White Paper on Small and Medium Enterprises in Taiwan, 2012

Small and Medium Enterprise Administration
Ministry of Economic Affairs
October, 2012

White Paper on
Small and Medium Enterprises in Taiwan, 2012

Published by
Small and Medium Enterprise Administration, Ministry of Economic Affairs
95, 3fl, Section 2, Roosevelt Road,
Taipei, Taiwan, ROC, 106

Edited by
Chung-Hua Institution for Economic Research
75 Chang Hsing Street,
Taipei, Taiwan, ROC, 106

Editors:
Su-Wan Wang, An-Loh Lin, Bruce S. Stewart

Proof Reader:
Ying-Chih Wang

Designed and Printed by:
HONBO PRINTING CO., LTD.
No. 389, 7th.F, Sec. 2, Chung San Rd., Chung Ho District,
New Taipei, Taiwan, ROC, 235

Foreword

The economic downturn in Europe and the U.S. caused Taiwan's export growth rate to fall from 7.89% in the first half of 2011 to 1.46% in the second half, giving a whole-year growth rate fell from 10.72% in 2010 to a moderate 4.03% in 2011. As for the performance of SMEs in 2011, the number of enterprises was 1,279,784, accounting for 97.63% of the total enterprises in Taiwan. This figure represented an increase of 31,786 enterprises (2.55%) compared to 2010, which was the highest level it had ever reached. Moreover, SMEs' sales totaled NT$11,226.9 billion, representing 4.84% up from 2010, a better performance than large enterprises. SME employed totaled 8,337,000 people, accounting for 77.85% of the total employments, was also higher than 2010.

In 2012, business owners still need to monitor the changing business environment and respond flexibly to the changes. As far as SMEs are concerned, they will not only need to continue focusing on management and rationalizing their operations – so as to improve the efficiency of resource utilization, strengthen their firms' fundamentals, identify opportunities for change and give due attention to branding and innovation – but also, and more importantly, they will need to keep pace with major trends and new developments.

In order to witness the development of SMEs in Taiwan, the Small and Medium Enterprise Administration, MOEA has published the Chinese and English version White Paper on SMEs in Taiwan on an annual basis since 1992 and 1998 respectively.

In Part One of the 2012 White Paper, an extensive array of statistical figures is provided to describe the development of SMEs from a wide variety of perspectives in 2011, which includes a comparison with their performance in previous years, as well as with the performance of large enterprises.

In Part Two of this White Paper, two special topics are tackled through an in-depth analysis on the special challenges faced by SMEs in recent times. They are "The Transformation and Upgrading of SME Clusters in Response to Regional Economic Integration" and " "Green" Business Opportunities for SMEs in an Era of Regional Economic Integration".

The government has been helping SMEs in various ways by ensuring that necessary resources are available and that the overall business environment is conducive to them. In Part Three, the major government policies and measures related to SMEs along with their resulting effects over the past year are examined. These policies and measures can be categorized into five areas, i.e., providing SME financing and investment capabilities, assistance in upgrading, transforming and enhancing R&D capabilities, strengthening business start-up capabilities and promoting new business incubation, revitalizing local economies and promoting the development of new business opportunities and participation in international affairs and other related resources. The Appendix to this White Paper also provides important SME statistics covering the years from 2009 to 2011 for reference purposes.

Providing guidance to support the development of SMEs requires a long-term effort. It is hoped that this *White Paper* will give readers both in Taiwan and overseas a better understanding of Taiwan's

SMEs, while at the same time providing a useful reference work to assist SME managers in their decision-making. Your comments on the content of the *White Paper* would be most welcome and appreciated.

Yun-Lung Yeh
Director General
Small and Medium Enterprise Administration
Ministry of Economic Affairs
October 2012

Contents

Tables

Figures

Summary

The economic downturn in Europe and the U.S. caused Taiwan's export growth rate to fall from 10.72% in the first half of 2011 to 1.46% in the second half, giving a whole-year growth rate of 4.53%. Private-sector investment grew by 7.62% in the first half of the year, but in the second half a weakening of overseas demand and falling capacity utilization rates resulted in negative growth of –11.47%, giving a whole-year growth rate of –2.47%. Taiwan's economic growth rate fell from 10.72% in 2010 to a still respectable 4.03% in 2011. Given this environment, what is the state of Taiwan's SMEs? What major challenges are they faced with? What strategies is the government adopting to assist them? And what changes need to be made, bearing in mind that the rapid pace of change in the global business environment is likely to continue for the foreseeable future? The *White Paper on Small and Medium Enterprises in Taiwan, 2012* seeks to give a detailed answer to these questions. The content of the White Paper can be summarized as follows:

