, down 6% from 2014 due to reduced demand from Mailiao Power Corporation after it finished construction of its aeration basin in January 2015. Sales volume of HDPE increased 9% to 468,000 tons in 2015 due to (1) improving market demand given rising HDPE price along with rebound of crude oil price in the first half of 2015 (2) aggressively increasing order book in the second half of 2015 in view of ethylene price correction bigger than HDPE price correction (3) successfully developed cap
and closure grade, non-woven fiber grade and other differentiated HDPE products. Sales volume of EVA increased 22% YoY to 190,000 tons in 2015 due to (1) reduced supply of EVA in the market due to extensive maintenance shutdowns of EVA plants in China and Korea in the first half of 2015 (2) increasing orders on cable grade EVA and other differentiated products after successful developments. Sales volume of LLDPE increased 16% YoY to 214,000 tons in 2015 mainly due to (1) increasing shipments to Vietnam (2) successful developments of injection and rotation grade and other differentiated products, despite lower shipments on agricultural film in China due to expanding coal-based capacities. Sales volume of acrylic fiber decreased 15% YoY to only 30,000 tons in 2015 mainly due to (1) weaker demand from downstream yarn companies in view of falling AN prices (2) weaker demand from Iran due to international sanctions. Sales volume of acrylic esters (AE) increased 21% YoY to 412,000 tons in 2015 mainly due to (1) phase 2 new AE plant in Ningbo started production in July 2015 (2) expanding sales in Eastern and Southern China. Sales volume of carbon fiber increased 4% YoY to 3,300 tons in 2015 mainly due to (1) aggressively expanding sales in China, Korea, Russia, Italy and other markets (2) demand recovered from wind power generation companies in the UK. Sales volume of NBA (mainly for captive use by AE plants) increased 25% YoY to 215,000 tons in 2015 mainly due to Ningbo phase 2 new AE plant started production. Sales volume of SAP decreased 10% YoY to 76,000 tons in 2015 mainly due to weaker than expected demand on rising price competition from new capacities in China, as well as falling raw material prices and turmoil in the Middle East. Sales volume of PP increased 13% YoY to 891,000 tons in 2015 mainly due to (1) China is still short of PP (2) successful development of differentiated products such as healthcare use, water filter, high transparent pressure forming sheet (2) developing sales into Central and Southern American markets. Sales volume of AN increased 5% YoY to 280,000 tons in 2015, which is a record high level for the company given aggressive marketing. Sales volume of MMA increased 7% YoY to 84,000 tons in 2015 mainly due to increasing exports to China after China imposed temporary anti-dumping duties on Thailand, Japan, and Singapore in August 2015, which also led to higher MMA prices. Sales volume of ECH increased 5% YoY to 92,000 tons in 2015 mainly due to stronger than expected downstream epoxy market. Other products such as MTBE also saw stronger sales volume in 2015.

In terms of capacity expansion, in order to strengthen its competitiveness, the Company has been aggressively expanding capacities and conducting
debottlenecking projects. In 2015, the Company finished construction of 160,000 tpa AA and 170,000 tpa AE phase 2 plants, and 45,000 tpa SAP capacity expansion. The Company’s total AE capacity increased to 668,000 tpa and SAP capacity increased to 200,000 tpa after expansions. The expansion of 72,000 tpa EVA capacity is ongoing and expected to finish in the first half of 2016. In addition, the Company’s US subsidiary “Formosa Industries Corporation” will finish construction of a 400,000 tpa HDPE plant in Texas, USA in 2018.

In terms of equity investments, FPC USA (22.61% owned by the Company) generated pretax profit of USD1.29bn in 2015, up 13% from 2014. In order to expand production scale and continue to leverage on shale gas low cost advantage, FPC USA is constructing a 540,000 tpa PDH plant and a 400,000 tpa LDPE plant. FPC USA has also jointly invested in a new ethane-based ethylene plant with 1.2 million tpa capacity with the Company’s US subsidiary “Formosa Industries Corporation”, which owns 33% of this new plant. All expansions are expected to finish and start production by end of 2019. Separately, Fujian Fuxin Special Steel Corporation (25% owned by the Company) suffered losses in 2015 due to (1) serious price competition given oversupply of stainless steel in China (2) nickel, which is the raw material for 300 series, saw 42% of price collapse and resulted in inventory loss. Looking into 2016, losses are expected to decrease given (1) high-price raw material and finish products have decreased (2) acceleration of development on 400 series super ferritic stainless steel, which will not have price fluctuating along with changes in nickel prices. Furthermore, Formosa Ha Tinh Steel Corporation, which the Company owns 12.34% equity stake, is constructing an integrated steel plant in Ha Tinh Province, Vietnam with 7.1 million tpa steel billet capacity. The plant has started production of hot rolled coil in December 2015. The two blast furnaces will start production in first half of 2016 and first half of 2017, respectively. Separately, in order to expand end-application of carbon fiber and increase sales volume, the Company (invested 18% equity stake in 2015) and Swancor Industrial have jointly established “Sunwell (Jiangsu) Carbon Fiber Materials Co., Ltd.” to produce presoaked carbon fiber cloth for wind power and other carbon fiber compounds for bicycle and automobile in Yancheng City, Jiangsu Province, China. Production at this plant is expected to start in the first half of 2016. In addition, in view of the growing demand of lithium-ion battery solution in China and strong growth of electric vehicle and storage stations, the Company and Mitsui Chemicals (Japan) have formed a 50:50 joint venture “Formosa Mitsui Advanced Chemicals Co., Ltd.” in Ningbo to gain business and expand investment area. The first phase construction of a 1,500 tpa battery solution plant is expected to finish and start production in the first half of 2016, and the second phase construction of a 3,500 tpa battery solution plant is
expected to finish by end of 2018.

In terms of research and development, the Company spent TWD1.45 billion on R&D in 2015, which accounts for 0.91% of the Company’s revenues. These R&D expenses are mainly used in developing new formulation, improving production process, increasing product quality, conserving energy consumption, and developing human resources, in order to increase production capacity and lower cost. Meanwhile, in order to conduct R&D on industrial production technical and commercialize specialty products such as low odor PVC for automobile artificial leather application, copolymer paste PVC resin for automobile underbody coating, impact modifier for engineering plastics, non-woven fiber grade HDPE, cap and closure grade HDPE, coating grade EVA, rotation molding grade LLDPE with UV stabilizer, fast absorption speed SAP, thick denier flat flame retardant fiber, prepreg for wind blade application, PP for baby stroller and contact lens mold, PP for infusion bags, and low stress whitening PP. Among these products, the Company’s PVC, PP, PE, SAP and other differentiated products have successfully developed into baby strollers, automobile, contact lens, infusion bags, optical and protection film for medical use and other high-end application markets. Profit contribution from differentiated products have surged from 23% in 2014 to 34% in 2015, which is a clear indication that the Company has achieved great results on developing new markets and increasing added-value on downstream products. In addition, the Company will continue to participate technology innovative R&D projects supported by the government, academia, and research institutions, which will help the Company to further enhance its existing technology and product quality, understand industry trend and market demand, and expand end applications of existing technology and products. Meanwhile, in view of the rising demand for new technology from Internet of Things, Automations, and Bio-tech materials, the Company will (1) accelerate its cooperation with industry, government, and academics (2) aggressively connect key technology in the international market with clients (3) evaluate feasibility of technology upgrade and expansion of new end-application markets, in order to strengthen its R&D capability and the Company’s competitiveness.

In terms of operational safety and environmental protection, the Company has always been putting equal emphasis on industry developments and environmental protection. As of the end of 2015, the accumulated investments on operational safety, environmental protection, and firefighting has reached TWD17.6 billion, which was mainly used for pollution prevention and control, saving energy and reducing waste, reducing greenhouse gases and improving operational safety and firefighting. The Company’s treatment on pollutants and emissions is better than national regulatory standards. In 2015, our Linyuan PP plant received the “Occupational Safety 5-Star Award” from the Ministry of Labor. Our Mailiao HDPE plant was rewarded for excellence in labor safety & hygiene by the Yunlin County Government. Our Linyuan VCM plant was also awarded by the Kaohsiung City Fire Department for excellent fire protection management. Meanwhile, our Renwu complex was selected by the EPA of Kaohsiung City Government as “Excellent company for air purification area adoption”, and Renwu Utility plant was also awarded by the EPA of Kaohsiung City Government for “Excellent company for Continuous Emission Monitoring Systems (CEMS)”. The Company accomplished 164 improvement projects in 2015 in an effort to save water and energy consumed as well as to reduce greenhouse gas emissions. Total water saved amounted to 767 MT/day while greenhouse gas emissions reduction reached 173,971 MT/year. Another 170 improvement projects will be accomplished in 2016, which would further conserve water by 957 MT/
day and reduce greenhouse gas emissions by 75,892 MT/year. In order to further enhance the performance of energy saving and carbon reduction, the Mailiao Complex conducts quarterly performance evaluation on water, electricity, and steam consumption target rates, improvement of unit energy consumption rate, and rainwater recycling rate. In addition, to ensure operation safety and lower the possibility of occupational incident, the Company started implementing in full scale of “Execution Implementation SOP – Full Participation” in 2015. In addition to encouraging proposals from employees, the Company organized observation and idea exchange activities for different factories and different divisions to ensure effective implementation and positive results. Furthermore, in view of the dust explosion at Formosa Fun Coast, the Company checked for similar and potential risks at all factories and conducted full scale check on production equipment and fixed any abnormal operation. The Company also increased the implementation of RBMI operation and training certification, and continues to promote “processed water not touching ground”, in order to prevent environmental pollution. The Company expects to ingrain the emphasis on workplace safety and environmental protection by quarterly reviewing the performance of operational safety and environmental protection, sharing of improving cases and experience, and to manage to reach the goal of “Zero damage, Zero pollution and Zero accidents”.

Looking into 2016, US economy is expected to continue with its growth. Euro zone and Japan should continue with its easing monetary policy to stimulate economic growth. India and other emerging countries should maintain steady recovery. However, over capacity in China and relatively high property inventory, continuation of supply-side structure reform (from investment and manufacturing driven economy to consumption and service driven economy) will lead to slowdown of economic expansion in China and weaken its import demand for bulk commodity and products. This will also impact economic performance of other emerging countries that rely mostly on exporting goods to China and also lead to weaker global economic growth. Therefore, international agencies expect global economy to only recover gradually and slowly.