1. The number of SMEs Enterprises has reached the highest record in recent years

There were 1,279,784 SMEs in Taiwan in 2011, representing 97.63% of all business enterprises. 80.09% of these SMEs were in the service sector, and 50.94% were in the wholesaling and retailing industry. 56.72% of SMEs were organized as sole proprietorships, and 46.61% were located in Northern Taiwan. 47.01% of SMEs had been in existence for over 10 years.

SMEs' total sales accounted for 29.64% of the total sales of all business enterprises in 2011; SMEs' domestic sales accounted for 34.51% of the total domestic sales of all business enterprises, and SMEs' export sales accounted for 16.29% of the total export sales of all business enterprises. Domestic sales accounted for 85.30% of SMEs' total sales; exports by manufacturing firms accounted for 71.62% of SMEs' total exports.

In 2011, 36.03% of SME owners were women. 44.52% of female-owned SMEs had been in existence for at least 10 years; around 63.43% of female-owned SMEs were structured as sole proprietorships. 53.15% of female-owned SMEs were in the wholesaling and retailing industry, and around 80% of female-owned SMEs' total sales were derived from domestic sales.

2. Rising Profit with a Decline in the Operating Expense Ratio in 2010; An Increase in Total Bank Loans to SMEs Compared to 2010

As of 2010, current assets accounted for 48.43% of the total assets of Taiwan's SMEs (representing an decrease of 1.95 percentage points compared to 2009). With regard to cash's share of total assets for SMEs, it decreased from 20.14% to 17.64%. There was a downturn in short-term repayment ability compared to 2009. These figures indicate that during the period of economic recovery, the SMEs' abilities to cope with changes in the wider environment might slightly decrease because of the European sovereign debt crisis. As regards

operating costs, in 2010 the SMEs' operating cost ratio fell by 0.1 percentage points to 80.88%.

With regard to earnings, 2010 saw renewed changes in the SMEs' earning ability. All profitability indicators – including the operating profit ratio, return on total assets, return on fixed assets, return on capital and return on net worth – turned positive, showing that SMEs as a whole generated a profit in 2010. Turning to bank loans, As of the end of 2011, the total outstanding loans of ordinary commercial banks in Taiwan (including the Taiwan branches of foreign banks, but excluding overseas loans) came to NT$4,092.7 billion, representing an increase of NT$398.2 billion (10.78%) compared to the end of 2010. The share of total loans going to SMEs rose slightly, from 19.85% in 2010 to 20.80% in 2011. As of 2011, 46.89% of the total outstanding loans of all domestic banks in Taiwan had been made to SMEs, representing an increase of 1.50 percentage points compared to 2010. Clearly, with the upturn in the economy, banks are becoming more willing to lend to SMEs.

3. The Number of Employed persons, Paid Persons and Employers in SMEs Increased while the Number of Self-employed Persons Decreased

With the upturn in the economy, the number of employed persons working in SMEs in Taiwan rose by 1.78% (compared to 2010) to 8,337,000, while the number of paid employees working in SMEs in Taiwan increased by 2.64% to 5,958,000. The number of SME business owners rose by 5,550 (1.17%) to 478,000. However, the number of self-employed persons, which has been in decline since 1992, fell by around 6,000 in 2011 to 1,323,000. The number of female SME business owners stood at 92,013 in 2011. The number of female self-employed persons rose by 6,416 to 341,446; the combined total of female SME business owners and female self-employed persons was 433,459. In 2012, the slowdown of the economy has led to limited demand growth for manpower.

The gradual upturn in the economy that began in 2010 was reflected in the fact that personnel costs' share of SMEs' total operating expenses stood at around 30–40%.