In addition, according to the forecast by IHS Chemical, global ethylene capacity expansion is around 7 million tons in 2016, which are mainly located in India, Middle East, North America, and China. Global supply and demand of ethylene is rather balanced. However, due to low development cost of shale gas in the US given breakthrough of drilling technology, there are 7 ethane crackers investment plans with a combined new ethylene production capacity of 10 million tpa in North America, which are likely to finish construction between 2018 and 2019. While only 10% of ethane are used as energy material, the impact of rising production has very limited impact on Asian market due to constraints on transportation and shipping capacity, storage capacity at ports, and pipelines. In addition, the cost and investment is very high to restructure existing naphtha cracker. So far only Reliance in India imports ethane. Separately, due to improving coal-chemical technology in China, there will be roughly 5 million tons of new coal-based ethylene capacities in China in 2016-2020. However, investments for coal-based ethylene capacity are very high. Coal-based chemical production is less competitive in a low crude oil price environment. New policies in China do not encourage developments of coal-to-chemical investments. In addition, coal-based chemical production has environmental protection issues such as large consumption of water and electricity and high emission of CO2 etc. Around 2/3 of the new coal-based chemical investment plans have been on hold or postponed. Therefore, it should be only
limited impact on Asian market. Countries in the Middle East do not have cheap natural gas advantage anymore except for Iran. However, Western countries’ sanctions on Iran have been removed in January 2016. The construction of natural gas separation plants in Iran will be able to continue without the restriction on importing equipment and important parts. This will increase capacity utilization rate of ethylene plants and downstream derivative plants in Iran. Nonetheless, exports of ethylene or ethylene derivatives from Iran are only expected to increase 20-25% YoY in 2016, and these exports are likely to be sold to Europe first given higher prices there. Therefore, the impact on Asian market should be limited as well. Overall, petrochemical market in 2016 is expected to be flaitish versus 2015.

However, in order to reduce the pressure of economic slowdown and prevent a hard-landing situation, China government has established Asian Infrastructure Investment Bank, deepened “One Belt, One Road” strategy, and increased monetary easing. The result of these policies is remained to be seen. In addition, we still need to be conservative in view of uncertainty factors on whether bulk commodity and product prices will continue to fall, whether the US will continue to raise interest rate, which is likely to lead to downside risk for the market, and geopolitical risks in the Middle East and Africa, which are likely to impact global economic growth outlook and petrochemical market.

For this new year, the imbalance between supply and demand is likely to continue in 2016 given China economic situation unlikely to improve in the near-term, and some products have already become oversupplied in China, which accounts for 45% of the Company’s total exports. However, IEA expect global crude oil market to remain oversupplied and crude oil price is unlikely to increase significantly. This has translated to stronger competitiveness for naphtha-based petrochemicals versus coal-based petrochemicals. Ethylene price in Asia is likely to stay high due to tightening supply on maintenance shutdowns and operational issues of naphtha-based olefin cracker in Asia, which could pressure the operating performance of ethylene derivatives. In addition, propylene price has decreased due to oversupply in Asia on the back of PDH capacity expansions in China and rising production of propylene from oil refineries. This translates to lower production cost for the Company’s propylene derivative products. Nonetheless, China is still short of PE and PP and needs to import large amount every year, which is good for the Company. In addition, the Company’s new 72K tpa EVA plant in Ningbo is expected to start production in the first half of 2016, which should add on to the Company’s business momentum.

In view of the sluggish global economic growth and an operating environment that is full of uncertainties, the Company will not only continue to accelerate its development and expansion on differentiated products, but also increase its competitiveness in the international market based on a forward-looking and innovative spirit. The Company will continue to work toward its target of “Global No.1”. In addition, the Company will increase sales contribution of markets outside of China to lower its concentration risks, as well as establish technical service units in the overseas market to provide service to customers. Meanwhile, the Company will establish Industrial 4.0 unit to increase product quality and capacity utilization rate through applications of big data, cloud computing, and Internet of Things. Furthermore, by continuously promoting its No.6 Naphtha Cracker phase 4.9 plan and investments on ethane cracker and HDPE plant in the US, which are all expected to become new growth drivers, the Company will overcome all different operating difficulties and once again generate good operating performance.
Of all the investments we have made, PET film production equipment is estimated to go into production in Taiwan in the second quarter of this year, while copper foil, PVC film, and PVC pipe production equipment are estimated to go into production in mainland China in the first half of this year, all of which will generate great profits for our company.
The consolidated operating revenue of the company in 2015 was US$9,066 million, a decrease of 7.9% from US$9,843 million in 2014. The consolidated profit before taxes was US$1,320 million, an increase of 26.6% from US$1,042 million in the previous year.

The global economy in 2015 continued to be sluggish, with the most stagnant economic growth since the start of the financial crisis in 2009. Major exporting countries around the world exhibited poor performance due to falling energy and bulk material prices, slow trade and capital flows, aggregated fluctuation in global financial markets, and weakened motivation in economic growth. With the exception of the U.S., UK, and a few other countries that showed slight economic growth, most emerging countries around the world exhibited economic downturn and devaluation. Excessive supply and insufficient demand in mainland China as well as severe fluctuations in financial market and stock exchange market have imposed a significant impact on Asia’s economy and, to a certain extent, even the world’s economy.

Despite such a complex, unstable, and harsh external economic environment, our company has been striving to expand both domestic and foreign markets, develop high value and differentiated products, commit to whole production and marketing, and improve percentage of high value products, all of which have contributed to a more prominent profit growth in the first three quarters of 2015 when compared to the same periods in 2014. However, in the 4th quarter of 2015, falling oil prices and decreased demand in mainland China caused the price of EG to fall below its variable cost, resulting in a significant cutback in EG production and an adverse impact on partial profit gain. Nevertheless, since falling oil prices also made the raw material costs of most products to drop accordingly, coupled up with effective market expansion promoted by the sales department, all products yielded increased profit gains amongst a growing sales volume in 2015. Furthermore, increased investment in Formosa Petrochemical Corporation has allowed our company to gain 26.6% more profit than that made last year.

Our company mainly manufactures four kinds of products: plastic processing products, petrochemicals, electronic materials, and polyester.

With regard to plastic processing, considering labor costs, land costs, and the need for proximity to both downstream markets and material sources, most three-stage plastic processing companies in Taiwan have moved their manufacturing plants to mainland China and Southeast Asia, which has significantly decreased the demand for domestic two-stage plastic processing products and imposed great difficulties on domestic industries.
In response to market transformations and negative external factors, our company has been proactively adjusting our business strategies. In addition to shifting part of our traditional production lines to subsidiary companies overseas to supply our clients with required materials, our headquarters in Taiwan has also continued implementing overall industrial transformation, such as reviewing the marginal contribution of each product, replacing unprofitable products with profitable ones, accelerating the development of products with “new functions, new materials, eco-friendliness, and added values”, expanding new markets, increasing the sales proportions of differentiated and high value products, and reinforcing production and marketing cooperation and strategic alliances with foreign manufacturers. By adjusting our products manufactured in Taiwan, mainland China, and the U.S., we aimed to find the best production and marketing combination in accordance with overall market characteristics in order to seek the greatest profit from emerging markets with sales potential. Thanks to a variety of efforts, we are still able to gain stable profit from plastic processing products.

With regard to petrochemical products, in response to the vertical integration of the sixth naphtha cracker plant in Maillao District, petrochemical products, including EG, BPA, 1.4BG, DEHP, PA, 2EH, and EPOXY, were manufactured to support development in such respective downstream industries as the polyester industries, electronic industries, and plastic processing industries. By vertically integrating upstream suppliers and downstream buyers, a complete supply chain was formed. In 2015, due to falling global oil prices, the prices of petrochemical products have also decreased. However, EG has managed to generate increasing profits due to the rising utilization rate and new polyester
production capacity that went into production in the first half of 2015. Despite reduced production due to prices that were insufficient to cover costs during the 4th quarter, increased annual profits were seen by the end of 2015. On the other hand, BPA and DEHP were met with excessive supply and fierce competition from mainland China. Despite operational difficulties, sales performance has begun improving since the business department started promoting market expansion. Furthermore, the expansion project for the BPA plant in the Ningbo District of mainland China was completed and went into production in the first half of this year. By adjusting manufacturing processes and expanding new markets, we hope to gradually see improvements in future business performance.

Although petrochemical products are intrinsically vulnerable to fluctuating global oil prices, our company is still devoted to making improvements through different approaches, including controlling inventory, performing effective management in sales and material purchases, expanding markets in regions besides mainland China, and implementing market segmentation. By doing so, we are able to increase our profits over time despite the drastic fluctuations in oil and raw material prices.

With regard to polyester products, due to the falling oil prices in 2015, both rising inventory costs and an economic slowdown in mainland China have contributed to fierce competition in polyester production this year. Amongst them, our PET resin and PET film production faced capacity expansion and price competition from other companies, which inflicted great difficulties on our business operations. Despite such negative external factors, our company has been proactively adjusting product combinations, such as developing differentiated and functional fibers, expanding markets for PET film, and improving sales of differentiated and high-priced products made from polyester staple fiber and filament, in order to increase overall profits this year. In the future, we will continue to follow market
trends to promote environmentally friendly and green products, develop special purpose film to meet customer demands, and reinforce customer loyalty and cooperative relationships. By cooperating with other brand names, we are aiming to create business opportunities together and facilitate stable sales and profit growth in the near future.

Our polyester plants are distributed throughout Taiwan, the U.S., Vietnam, and mainland China based on regional market characteristics and conditions so that we can make production and sales adjustments in a timely manner in order to meet different regional demands. By doing so, we hope that our operational performances can give rise to the advantages gained from transnational operation.

With regard to electronic material, due to global economic recession, the demand for traditional personal computers and laptops has declined significantly, and the sales volume of mobile communication devices such as smartphones and tablets has slowed down as well. Cloud servers and vehicle electronics are the only products that have shown any growth this year. Since portable electronics have become a mainstream in modern society, competitions among electronic material industries have turned fierce. Faced with significant transformation in product development and application, we responded by reinforcing our current copper clad laminate (CCL), epoxy, glass fiber cloth, and copper foil supply chains and making investments in PFG Fiber Glass Corporation to manufacture glass fiber yarn. In addition to making adjustments
to production and sales strategies over time through vertical integration, we have been dedicated to promoting product quality certifications for major clients and cooperating with brand names from Japan, Europe, and the U.S. to promote High Density Interconnects CCL(HDI), High Layer Count CCL(HLC), Phenol Novolac Epoxy resin, ultrathin glass fiber cloth, and ultrathin copper foil to increase the sales volume of high value and high functional products. By doing so, we hope to increase the profits generated from reinforced product combination.

Since the manufacturing base for printed circuit boards was shifted to mainland China, we have been proactively expanding our markets in mainland China for several years by establishing a series of upstream electronic material supply chains for printed circuit boards in regions such as Kunshan District, including manufacturing plants for glass fiber yarn, glass fiber cloth, copper foil, Epoxy, and CCL, in order to realize the potential of vertical integration. Since trade policies in mainland China have gradually transformed from export-oriented to inward-consumption strategies, we expect the demand in raw materials for printed circuit boards to grow. Therefore, we have been increasing capacity utilization for each product to bring overall production capacity into full play. Furthermore, by adjusting production and sales operations in manufacturing plants on both sides of the strait, we have committed to improving our business performance in future days.

Since Nan Ya Printed Circuit Board Corporation, to which we made investment, has continuously improved manufacturing technology and product yield by cooperating with international electronic brand names in manufacturing high layer count PCB and IC substrate, it has been able to maintain stable market share for a long time. In addition to promoting business strategies for product diversification, Nan Ya Printed Circuit Board Corporation responded to shrinking semiconductor manufacturing processes and improved SiP techniques by launching mass production in SiP modules based on its excellent product R&D techniques.
and manufacturing process management. By listing vehicle electronics among its mainstream manufacturing products, Nan Ya Printed Circuit Board Corporation has committed to expanding its target groups and production lines. In the future, the company expects to gain more market share and expand its niche markets to enhance its overall business competitiveness.

Nanya Technology Corporation, another company which we made investment in, is dedicated to developing, manufacturing, and selling dynamic random-access memory (DRAM). To reduce operational risks and follow market trends, Nanya Technology Corporation has focused on manufacturing consumable and low-power niche DRAM products. In 2015, the company continued to improve its 30 nanometer technology production capacities, so as to develop, qualify and launch mass production in shrink products to reduce production costs. In the future, the company plans to introduce 20 nanometer manufacturing process technologies to increase its product competitiveness. With a stable DRAM industrial environment, the company can maintain certain profits and contribute to investment returns to our company.

Looking toward the 2016 economy with a macroscopic view, since the negative factors that have impeded global economic recovery are not yet alleviated, the global economy will continue to be sluggish: Developed countries will not be able to show growing demand in the near future; most emerging countries will still exhibit overcapacity; European and Japanese Central Banks will continue to have limited power in reviving consumption and investment from a quantitatively easing monetary policy; and the U.S. will intensify financial market fluctuations due to opinion discrepancies in its positive interest rate policy. Furthermore, unpredictable oil price trends, global terrorist attacks, and chaotic Middle Eastern geopolitics will all contribute to impeding global economic recovery and may even trigger the next global economic recession.

Since mainland China has been undergoing industrial structural transformation, it will face complex problems related to economic trends that are estimated to drop this year. Currently, mainland China is transforming from an export-oriented country to an inward-consumption country, leading to a reduced national demand for imported products. To support its domestic manufacturers, mainland China has continuously promoted localization in its industry chains and established the Red Supply Chain, which has resulted in severe export restriction on Taiwan, who relies heavily on mainland Chinese markets. Furthermore, stagnant progresses in ECFA, TPP, and RCEP have dropped Taiwan out of the global value chain, causing long-term economic growth to remain stagnant. Extra efforts must be made for economic recovery.
An unstable global environment and uncertain risks can severely impact economic development. Since global economic recovery has become more unpredictable and challenging, in addition to upholding a business philosophy of diligence and ultimate excellence in the pursuit of constant improvement and management rationalization, we have also been paying close attention to global economic trends, industrial dynamics, and policy changes in mainland China. In response to current trends, we have been reviewing our business strategies and stipulating responsive measures to adjust our industrial structures and eliminate unprofitable products over time. By improving a variety of aspects, we continue to reinforce R&D, expand current markets, and raise the sale proportions of highly differentiated and high value products. By making Taiwan the center of our business operations, we have also been adjusting resources from domestic and foreign companies in which we have made investments in order to locate the best production and sales combination. With rich experience in diversification strategy and vertical integration, we are committed to maintaining risk diversification, thus increasing our overall competitiveness and achieving maximum returns to our stockholders.

Of all the investments we have made, PET film production equipment is estimated to go into production in Taiwan in the second quarter of this year, while copper foil, PVC film, and PVC pipe production equipment are estimated to go into production in mainland China in the first half of this year, all of which will generate great profits for our company. By using cheap natural resources such as natural gas in Texas, we are planning to expand new EG plant by an annual production capacity of 82.8 tons. This new plant is predicted to go into production in the third quarter of 2018. For future investment emphasis, we will make investments based on market demands and risk diversification. By gathering corporate resources, making investments on key products, stipulating effective production and sale strategies, and referring to invaluable business experiences from both home and abroad, we will strive to expand our product and business scale to ensure the sustainable expansion and growth.
In terms of the textile fiber products, its unfavorable revenue and profits in 2015 resulted from the decrease in market demands and the mainland’s low-price competition. The company aims at lowering the costs and increasing the profits by diversifying its own products, improving its quality, enhancing the material purchase control and management, adjusting production scale, and executing the energy-saving projects.
In 2015, the company's consolidated revenue amounted to US$ 10 billion for 2015, with an amount of US$ 2.2 billion less than and 18% down from its 2014 consolidated revenue, which amounted to US$ 12.1 billion. This was due largely because of the plunging prices of petrochemical raw materials and their commodities. The sales price had a decrease of US$ 2.8 billion, with the sales volume reaching US$ 0.6 billion. Fortunately, the company profited US$ 1.1 billion in 2015 prior to the consolidated tax, which had increased by 129.3% from NT$ US$ 0.5 billion in 2014, because of the falling prices of raw materials, the strictly controlled stock that had avoided the losses of its falling price, and with the increasing scale of sales volume, cost reduction, and the profits from their joint ventures.

Due to the currency devaluation, the U.S. interest rate hike, and oil price fluctuation, the economic development of every country for 2015 was not as optimistic as had previously expected. Especially for Mainland China, the fact that its economic growth rate went down 6.9% and had hit a 25-year low that had caused the largest impact on the global economic situation. Besides, the announcement that the US Federal Reserve gave on December 17, which resulted in an increase in rates, rising 25 basis points and had ended the period of the Fed's "zero interest rate" policy. In addition to this, the European Central Bank took actions by making a rate cut and extending the relative easing policies such as QE while the People's Bank of China had announced a rate cut in a row and successively lowered key interest rates since November 2014. Meanwhile, in order to improve the economic growth rate, the Central Bank of the Republic of China had rarely cut rates by 12.5 base points. Along with the imbalance of supply and demand as well as manmade manipulation, these economic changes have caused the oil price to decrease by 70% from the second half of 2014 to the end of 2015, which led to volatile fluctuations amongst global commodities as well as the financial markets.

The dollar's strength had led to a sustained period, with the fact that the currencies of other important countries continues to devalue, which makes every country strive to boost their own economy with currency devaluations and the easing monetary policies. In 2015, the stock market, being affected by the factors like the domestic and international politics as well as media reports on bad news, the economic growth rate of Taiwan increased a merely 0.75%, the lowest percentage increase over the past six years. Facing the decline of global demands, most
countries have suffered from the import and export slowdown. Although Mainland China continuously furthers its easing on their monetary policy, which enhances the supply-side’s structural reform, and their economic growth remaining very slow. The fact that Taiwan highly depends on Mainland China, which absorbs more than half of Taiwan’s export products, makes Taiwan vulnerable to the mainland’s situation regarding economic recession. Encountering the price plunge of the international oil that devalued the petrochemical and plastic products, this company had a significant decrease in its consolidated revenue for 2015, compared to that for 2014.

The total consolidated revenue for 2015 decreased by US$ 2.2 billion, compared to the total consolidated revenue for 2014. The parent company of FCFC had a decrease of NT$ US$ 1.7 billion, as other joint ventures had a decrease of US$ 0.5 billion.

The net sales of the FCFC parent company amounted to US$ 5.6 billion, making up 55.7% of the consolidated revenue for 2015. Other joint ventures such as the subsidiary companies in Ningbo, Vietnam and Formosa Taffeta Company had a net sales amount of US$ 4.4 billion, making up 44.3% of the consolidated revenue for 2015.

Among the products of the FCFC parent company, the petrochemical and plastic products have been the products that have brought the largest revenue. The net sale of these products had reached 87.8% of the total revenue of the parent company in 2015. The details are as follows:

The net sales of the petrochemical products amounted to US$ 3.3 billion for 2015, making up 59.6% of the total revenue of the parent company, yet it had decreased by 28.8% as compared to the net sales for 2014, which amounted to US$ 4.7 billion. The sales volume for 2015 reached 3.495 million tons and had increased by 4.9%, compared to the sales volume for 2014, which amounted to 3.331 million tons.

Secondly, the net sales of plastic products amounted to US$ 1.6 billion, making up 28.2% of the parent company’s revenue, yet decreased by 16.1% as compared to the net sale for 2014, which was US$ 1.9 billion. The sales volume for 2015 reached 1.22 million tons and had increased by 5.4% as compared to the sales volume for 2014, which reached 1.17 billion tons. The sales volume of the petrochemical and plastic products was more than the sales volume in 2014; but the net sales had decreased because of the lower prices.
The net sale of the textile fiber products reached US$ 0.5 billion for 2015, making up 8.8% of the parent company’s revenue, yet it had decreased by 12% as compared to the net sale in 2014, which amounted to US$ 0.6 billion. The sales volume for 2015 reached 199 thousand tons, yet it had decreased by 1%, versus the sales volume for 2014, which had amounted to 201 thousand tons.

In terms of the product operation, the details of the petrochemical products are as follows:

The company’s output of the aromatic hydrocarbon products had reached 3.746 million tons in 2015, increasing by 1.2% as compared to its 2014 output, which amounted to 3.703 million tons, largely because the ARO-2 plant had improved the Xylene’s productivity, debottlenecked the relative equipment, and had replaced the original one with the new alkylation accelerants. In 2016, the ARO-1 plant is schedule to the annual plant checkup, the output of OX will operate on only 40% of its capacity due to the lower downstream demand. Even so, the prospect that the planned output of other production lines will reach 3.88 million tons that may guarantee the source of the company’s intermediate materials between benzene and PX, as well as lowering the costs.

The actual output of Styrene Monomer in 2015 had reached 1.349 million tons, increasing by 0.5% as compared to the actual output in 2014, which amounted to 1.342 million tons. In 2014, an annual plant checkup had been done with results showing that the SM-3 plant had produced the most output, and that the SM-1/2 plants had produced a smaller output amount. In 2016, the company shall only arrange the SM-3 plant to undergo a boiler slotting check; with the planned output of production for this year being estimated at 1.408 million tons.