4. With the Moderate Pace of Economic Expansion in the First Half of 2012, the Government Has Driven a Number of Measures to Cope With

With the intensification of the European debt crisis, the slowing of economic growth in China, the tepid recovery in the U.S., and the political unrest in the Middle East and North Africa, the overall outlook for global economic growth has deteriorated. In June 2012, both the U.N. and Global Insight revised their global economic growth forecasts for 2012 downwards, indicating that the recovery in the world economy is running out of steam. SMEs still need to keep close eye on the slackening pace of global economic recovery and the development in the European debt crisis, and respond flexibly to the changes so as to improve the efficiency of resource utilization, strengthen their firms' fundamentals, identify opportunities for change and give due attention to branding and innovation.

The government should be monitoring the changes in the international environment on an ongoing basis, and should continue to implement its Economic Stimulus Plan, with a

speeding up of investment in public construction and measures to improve the investment environment, so as to stimulate growth in domestic demand while also strengthening the economy's fundamentals.

5. To Promote Collaboration of SMEs is the Key Indicator of Regional Industry Clusters Upgrading and Transformation

The last few years have seen a pronounced trend towards the formation of multilateral and bilateral free trade agreements (FTAs) and comprehensive economic partnership agreements (CEPAs) within the Asia region. Taiwan cannot afford to isolate itself from this trend. The fifth "Chiang-Chen Meeting" saw the signing of the Economic Cooperation Framework Agreement (ECFA), marking the beginnings of a mechanism for free trade between Taiwan and China. On September 22, 2011 Taiwan signed a Bilateral Investment Agreement (BIA) with Japan, covering the three key areas of investment promotion, investment protection and investment liberalization. Also, the Trans-Pacific Strategic Economic Partnership Agreement (TPP) was a major focus of discussion at the Asia-Pacific Economic Cooperation (APEC) can help Taiwan to gradually secure fuller participation in the process of regional economic integration in East Asia.

Given the changes in the business environment outlined above, Taiwan's SMEs will need to be ready to overcome challenges and grasp new opportunities. The evolution of Taiwan's SMEs has been characterized by the formation of regional industry clusters. One of the most effective strategies that Taiwan can adopt to deal with the new challenges that are now facing it is to continue to make effective use of industry clusters to promote collaboration between SMEs and help Taiwan's SMEs build competitive advantage by differentiating themselves from their competitors (whether in terms of markets targeted, or technology development), while encouraging regional industry clusters to upgrade and transform themselves.

6. "Green" Business Opportunities for SMEs in an Era of Regional Economic Integration

In recent years, faced with the impact of increasingly frequent and severe storms, floods, droughts, earthquakes and other natural disasters, many of them related to climate change, countries throughout the world have begun to think more seriously about how they can strike the right balance between economic growth and environmental protection. At the same time, energy shortages have brought home to the world's citizens the need to husband resources. The global consensus regarding the need to save energy and reduce carbon dioxide emissions has stimulated the growth of "green industries." The range of products covered by these new industries is extremely broad; it includes everything from ordinary household goods to high-tech products, as well as packaging materials and textiles. Many countries are hoping that the development of green industries will help to stimulate the growth of the economy as a whole, while also fostering the growth of emerging industries of immense potential.

If one adopts a broad definition of what is meant by "green industry", then the potential business opportunities for SMEs are more or less unlimited. when narrowly defined, green industry currently has annual sales of approximately NT$30 billion, but this figure could rise to

NT$90 billion in the future. However, there are still some significant challenges to be overcome if this is to be achieved.

Keeping abreast of green trends and "going green" in industry can be made by SMEs to develop the business opportunities in green industry (broadly defined), and the government can provide guidance to minimize the problem of information asymmetry, promote industry cluster development and technology upgrading, speed up the ECFA negotiations and working proactively to secure opportunities for participation in regional trade groupings, help industrial upgrading, strengthening communication and coordination, and striving for greater consistency in government policy to help firms to take full advantage of the business opportunities available in green industry (narrowly defined).

7. Establishing Financial Guidance Mechanism for SMEs, Providing Financing Support and Strengthening Investment Capabilities

SMEs often find it difficult to secure funding from the financial markets because of their small size, frequently unsatisfactory management structure, inability to provide adequate collateral, and poor creditworthiness. The government has worked actively to establish financing guidance mechanisms and to provide various types of policy loan; it has also established the SME Financing Services Contact Window and SME Troubleshooting Center to provide guidance information and handle requests for emergency assistance and consulting service. In addition, the SME Credit Guarantee Fund provides SMEs with credit guarantees that make banks more willing to lend to them; this is supplemented by start-up investment support to help SMEs obtain the working capital they need.