Based on Asia’s sustainable balance between demand and supply in Styrene Monomer, the company may proactively explore the import and export market by utilizing the vertical integration of the Mailiao industrial site, and taking advantage of the short delivery to supply the back-end PS and ABS plants as well as to strive for high-profit margin overseas orders.

The actual output of the synthetic phenol (including the phenol and acetone) plant for 2015 had reached 759 thousand tons, which had increased by 15.22% as compared to the actual output for 2014, which amounted to 659 thousand tons. It is mainly because that the production lines in 2015 were all in operation while many production lines in 2014 had underwent annual plant checkup. The company plans to arrange the boiler slotting check in 2016, with the planned output for the coming year being estimated at 751 thousand tons. The overseas Ningbo synthetic phenol plant has being served since April 2015 but had been temporarily de-rated in order to face the impact from its counterparts’ increasing capacity. The plant will raise its capacity depending on the market while expanding its market share in the neighboring regions.
Southeast Asia, Mainland China, Japanese, and other potential markets, that require tax refunds in product processing. By doing so, the company is fully about to maintain production capacity of the PTA-1 and the PTA-3 plants while having its planned output for 2016 amount being estimated at 1.328 million tons.

As the Lungde PTA-4 plant transformed, it had begun to produce PIA, while the plant with the two-year efforts has made a quantum leap in production, marketing, and product quality while winning its market reputation. In 2015, its actual output rose to 194 thousand tons, increasing by 19% as compared to the actual output for 2014, which reached 163 thousand tons. Even though facing intense competition with its global counterparts, the plant continues to profit because of its high-quality products taking advantage of the production cost. The planned output is 196 thousand tons in 2016, and marketing strategy is focusing on the markets in Mainland China, India, Middle East, and Northeast Asia in expanding the market shares for their full-scaled production and sales.

The actual output of PTA in 2015 rose to 1.246 million tons, increasing by 4.9% as compared to the actual output for 2014, which amounted to 1.118 million tons. The reason here is that, after the domestic counterpart Tuntex Petrochemical Inc. had suspended its production line that could produce 440 thousand tons in annual capacity, while the company continues to strive to supply parts of Tuntex’s customers. The domestic sales volume had thus amounted from 88 thousand tons a month in 2014, to 95 thousand tons a month in 2015. Over the past few years, Mainland China’s PTA has been self-sufficient and even had the capacity to export goods, while its import volume had been small with an unfavorable price. Besides, the exported products from Taiwan to Mainland China having an interest margin, which had in return reduced the interest by 6.5% for customs duty. The company thus continues to set its marketing strategy for 2016, by mainly focusing on the domestic market that may bring marginal incomes and produce taxes on exported products. These export products not only could supply the Formosa Industries Corporation in Vietnam, but it can also be digested by the Southeast Asia, Mainland China, Japanese, and other potential markets, that require tax refunds in product processing. By doing so, the company is fully about to maintain production capacity of the PTA-1 and the PTA-3 plants while having its planned output for 2016 amount being estimated at 1.328 million tons.

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In terms of plastic products, and even though the product price was lower than the price for 2014 because of the falling oil prices, the sales volume of each plastic product, attributed to the lower stocks from the downstream users and the rigid demand, is larger than that in 2014 and had increased by 5.4%. Looking onwards into 2016, one can expect that the easing monetary policy may recover and stabilize the current economic situation, and that the overall sales volume may increase compared to that for 2015, as the rigid demand continues to grow. The goal of the company is to keep on focusing in diversifying markets and market expansion in Euro-American countries, Southeast Asia, Middle East, and other areas while lessening the company’s dependency on the mainland’s market. Moreover, it also aims at improving the quality in their products and customer services, serving different communities, developing new specifications, furthering the cost and inventory control, improving each kind of management, and enhancing itself competitively to increase profits.

In terms of PS products, its actual output in 2015 was 329 thousand tons, an increase of 2.8%, as compared to the actual output for 2014, which reached 320 thousand tons. Meanwhile, its sales volume rose 5.5% as the export trade that made up 78.9% of profit, had still played the main role in sales. Because the product quality and delivery remained stable, and the diversified market had a positive result, the company’s sales ratio in Mainland China had gradually decreased and had made up 53% of the total export volume in 2015. The production glut in Mainland China thus caused less impact on this company. From now on, the company should continue to aim at diversifying products, increasing product values, and enhancing technique support and its after-sales service. In addition to stabilizing the orders from the Middle East and expanding the Japanese, Vietnamese, and the Central and South American markets, the company shall strive to expand the markets of underdeveloped countries in Southeast Asia with hopes to increase the sales ratio of direct customers respectively. The domestic output may rise to 335 thousand tons in 2016.

In terms of the ABS products, its actual output in 2015 was 396 thousand tons, remaining flat, similar to a production output in 2014, which had also amounted to 396 thousand tons, while its sales volume slightly increased by 0.3%. The demand and supply of the product remained stable as the market became recessive because of the oil price and material price. The production of the ABS products in 2015 remained in excess. The company intended to maintain the sales volume by enhancing sales in America and other areas. In 2016, the company will continue to explore the special-grade products with higher thresholds and higher adding values as well as to intensify diversification. In addition, the company will focus on the markets in America, the Middle East, Vietnam, and other areas to avoid the general malignant competition in the mainland market while looking forward to further growths in sales. The planned output for 2016 in Taiwan aims to be 418 thousand tons.

In terms of the PP products, its actual output in 2015 was 490 thousand tons, increasing by 8.6%, compared to that in 2014, which amounted to 451 thousand tons, while its sales volume increased by 10.2%. This was because the company did not conduct any slotting inspections in 2015, while the market responded favorably to a commodity-product spread, which was positive with the profits from full-scaled production and sales having been increased. The company looks forward to grow stably in 2016. It focuses on developing highly flexible and lightweight products to meet customers’ needs and on taking advantage of the ECFA customs duty of the impact copolymer to further adjust the production specification and to develop customized and high-value products. Even
though the output for 2016 may decrease because of the slotting inspection, the company will use this period to start a debottleneck project to raise the annual planned output to 502 thousand tons. Additionally, in order to avoid the over concentration on the mainland market, the company will keep exploring other markets in Indonesia, Vietnam, Malaysia, America, the Middle East, Japan, as well as other countries.

In terms of PC products, its actual output in 2015 was 196 thousand tons, increasing by 6.5% as compared to that in 2014, which amounted to 184 thousand tons. The impressive performance in 2015 resulted from that year’s better market than that of 2014. The company, based on the stable demands with its lesser expansion of new capacities, had strived to increase its output, even though the price of raw materials kept falling. In 2016, the company will continue to lower the sales ratios of the optical-grade PC pellets, and in turn to promote the general-grade products including the products with anti-UV specifications, newly developed high-molecular-weight products, and other products with clean-grade specifications derived from the application field of spectacles and thin optical films. The planned output of these products will rise to 200 thousand tons. Regarding marketing, the company will enhance sales in the Southeast Asian and Middle Eastern markets and then expanding to the Euro-American market. It strives to raise the general-grade and special-grade sales ratio from 44.8% in 2015 to 51.5% in 2016.

In terms of the textile fiber products, its unfavorable revenue and profits in 2015 resulted from the decrease in market demands and the mainland’s low-price competition. The company aims at lowering the costs and increasing the profits by diversifying its own products, improving its quality, enhancing the material purchase control and management, adjusting production scale, and executing the energy-saving projects. Facing the intense market competition and the fluctuation of wood pulp sources, the company intends to increase the rayon output and decrease the loss by fully realizing both the material and the commodity markets, as well as cultivating the diversifying markets of high-value products, including that of the high-wet-modulus cotton, disposable cotton, and colored cotton. Meanwhile, it also combines the back-end textile production to develop the functional textiles that meet customers’ need. In terms of Nylon, the company bears more and more sales pressure as the mainland newly develops its polymer and raw silk capacity. For improving management ability, the company will accelerate product diversifications, exploring new markets, and to reorganize the production-sales combination to concentrate on production, increase the operation rate, and to lower costs. With high-quality raw silk, it aims at integrating the upstream, midstream, and downstream sales channel in order to increase profits.
Regarding the overseas investments, the Ningbo plant had less revenue and profits in 2015 than it did in 2014. It is because that the over production in the mainland, the adjusted structure, and global economic recession in 2015 resulted in a series of outcomes such as economic malaise in the domestic and the export markets, the commodity’s price falling of the decline in oil prices, along with an RMB exchange rate loss. In 2016, China’s Central Economic Work Conference will promote supply-side reforms by proposing five strategies, "cut excessive industrial capacity, lower corporate costs, de-leveraging, destocking, and improve weak links." The year 2016 is a crucial year for the mainland's economic transformation. When promoting supply-demand reforms, the company also proactively stabilizes the demands to prevent economic fluctuation. The company looks forward to the improvement in operations as well as its performance, with the commodity price rising with the price of oil.

Additionally, Formosa Industries Corporation, the joint venture company with Nanya Company, in Vietnam, engages in the production and sales of textile, nylon, fibers, plastic, and electronic power materials. Its revenue in 2015 was less than that of 2014, when its profits had increased from the previous year. To catch up with the market and the niche situation where the Southeast Asian areas may in the future, join the duty-free TPP, the company shall increase its profits by successively producing a series of new products. These products include the 38 thousand tons of the annual output of polyester fiber, 30 thousand tons of BOPP wrapping film, 27 thousand tons of PVC wrapping film and wrapping tape, 5.04 million yards of PU synthetic leather, 80 thousand spindles of spinning equipment, and 150 thousand KW of the cogeneration power equipment.

The Company will uphold the corporate spirit of "getting to the bottom of things" and "striving for perfection", which is determined to face and solve the problems with a down-to-earth attitude and to fulfill the social responsibility by fully practicing industrial safety guidelines and hygiene rules as well as engaging in environmental protection measures while proactively promoting relative reforms. In terms of industrial safety, every plant, which operates in the PDCA management mode, not only has passed the annual re-assessments of an SGS certification company, but it also has been certified by OSHAS-18001 (International Occupational Safety and Health Management System) and CNS 15506 (Taiwan’s Occupational Safety and Health Management System). By holding PHA (Process Hazard Analysis), JSA (Job Safety Analysis), MOC (Management of Change), and the other presentations, the plants that encourage the staff’s participation can observe and learn from each other. The company aims at discovering and eliminating the blind spots and potential hazards in industrial safety management and at overall improving the safety, hygiene, and environmental protection management by mentoring the overseas, as well as the domestic plants in PHA, JSA, and MOC operations and inspections.

The company has received many awards related to safety and health management from the Ministry of Labor; these awards include:

1. From 2009 to 2011, the Xingang plant had won the award of Excellence in Occupational Safety and Health for three years in a row, and it also had won a five-star Industrial Safety Award in June 2012.
2. From 2010 to 2012, the Changhua plant had won the award of Excellence in Occupational Safety and Health for three years in a row and in July 2013, it had also won a five-star Industrial Safety Award.
4. The Xingang plant won an award of Excellence in Safety and Health Family in October 2014.

In terms of environmental protection, the company continues to adopt the best controlling technique (BACT) a production procedure that utilizes energy most efficiently, with regard to the use of pollution-preventing equipment. By the end of 2015, the total funds for pollution prevention amounted to more than US$ 0.5 billion with every plant being qualified by the ISO-14001 Environmental Management System. Considering the social concern to the environmental issue on saving energy and lowering carbon for climate change, the company has established an ‘Organization for Promoting Energy Saving, Carbon Lowering, and Pollution Prevention’, in order to force the wastewater, waste air, and industrial waste from its source as well as the end-pipe recycling and emission reduction. It not only maintains the normal operation of the production equipment and the environmental quality but also earns multi-benefits by reducing the waste of resources, energy and operation costs.

To fully utilize all resources, the company had established the “Water and Energy Saving Promotion Project Team” in 2006, and had promoted every kind of energy-saving and emission-reducing ideas by taking specific actions such as decreasing the water usage in production, lowering loss due to evaporation, and by recycling wastewater. The company has won many awards held by the Ministry of Economic Affairs for the past few years; these awards include:

1. In 2013, the company won The Excellence Performance Award of Voluntary Reduction in Greenhouse Gas Emissions.
2. In 2014, the Lungde PTA plant won the Excellence Performance Award in Water Saving. The Haifong SM plant won the Excellence Performance Award in energy saving.
3. In 2015, the Mailiao PTA plant won the Excellence Performance Award in energy saving, while the Changhua power plant won the Excellence Performance Award in water saving.

Because of more and more rigid regulations and treaties on the emission of global greenhouse gas, the company has reflected monthly in its own energy-saving and water-saving performance. It had also initiated inspections such as the scheduled and un-scheduled on-site guidance as a result of an evaluation to examine the departments that miss the mark and to plan the improvement strategy. According to the statistics, the company has totally invested US$ 0.23 billion for these years and had completed 2,680 improvement projects. It has saved 86 thousand tons of water per day, 753.8 tons of steam per hour, and 87 thousand KWH of power per hour, which has added up the profit amounting to US$ 0.24 billion. The company has reduced total 2.93 million tons of the CO2 emission every year, which is equal to 244 thousand hectares of afforestation. In the days to come, the company will keep promoting improvement strategies regarding water and energy saving to utilize natural resources to the fullest; it will also take responsibility in reducing greenhouse gas as well as the promotion of safety, hygiene, and environmental protection for sustainable management purposes.
Looking into 2016, the company may benefit from the economic recovery of the advanced Euro-American countries that strengthens the economic energy for global economic growth. Yet, Mainland China with whom Taiwan has developed close economic and trading relationships may encounter pressure from both economic slowdown and fluctuations of the RMB exchange rate since the mainland’s supply-side structural reforms and the elimination of the high-pollution and over-production industries have suppressed the demand and prices of raw materials. In terms of oil prices, the factors including the intense geopolitical situation in the Middle East, OPEC refusal on outputs reduction, the U.S. lifting of the oil export ban, and Iran, the fourth-largest oil exporter, have joined the global supply chains may lead to the expanding in excess of supply over demand that could worsen the unfavorable international oil prices. Additionally, with the U.S. interest rate hike and tightening of the monetary base may possibly cause capital outflow in the emerging countries. The aforementioned economic slowdown in Mainland China, RMB devaluation, oil price fluctuation, and the U.S. monetary policies will be the biggest variables for the global economy in 2016.

Due to Taiwan’s unfavorable in investment and operation environments, persistent recession in export and industrial outputs, and withering equipment capacity, the Group needs to speed up its overseas expansion and overcome the current economic challenges to respond to the increasing investment and expansion of the petrochemical plants around the world. Especially, when the China–South Korea Free Trade Agreement may bring more and more serious impact on Taiwan’s petrochemical industry in effects, the government should strive to make trade agreements and to join the regional economic integration systems like TPP or RCEP. In addition, the company will proactively explore the international markets in ASEAN and Middle East as well as to expand the niche products to respond to the rise of the Red Supply Chain. Meanwhile, by understanding the changes in the environment, and controlling the materials and the product inventory in order to stay Green, the company will continue to aim at enhancing itself competitively while at the same time striving to increase profits.
Our refining business has a solid foundation on the integration of logistic planning. To maximize our profit, we have been optimizing our operations by adjusting production models, shifting the yields of products from time to time based on the dynamic changes in the market. Hence, despite the regular maintenance in the first half of 2015, refining throughput climbed 4% year on year from 459,000 bpd to 477,000 bpd, resulting in a 2% growth of total sales volume to 21 million KL.
Foreword:
Being caressed by warm breeze that burgeoned into an “astonishing performance” should be the best footnote for FPCC in year 2015.
Commencing from 2nd half of 2014, the collapse of crude oil prices has been jeopardizing the global economics, financial market, especially those export-oriented countries that highly rely on crude, are dipped into recession; currencies depreciation has further worsened the volatility of exchange rate among these countries. Japan, Europe, and China are applying a series of monetary policies such as lower interest rate, QE, etc., to strive against this quagmire while U.S., the only exception, is firmly on the track of recovery, initiating higher interest rate resulting in a strong dollar that further impact on general commodities.
Reviewing 2015, the global politics, economics, terrorism, environmental issues, etc., have caused uneasiness on people’s mind and tough challenges to our company’s operation. Yet, cheaper raw material prices have triggered more demand on petroleum products, widened the profit margins of petrochemical derivatives, with our solid competitiveness and sharp awareness on market situation, we have dodged the downturn impact on our overall operation, and successfully converted crisis into another prosperous and steadily growing year.

Financial performance
FPCC generated US$ 19 billion in sales revenue in 2015, a 31% decline compared to US$ 27.6 billion in 2014. However, thanks to the cheap petroleum prices that triggered more demand, our margins were highly raised. Income before tax increased almost fivefold to US$ 1.5 billion compared to US$ 0.3 billion in 2014.

Business Management
Petroleum refining – advanced processing with flexible logistic
Our refining business has a solid foundation on the integration of logistic planning. To maximize our profit, we have been optimizing our operations by adjusting production models, shifting the yields of products from time to time based on the dynamic changes in the market. Hence, despite the regular maintenance in the first half of 2015, refining throughput climbed 4% year on year from 459,000 bpd to 477,000 bpd, resulting in a 2% growth of total sales volume to 21 million KL.
Regarding export, since the petroleum market in Northeast Asia has been oversupplied for years, we, targeting the emerging countries on their fast growing demand of petroleum products, have cooperated with oil majors and trading houses to jointly explore and expand markets in these areas. In 2015, as the low oil price propelled a surge in demand for gasoline in emerging countries, gasoline export has grown 3% year on year to 3.4 million KL. In contrast, gasoil export declined 3% year on year to 9.9 million KL due to the slowdown in global economic growth. Overall export sales slightly grew 0.3% year on year to 17.5 million KL.

In domestic market: By observing the consumers preference and to meet market requirements, as of June 2015, we have launched a sales campaign on our new product, the 95+ unleaded gasoline, highlighted by improving gasoline octane value without raising price, contributing C/P ratio to feedback our consumers. It has been proved to be a successful strategy after 6 months of promotion, created a new momentum to our sales activities.

In addition to this, we are also applying more flexible marketing policies to promote our sales volume as well as market share, that includes:

- Enhance brand image: By way of presenting our new products, we have launched serial sales campaigns through the media and our gas stations, offering in place services to enhance our brand image, products characteristics, and consumers’ confidence.
- Develop and expand new sources of customers: Since 2015, we have successively acquired the cooperation from the government sections, and expanding new business customers such as logistics companies by using Corporate Card; moreover, we have been consistently deploying Taxi Card gas stations to favor and attract taxi drivers. Thus, through these various marketing channels simultaneously, we have successfully increased the sales volume of gasoil and gasoline.
- Environmental gas stations: To improve the competitiveness of our gas stations, we have set up operation servers as a platform that our franchiser can easily access for self-serving system, sharing common resources to save cost and improve the environment of gas stations, creating a bright and clean image to attract consumers, developing an all-win situation among gas stations, consumers and FPCC as well.
• Flexible pricing: We have been applying the policy of “lower price earlier, raise price later” than our competitors, successfully created the time/price difference during weekend to attract the truck fleets and weekend drivers to our gas stations for refilling.

Petrochemical feedstock business—Thorough Vertical Integration

Our petrochemical business, deemed as the upstream plants in petrochemical industry, provides a steady feedstock supply to downstream units in our group. Taking full advantage on economic scale, flexible production and marketing strategies, we optimized production to make our vertical integration more effective so as to bring mutual benefit to both upstream and downstream companies. In 2015, our crackers were efficiently operated, enhanced the running rate and increased ethylene production to 3,061 million MT in 2015, 1% growth compared with 2014.

With regard to the market, price spread of petrochemical product remained widen, showing a tight supply due to maintenance of Asian Crackers in the first half of 2015. Although the margin narrowed in Q3 as the turnaround nearly completed and supply is back to normal. However, spread rebounded shortly due to unexpected sequential accidents of Crackers in Asian market. We were quickly responding with flexible maneuvering, contributing to the higher margin for Crackers than year 2014.

Utility business—smooth operation on co-generation units

With a total installed capacity of 2,820 MW, the primary mission of our Co-generation units is to offer a stable and sufficient power to all units within Mailiao complex. We have generated 21.44 million MT of steam and 14.6 billion KWH of electricity in 2015 which is 5% and 7% lower than last year respectively due to longer duration of planned maintenance.

Investment and expansion

The complex continues to expand new projects and improve process to increase the products added-value for performance advancement. We keep cooperating with well-known overseas companies and devoting to exploiting the downstream of C4 and C5 from olefin crackers. The annual capacity of 40,000 MT HSBC project, a J/V plant with Kraton, is now under construction and expected to be fully operational in 2016. The fruitful results of the high-valued investments will generate maximum profit by then. Another J/V project with Idemitsu Kosan, HHCR plant with the annual capacity of 36,000 MT, is about to be constructed and expected to be completed commissioning in 2018. Besides, the construction of Formosa Vietnam Ha-Tinh Steel plant, which FPCC holds 11.43% of its shares, was completed last year and expected to start up in mid-2016.
Community Service
While pursuing the growth, we are also taking various social responsibilities. The environmental protection, social welfare, and local community development, etc., are what we care the most. The first edition of our “Corporate Social Responsibility Report” was released last year to show our relentless efforts, and it will be published annually. In addition, for a closer relationship with local residents, we have joined several welfare activities such as developing local industries, sponsoring related constructions, offering scholarships and improving hardware facilities for schools. We also endeavor to brighten the native beauty by funding many local culture activities. Making contributions to feedback the local community is not only a part of our responsibilities but also a commitment that we will continuously strive harder.

Sales Target
In 2016, the petroleum prices are expected to remain at a low level and the demand for oil and petrochemical products may be increased accordingly. Consequently, in 2016, despite the regular maintenance, our estimated sales volume for gasoline and gasoil are 5.913 million KL and 11.051 million KL respectively while gasoline and gasoil sales are going up 4% and 2% compared with 2015. For petrochemical products, we expect the production volume for ethylene and propylene are 3.058 million MT and 2.427 million MT. As for the Utility division, the key role is to provide consistent electricity and steam to meet the demand of all units in Mailiao Complex.
2016 Prospects

Looking into the upcoming year, although the global economic growth is predicted to be better than 2015 by several international institutions, we still have to consider the risks folded in these positive forecasts. The differences on each nation’s economic condition may lead to the contradictory monetary policies that could have caused more chaotic to global financial market. Geopolitical conflicts are continuously posing crisis while the slowdown of Chinese economy as well as the transformation of industrial development are also the uncertainty to the world.

Facing with such a turbulent year, we are ready at all times, making the right decisions against all challenges, gaining on the momentum for the future development, and once the global economics is back to recovery, our operation performances will surely be expected to a higher level of achievement.
With US natural gas prices remaining low, resulting in relatively low prices for ethane, propane, and electricity, our competitive advantage increased and petrochemical profits grew steadily. Thanks to our vertical integration and North America PE/PP demand exceeding supply, we maintained profitability through excellent production and sales of different products.
In 2015, the revenues of Formosa Plastics Corporation, U.S.A. (FPC USA), Nan Ya Plastics Corporation USA (NPC USA) and Nan Ya Plastics Corporation, America (NPCA) totaled $US 5.7 billion, about 20% less compared to $US 7.1 billion achieved in 2014. Business factors influencing this 2015 result include the adverse effect on petrochemical product prices caused by crashing crude oil price in the 2014 fourth quarter. Continuous growth in sales quantities, somewhat alleviated lower product pricing.

The 2015 US economy continued steady growth, benefiting from reduced unemployment and gradual improvement in various economic indicators. With US natural gas prices remaining low, resulting in relatively low prices for ethane, propane, and electricity, our competitive advantage increased and petrochemical profits grew steadily. Thanks to our vertical integration and North America PE/PP demand exceeding supply, we maintained profitability through excellent production and sales of different products.

All three major product segments, Olefins and Polyolefins, Chlor-Vinyl and PET/Fiber, continued efforts to improve product quality, optimize operational processes and improve production efficiency. These efforts contributed to improved cost positions and competitiveness in the North American marketplace.

In the Olefins and Polyolefins segment, both our oil & gas operations and the spot market supplied natural gas, ethane, and propane to Olefins crackers. The crackers produced 1,670,000 tonnes of ethylene and 680,000 tonnes of propylene per year. The polyolefins operations converted these intermediates into 1,240,000 tonnes of polyethylene (PE) and 910,000 tonnes of polypropylene (PP).

In Chlor-Vinyl segment, the Utility Venture generated electricity for FPC USA to produce 1,050,000 tonnes of caustic soda and chlorine. These materials were used by our ethylene dichloride (EDC), vinyl chloride monomer (VCM) and polyvinyl chloride (PVC) operations to produce 1,320,000 tonnes of PVC resin. Using a portion of the resin, NPC USA produced 64,000 tonnes of rigid PVC film and NPCA produced 48,000 tonnes of flexible PVC film.

In PET/Fiber segment, FPC USA produced the ethylene used by NPCA to produce 360,000 tonnes of ethylene glycol and 880,000 tonnes of polyester and derivatives.

Our marketing strategy balanced production and sales among our North American customers, as our key focus, and export customers. In building customer relationships, we established broad customer bases and selected specific product grades to develop new customers strategically, and formed partnerships for new products through
We have always had a core management goal of ensuring sustainable operation and growth. Achieving this goal depends on our ongoing efforts to emphasize environmental and safety management, human resources management, employee skills enhancement, new products development, and increasing our sales and service capabilities – with a focus on high profit margin, long-term customers who demand excellent product quality and services.

We fully expect that these marketing and operational efforts will strengthen our presence in our markets, grow our market share and further increase profitability.

Looking forward, in 2016 we expect the US economy to maintain steady growth. Our production cost should retain its competitive advantage because of the low prices of natural gas and olefins feedstock (ethane, propane, butane). Olefins plants should achieve high production rates and our products should keep current market shares. Profits are expected to be sustained.

We are looking forward to the continuing cost advantage in US petrochemical industry. We remain cautious, however, as we face threats from the weakening of the world’s major economies (China and Europe), crashing global crude prices due to supply exceeding demand, and the appreciation of the US dollar.

For our Phase 4 Expansion, FPC USA has received permits from US Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ), required to build the Olefins III plant, Propane Dehydrogenation (PDH) unit, and Low Density Polyethylene (LDPE) plant. In 2016, we expect to receive permits to build the EG-2 plant, HDPE-3 plant, and PP2 Train-3 plant. Great effort will be made to complete these projects as scheduled.

Our overseas affiliates include Formosa Plastics Corporation, U.S.A., Nan Ya Plastics Corporation, USA, Nan Ya Plastics Corporation, America, Formosa Ha Tinh Steel Corporation and P. T. Indonesia Nan Ya Indah Plastics Corporation. FPG’s investments in Mainland China include Formosa Plastics Corporation, Nan Ya Plastics and Formosa Chemicals & Fibre Corporation.
For the proper care of cancer patients and to protect people health, we invest billions of dollars to set up the Asian first and largest Proton radiation therapy center at Linkou Y.C.WANG Center for Advanced Medicine. Had started service since Nov 2015.
Established in 1976, Chang Gung Memorial Hospital (CGMH) is now in its 40th year of operation. Adhering to the belief of “What is Taken from the society is to be used in advancing the interests of the Society”, we have overcome numerous obstacles during that timeframe. By integrating teaching, research, services and sound management, we have created an institution that serves the public as we strive toward upgrading the level of medical care and enhancing the well-being of the society.

1. Teaching
As a teaching hospital, we have launched cooperative programs with Major medical schools in the country to provide their interns with clinical training. We have also developed a highly respected resident training system designed to nurture highly competent attending physicians in in different specialties. In 2015, 145 residents finished their training program at CGMH for promotion to Attending Physician. Over the years CGMH has graduated over 3,545 students to achieve excellent Performance in their respective careers in the medical profession.

2. Research
To encourage R&D, we provide funding for clinical research, basic Medical research and international studies for our medical, nursing, technical and administrative staffs. In 2015 we conducted more than 2,772 medical research projects under the commission of the National Science Council and the Department of Health. In addition, we provided Funding of US$ 115.95 million, published nearly 1,626 papers in domestic and International journals and supported international studies for 57 research staff personnel.

3. Services
As one of the biggest general hospitals in Taiwan, both our facilities and our level of health care are on par with first-rate hospitals around the world. By the end of 2015, we offered 9,000 beds with health care services provided by over 22,000 employees. In 2015 we served over 9,002 million outpatients and admitted almost 289,000 patients for inpatient services.

4. Management
To achieve the goal of enhancing service quality and controlling Medical costs within reasonable limits, for over 30 years we have Constantly evaluated local conditions and needs, inquiring into the root of every problem. With patients at the center of our mission, we have embraced innovations allowing us to provide the best possible medical care, to make the most of limited
resources and to enhance the quality health service in the country.

In terms of management, we follow the belief of Founder Wang and the spirit of ‘inquire into the root of the matter and aim at the sovereign good’. In terms of service, one out of every three people in Taiwan has been a patient of CGMH. In terms of teaching, one out of every four doctors in Taiwan has been trained by CGMH. In terms of research, we publish over 1,500 papers a year in world leading medical journals. We search for excellence in every aspect, establishing CGMH in the world arena.

In recent years, rapid changes in Taiwan’s society and economic environment have increased the public’s need for quality medical care. The change in the country’s national health insurance policy presented significant challenges to medical institutions. Chang Gung Memorial Hospital’s spirit of social responsibility drives us to adopt every countermeasure possible to reduce the impacts and burdens of these changes as much as possible. As a result, 2015 operational income growth remained stable. Further, patients and the community have recognized the hospital’s devotion to providing service and quality medical care.

To further enhance the quality of our medical service, we have embarked on a wide range of service improvement projects. For example, we introduced a 24-hour Internet and computer voice appointment booking service that allows patients to make appointments over the Internet or phone instead of showing up in person to make an appointment. The computerization of doctor orders has substantially shortened the time necessary for outpatient patients to make payment and pick up their prescriptions, 95% of patients have been able to leave the hospital within 15 minutes after their consultation.

The implementation of the CGMH website now allows the public to learn more about our services. The Electronic Medical Record (EMR) and Picture Archiving and Communication System (PACS) allow doctors from different branch hospitals (including outside institutions in the coalition) to access and exchange medical information and patient’s images. To give our patients the best medical care possible, we are also promoting the Clinical Path Way and Protocol Project. This project provides computer-based tools to help doctors make accurate diagnoses and provide effective treatments.

In the area of organ management, we continue to promote the Concept of organ donation and perform organ transplants. In 2015 CGMH received organ donations from 67 people and performed organ transplants that included 69 cornea cases,
2 heart cases, 43 kidney cases (include 6 case of vivo transplant), 227 liver cases (include 196 case of vivo transplant). The hospitals also handled 7 anatomical pathology cases, and 6 body donations.

CGMH has also been active in providing advanced social services. In 2015, CGMH provided relief to over 4.36 million patients, representing an outlay over US$ 16.94 million from our social service fund.

Our facilities have expanded our service area and fulfilled the aspiration of Founder Wang to care for both the young and the elderly. For example, recognizing the specialty services for children in Taiwan were inadequate compared with those offered in other advanced nations, CGMH established children’s hospitals in Linkou and Kaohsiung in 1993 and 1995, respectively. These hospitals have trained pediatricians of various sub-specialties and treated numerous acutely or critically ill children in these regions.

In addition, in 2003 we established a hospital for patients with Chronic illnesses and a nursing home in response to the aging population in Taiwan, where over 12.5% of the population is over the age of 65 and face a lack of long-term care facilities. Other efforts to address this issue included the establishment of a health culture village to provide the elderly with proper and comforting care. Given that medical resources in Taiwan were relatively scarce in the Chiayi and Yunlin district, in that community we built Chiayi and Yunlin branch that opened in December 2001 and December 2009.

For the proper care of cancer patients and to protect people health, we invest billions of dollars to set up the Asian first and largest Proton radiation therapy center at Linkou Y.C.WANG Center for Advanced Medicine. Had started service since Nov 2015. In the view of Founder Wang, after five thousand years of development Chinese medicine is an invaluable asset that reflects the amalgamation of wisdom and experience of our ancestors and warrants being carried forward. Thus, in 1996 we became the first among large medical centers to set up a Chinese medicine department at our Linkou medical center and started at our other centers. In practice, we will unite the concepts of Chinese medicine with modern scientific techniques and methods of Western medicine to care for the health of the public.
Chang Gung University values and pursues both academic achievement and liberal education. We place emphasis on the equal development of morale and literacy, integration between the individual and groups, and harmony between body and mind. Students are expected to develop into well-balanced individuals by following the “Learning by doing” philosophy.
Chang Gung University was established in April 1987 under the name of Chang Gung Medical College, with the aim of preparing future outstanding medical professionals. In order to support the economic development of the nation, Chang Gung Medical College later introduced the engineering and management programs to prepare young talents in these fields, and was renamed to Chang Gung College of Medicine and Technology. In August 1997, the Ministry of Education formally approved the name change to Chang Gung University. At present, Chang Gung University has 3 colleges: Colleges of Medicine, Engineering and Management and includes twenty-six departments and graduate institutes, one doctoral degree program, and five master’s degree programs.

From the very beginning of the establishment, Chang Gung University has been planning long-term curricula and academic research programs under the educational motto of “Diligence, Perseverance, Frugality, and Trustworthy”. These endeavors have helped us achieve our goal of “combining theory and practice”. In addition, our efforts have been made in pursuit of excellence in instructions and academic research and long-term promotion for holistic education of our students.

There are 609 full-time faculties and 735 part-time teachers and preceptors. 7,386 students, including 5,218 undergraduate students and 2,168 graduate students, are currently enrolled at Chang Gung University. In addition to classroom learning, students are required to participate in various internships and cooperation programs with Formosa Plastics Group, Chang Gung Memorial Hospitals and other institutions in order to achieve the goal of “combining theory and practice”. There are plenty of opportunities for various practical training or work-study programs available to students during semester breaks. These programs are designed to allow them to gain working experience and to develop proper working ethics before they graduate. The university has also introduced over ten academic programs, including the Biotechnology Management Program, the Healthy Aging and Aging Care Program, the Program of Information Security with Medical Applications, the Integrated Circuit Design Program, and the Program of RFID Applications in Logistics Supply Chain Management, just to name a few. These programs are also available to the students who desire to develop additional expertise or secondary specialty in addition to their major programs. Graduates of Chang Gung University have proved...
their abilities and competence at work or during their advanced studies; they also are well liked by their employers because of their devotion and ethics displayed in the workplace.

To support the development of technology as well as to respond to social demands, Chang Gung University vigorously promotes academic and applied research as well as cultivates professionals in the fields of medical service, biotechnology, engineering industries, and knowledge management. With regard to future objectives, Chang Gung University aims to develop into a research university with distinctive research focuses.

Chang Gung University has been valuing academic research and promoting excellence in teaching. To achieve the objectives, we constantly recruit professional faculties from domestic and overseas institutions and provide a good research environment by offering various rewarding measures and zealously encouraging faculties to get involved in research activities.

We have also established research centers and coordinated intramural resources in order to actively initiate or participate in extramural research and internship projects which run in conjunction with various government institutions, foundations, Chang Gung Memorial Hospitals, Formosa Plastics Group and other institutions offering cooperation programs. These endeavors are expected to facilitate the transfer of technology licensing and patenting, as well as to increase the overall business and industry competitiveness of our country. Extramural institutions, Chang Gung Group, and the university itself provide funds for research every year. In the school year of 2015, a total funding of USD 19.87 million and USD 25.86 million from extramural institutions and cooperation agencies was spent on such projects of academic research and cooperation programs respectively.
In addition, a few university-level research centers have been established over the last few years. They include the Molecular Medicine Research Center, the CGU Biosignature Research Center, the Healthy Aging Research Center, and the Institute for Radiological Research. Moreover, college-level research centers have been set up over the past few years, too. They are the Center for Biomedical Engineering, the Green Technology Research Center, the Research Center for Emerging Viral Infections, the Molecular and Clinical Immunology Research Center, the Clinical Informatics and Medical Statistics Research Center, the Research Center of Industry Innovation for Senior Citizens, the High Speed Intelligent Communication Research Center, and the Research Center of Reliability of Science and Technology. These research centers have been performing cutting-edge research topics in the professional domains of respective departments and graduate institutes to achieve systematic integration. They have also achieved impressive results in the integration of fundamental, clinical, and industrial research and the development of translational research.

Being one of the cooperative partners recognized by the world’s leading metabolomics researcher Prof. Jeremy Nicholson, the Healthy Aging Research Center has established the most advanced metabolomics core laboratory countrywide.

The Institute for Radiological Research worked closely with the Chang Gung Memorial Hospital to set up the first proton therapy center in Taiwan. The institute conducts advanced studies integrating both basic and clinical research, such as research in the precision dose of particle therapy (including proton therapy and heavy ion therapy), advanced imaging technology, microenvironment biological effects, and clinical treatment effects, etc.
Chang Gung University has also placed great emphasis on the liaison with industries. Over the last 3 years, our cooperation with the Formosa Plastics Group has been steadily increasing. A successful example is the research team led by Prof. Hsiu-Po Kuo, who established the limestone specification through systematic analysis. Prof. Kuo and his research team successfully transformed millions of tons of ashes into high-purity calcium sulfate dehydrate (a.k.a. gypsum), which was worth a billion dollars. In 2015, Prof. Kuo and his research team worked together with the Formosa Petrochemical Corporation to commercialize gypsum. This project was worth up to USD 240,000 dollars. Another successful example is Prof. Kuang-Hua Hou and his research team. They have long been helping the Formosa Plastics Group with issues such as welding, materials, corrosion, failure analysis, and nondestructive testing, etc. They designed a series of educational training programs to help the Formosa Plastics Group cultivate professional technicians and talents. So far, he and his research team have helped the Formosa Plastics Group with the piping maintenance for over 20 kilometers.

Since the beginning of the establishment, Chang Gung University has made impressive achievements in teaching, research, and liaison with industries. Independent review and evaluation of our performance by experts organized by the Ministry of Education over years has rated us good. In addition, the Ministry of Education launched the “Top University Project” to support top-performing domestic universities to develop into international educational and research powerhouses. Under this project, the Ministry of Education sponsors 12 scholarly excellent universities. Chang Gung University is the only private university in this project. According to the statistics from extramural professional institutions recently, the overall research performance of Chang Gung University was ranked among the top 5% among all colleges and universities in Taiwan. Various international university rating organizations also endorsed our scholarly excellence. For example, Chang Gung University was ranked among the top 500 universities worldwide in the Shanghai Jiao Tong Academic Ranking of World Universities every year from 2008 to 2015, closely following five national universities in Taiwan. In addition, according to the 2014~2015 QS World University ranking published by the UK-based higher education institution Quacquarelli Symonds (QS), Chang Gung University was also ranked among the top 500 best universities worldwide. We are proud to say that Chang Gung University has become a model of excellence to domestic private colleges and universities. Chang Gung University values and pursues both academic achievement and liberal education. We place emphasis on the equal development of morale and literacy, integration between the individual and groups, and harmony between body and mind. Students are expected to develop into well-balanced individuals by following the “Learning by doing” philosophy. Besides, indicators including caring and giving, teamwork, humanity
The Department of Industrial Design's graduation exhibition

and art, self reflection, self discipline, and innovation and progress, etc. are used to measure the effect of holistic education. These endeavors are made to ensure our students to transform into individuals who have balanced development in all aspects, have moral integrity, and maintain their principles.

With regard to future objectives, Chang Gung University aims to develop into a research university with distinctive research focuses. We will keep enhancing teaching and research in various fields, continue working on university-industry liaison programs, and facilitate academic exchanges with international institutions in response to social demands and trends. In addition, we will persist on edification of our students by encouraging them to care for humanity and to devote themselves to serve. Our mission is to educate good young generation to develop sound personality, to acquire specialized knowledge and skills, to possess excellent learning capabilities, and to believe in lifelong learning.
In response to the rapid changes in society, the University is dedicated to improving its administration, with personnel as its central consideration. Moreover, the learning environment is being improved to support the ideal of providing quality health care for the general public. In the future, the aim of “being the best” will continue to guide the development of the University administration, teaching, research, industry cooperation, and student development.
The Chang Gung University of Science and Technology began in 1988 as a two-year nursing junior college. It was founded by Mr. Yung-Ching Wang and named after his father. The University, with the aims of elevating the quality of medical and nursing practices and fostering nursing professionals in Taiwan, commits itself to nurturing in its students such qualities as endurance, reliability, diligence and sincerity. Indeed, these four words are the motto of the University.

In 1989, an evening nursing degree program was launched, followed by a five-year junior nursing program in 1991. In 1996, the two-year Child Care and Education Program was established. In 2000, the Department of Information Management was created. Two years later, in 2002, the school was upgraded by the Ministry of Education from a Junior College to an Institute of Technology. In order to respond to a growing demand for medical and nursing services in the Chiayi and Yunlin areas, the additional Chiayi Campus was established in January 2003. In 2006, two new departments were established: the Department of Cosmetic Science on the original Linko campus, and the Department of Respiratory Care on the Chiayi Campus. To cope with a rapidly growing elderly population and to meet the changing needs of senior citizens, the Department of Geriatric Care and Management was founded in September 2008. In the same year, the Graduate School of Nursing (Chiayi Campus) was also launched. The Department of Nutrition and Health was founded a year later, in 2009. In August 2011, Chang Gung Institute of Technology CGIT was transitioned to Chang Gung University of Science and Technology (CGUST). Graduate Institute of Health Care was founded in 2012, Graduate Institute of Health Industry Technology was founded in 2013, and the following year, Graduate Institute of Nursing (Linkou Campus) was inaugurated in 2014.

The University educational scope has been broadened gradually, and its growth clearly reflects the soundness of the University central tenet. Currently, the University employs 350 full-time teachers, and 7,312 students are enrolled. With additional expansion of excellent academic programs over the years, the University seek to nurture best professionals in the field of health care industry.

The University has been a model college in the technical and vocational education system. Founded to support commitment to humanity and integrity, its vision is to be, in every aspect of health care, the highest-quality school and the source of the highest-quality nurses entering the field. In order to develop in its students the spirit of diligence and endurance, and to enable them, in both theory and practice, to apply that spirit for the benefit of society, the University has cooperated with Chang Gung Memorial Hospital, the Formosa Plastics Group, and 133 other organizations to provide students with a wealth of internship opportunities. The students are thus offered chances to accumulate work experience and hone their skills. This strategy is designed to help students achieve the educational goal of combining work experience with classroom knowledge in a solid way, thus placing them in an advantageous position in today’s competitive job market.
Moreover, the University has implemented a mandatory boarding school policy in order to pursue integrate school education with guidance and discipline. Based upon the belief that ethical and moral education is developed in daily life, the policy aims to promote all-rounded development of students, cultivate students to become good-tempered and modest, respect for life, and concern for society. The students are envisioned as professionals endowed with love and patience.

Within the aspect of academic research, the University encourages teachers to participate in research projects in cooperation with the government, Chang Gung Memorial Hospital, and the Formosa Plastics Group. Efforts in cooperative research projects with other industries are strongly encouraged as well. In the academic year of 2015 alone, the University received a grant of $1,117,861.55 from the Ministry of Science and Technology for 42 research projects, and a grant of $393,943.45 from governmental offices for 25 research projects. In addition, grants totaling $2,109,013.55 were accumulated by 152 cooperative projects between the University and the private sector. Finally, 30 projects, with grants totaling $67,259.42, were funded by the University.

In response to the rapid changes in society, the University is dedicated to improving its administration, with personnel as its central consideration. Moreover, the learning environment is being improved to support the ideal of providing quality health care for the general public. In the future, the aim of “being the best” will continue to guide the development of the University administration, teaching, research, industry cooperation, and student development. The Chang Gung University of Science and Technology will continuously strive to foster top-quality professionals who adhere to the principle of providing the best professional services.
In addition to the maintenance of the existing educational beliefs and practice, the University also focuses on “Industry-University Collaboration.” In the 2015 Academic Ranking of Taiwan Universities/Colleges released by Tamkang University, MCUT ranked number one among the private colleges/universities of technology in the category of “the average amount of funding per project director of Industry-Academy Cooperation projects.”
In the 1960’s while both the industrial and economic developments were taking off in Taiwan, there was a lack of mid-level professionals in the industries. In response to the developmental needs, Mr. Y. C. Wang, the founder of Formosa Plastics Group, donated the funds for the establishment of the University in December 1963 in order to strengthen the cultivation of talents.

The University is located on the hillside of Kueizi Village in Taishan District, New Taipei City and was originally named “Ming Chi Institute of Technology.” The campus occupies an area of 62 hectares with vast green areas and beautiful yet tranquil sceneries. More than 200 years ago, during the reign of Emperor Chienlong in the Ching Dynasty, the “Ming Chi Academy,” founded by a Tributary Scholar, Mr. Hu Cho-yu in Southern Fukien, was located in the vicinity of the University. At that time the Academy was a center of intellectual and cultural hub and was also the cultural origin of northern Taiwan. This university was named “Ming Chi” with an aim to encourage the faculty and the students to learn from the virtuous elders and to embrace heritage and vision as their own mission.

With the exceptional operational performances and in response to the need for talents due to the economic development and the industrial advancement in Taiwan, the School was approved in 1999 for its transformation into “Ming Chi Institute of Technology.” After being awarded Excellence by the annual evaluation conducted by the Ministry of Education for six consecutive years, the Institute was approved again in 2004 for its further transformation into “Ming Chi University of Technology.” The University currently hosts 4,528 students (3,988 students in the day division and 540 students in the continuing education division), 188 faculty members, and 99 staff members. The University includes the College of Engineering, College of Environmental Resources, and College of Management and Design, offering 11 Masters’ courses in the Graduate Institute, one Ph.D. program and 10 Departments. All the Departments and Graduate Institutes have passed the certifications of IEET (Institute of Engineering Education Taiwan) and ACCSB (Accreditation of Chinese Collegiate School of Business), showing that the University’s educational system is on the international track.

Due to the fact that all units of MCUT (including university affairs, administrative offices, three colleges, ten departments, and eleven graduate institutes) have received top ranks making the school number one nationwide in the 2011 Ministry of Education (MOE) Evaluation of Colleges of Technology, MCUT was approved to self-evaluate in 2016 instead of evaluations by MOE. According to the data collected from Web of Science, MCUT ranked the third in the year of 2015, among all the technological universities and colleges, in producing SCI/ SSCI papers per author including assistant professors and above. MCUT’s Corporate Social Responsibility Report (CSR) not only has passed AA1000 certification by British Standards Institution (BSI) in 2015 but was awarded the silver medal, which was the top honor among non-profit organizations for the Taiwan Corporate Social Award (TSCA). The average amount of subsidies per student at MCUT received from MOE has led other funded technological universities for years. MCUT, which has been awarded certificates of information security management system (ISMS) ISO-27001, and environmental management
system (EMS) ISO-14001 every year, is an outstanding technological university with excellent traditions and achievements.

The motto of the University is "Diligence, Perseverance, Frugality and Trustworthiness." In terms of "Diligence and Perseverance," we expect the students not only to work hard but also to do the right and useful things. Students are encouraged to build their wisdom and enhance self-confidence through the accumulation of such useful experiences. When students live simple and honest lives, they can concentrate on the pursuit of their life goals. Based on this foundation and equipped with the professional knowledge and skills, all our students are expected to become useful members of the society. Since the establishment of the School, all students have been required to live in the dormitories on campus. Through group and team activities, we aim to educate healthy students, both physically and mentally, with good disciplines in life and sound personal integrity. Moreover, as the faculty members also reside in the faculty residences on campus, it enables them to guide the students conveniently, to teach them professional knowledge and problem solving methods. By doing so, the ideal objectives of education can be fully achieved.

In order to take both theory and practice into account, and to help students develop the spirits of self-supporting, hard working, and endurance, the University practices the teaching model integrating regular classes, internship and regular classes. Students are arranged to take turns participating in the full time practical internship program for one year in the Formosa Plastics Group as well as other companies taking part in the co-op practical training program. This allows the students to receive wages from the practical work so that they could reduce the financial burden of their families and complete their studies. Through the internship and practical work, students are able to learn the techniques relevant to their professions as well as the practical management skills, and from the physical works students are also able to experience the meaning of diligence, perseverance, frugality and trustworthiness and develop the attitude of being down-to-earth.
and always getting to the bottom of everything. The overseas internship since 2006 is unprecedented among universities in Taiwan. Presently the practical training program has expanded to various industries and companies in the U.S., Switzerland, Mainland China, Indonesia and Vietnam. The amount of students working overseas has accumulated to 279 till 2015. Moreover, for six consecutive years since 2010, Ming Chi has been selected to facilitate nationwide vocational schools in offering co-op practical training programs. The practical training program has expanded to various types of industries with over 100 companies participating in the program. Students' performances are highly accredited in the industry. The University has also received lots of recognition of "Excellent Performances in Industry-Education Cooperation" evaluated and selected by the Chinese Institute of Engineers. The discrepancies between education and the employment in the business field are effectively eliminated, realizing the educational goals in connecting industries and education. According to the survey of “Enterprises' Favorite Colleges in 2015” conducted by 1111 Job Bank in 2015, Ming Chi excels other domestic private universities of technology in terms of overall performances of graduates. The Ming Chi alumni of the past years have received positive affirmation from the academic, industrial, and business fields.

Beginning from the academic year 2004, the University started to recruit aboriginal students in the 4-year college in order to extend our concerns for the aboriginal students. The University has funded the aboriginal students up to NT$ 420 million. This program has gained much appreciation from the aborigines and acclamation from the public in the society. Moreover, in coordination with the needs in lifetime learning and returning education for technical training, the University provides assistance for the enterprises in employee training as well as career guidance for young adults of the society. Meanwhile, in order to satisfy the needs of the alumni and members of the society in continuing education, the Division of Continuing Education was established. This Division has offered
continuing education credit courses, in-service courses, and community university courses for the residents of Taishan District. The University also offers on-the-job master programs and four-year college programs in the Division of Continuing Education. Ming Chi will be contributing its practical teaching experiences to the society and to provide efforts for the technical education.

After the institute was upgraded to the university level, in addition to the usual devotion in the maintenance of the existing educational beliefs and practice, the University also focuses on “Industry-University Collaboration.” The University has frequently been honored by the Chinese Institute of Engineers for its excellent practices in industry-university collaboration. In 2014, the Small and Medium Enterprise Administration has honored the University as one of the best incubation centers. In the 2015 Academic Ranking of Taiwan Universities/Colleges released by Tamkang University, MCUT ranked number one among the private colleges/universities of technology in the category of “the average amount of funding per project director of Industry-Academy Cooperation projects.” Those honors demonstrate the fruitful results of developing collaborative relationships with industry partners. In recent years, by means of continually integrating the resources of various colleges, six research centers have been established: the Biochemical Engineering R&D Center, the Center for Thin Film Technologies and Applications, the Chinese Herbal Medicine Center, the Battery Research Center of Green Energy, Research Center for Advanced Organic Optoelectronic Devices and Manufacturing Processes and Center for Battery Reliability Research for Mobile System. The faculty and students are always encouraged to participate in practical researches and to provide industry-education services for the enterprises. With the development of internship opportunities, the industry-university collaboration relations are actively being built. Via the diverse channels of intern students, guidance teachers, specific research centers, the Industry-University Collaboration Center, and the Innovation and Incubation Center, we are able to achieve close cooperation with the industries and improve the quality and quantity of the research, and further contribute the research results to the industries. While the educational functions as well as the advancement of technological power in the industries are achieved, a win-win situation is also created.

Education is the foundation of a nation and its importance is hardly surmountable. Ming Chi looks for “perfection” in every aspect including school administration, research, industry cooperation, and the development of personal integrity of the students. We seek the best for everything we do, and pursue self-improvement at all the times. We hope to contribute to help the entire economic development of the industry through the cultivation of professionals with sound personality, and set our goal for a new model for the vocational education in Taiwan.
CORPORATE HEADQUARTERS

201 Tun Hwa North Road,
Taipei, Taiwan
Tel : 886-2-27122211
Fax : 886-2-27129211
http://www.fpg.com.tw

FORMOSA PLASTICS CORPORATION, U.S.A.

9 Peach Tree Hill Road,
Livingston. NJ 07039, USA
Tel : (973) 992-2090
Fax : (973) 992-9627
http://www.fpcusa.com