The mechanisms for the establishment and operation of the SME Credit Guarantee Fund involved the allocation of a supporting budget by the government and the signing of contracts with financial institutions whereby they agree to provide additional funding to boost the Fund's ability to provide credit guarantees, and to share some of the potential loss.

8. Helping SMEs to Upgrade and Transform Themselves and to Strengthen Their R&D Capabilities

With the rapid pace of change in the international competitive environment in the past few years, SMEs are faced with operational challenges and pressure to transform themselves; they need to strengthen their utilization of IT, their quality management, and their R&D capabilities, to cope with these challenges. The government should be working actively to help SMEs upgrade and transform themselves, and to upgrade their R&D capabilities, focusing in particular on e-enablement, quality improvement, the strengthening of managerial capabilities, technology upgrading, improving innovation and R&D capabilities, etc.

2012 saw the launch of the e-CARE plan (to be implemented over the period 2012 – 2015). Taking as its core philosophy the concept of using in-depth development of digital applications to strengthen self-directed learning, the e-Care guidance model focuses on four key areas, aiming to provide micro-enterprises and SMEs in Taiwan's more remote districts with high-quality, in-depth support services tailored to the local needs of each region. e-CARE emphasizes qualitative improvement, taking as its key objectives the cultivation of individual enterprises,

supporting regional development, promoting the development of communities with a strong local theme, getting more people learning, and promoting more widespread adoption of e-learning applications.

To help SMEs strengthen their quality-related basic capabilities and ability to make effective use of collaborative logistics, so that quality can serve as the foundation for enterprise transformation and innovation, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) has been collating information relating to quality standards and rules in Taiwan and overseas, with the aim of enabling SMEs to achieve breakthroughs in terms of products, technology and markets. In 2012, the Administration is implementing the SME Innovation and Transformation Strategy, with the goal of using quality improvements, industry cluster and network development, the adoption of hi-tech, value-added applications, and responsiveness to "green" trends, to strengthen SMEs' innovation capabilities.

9. Launching "Start-up Taiwan Initiative" and Strengthening Business Start-up Capabilities and Innovative Business Incubation

Continuing to implement the Start-up Guidance Plan, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) has also launched the new Start-up Taiwan initiative in 2012, the key theme of which is "refining the incubation process to speed up the achievement of excellence," and which embodies three key strategies: "stimulating innovative ideas and strengthening the start-up function," "improving incubation to speed up new business growth," and "optimizing the support network for new businesses." The program will involve an intensification of efforts to identify first-rate innovative ideas, the creation of a "start-up laboratory" environment, and the adoption of an "idea factory" model with mechanisms for mentoring and for speeding up the incubation process, providing outstanding new start-ups with tailor-made service and making effective use of the business start-up service centers located in Northern, Central and Southern Taiwan to coordinate the integrated application of regional industry resources and the expansion of service capabilities at the local level, so as to build a first-class start-up support environment.

In addition, the National Youth Commission, Executive Yuan has been implementing the "Flying Goose Program," and the Council of Labor Affairs has been providing support for the establishment of new female-owned business enterprises through its "BeBoss Plan." These initiatives help women who are interested in establishing their own business to obtain the knowledge and resources they need, thereby reducing the time needed for new business start-up, and helping female entrepreneurs to acquire the necessary capabilities for successful business operation.

10. Revitalizing Local Economies and Promoting the Development of New Business Opportunities

In 1989, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) began to allocate resources to support the development of local cultural industries. Over the years, the support and guidance measures have focused on different aspects of local cultural

industry development including initial development, building differentiation, deepening differentiation, product innovation, specialty marketing and “Bright Spot” growth in 2011.

In 2012, the Small and Medium Enterprise Administration, MOEA began implementation of a new Local Cultural Industry Guidance Plan based on the vision of building competitive Taiwanese local cultural industries, and with the objectives of revitalizing local economies and creating jobs in local communities.

In 2009, the Executive Yuan established the Local Industry Development Fund to promote local economic prosperity by providing funding assistance in line with the development needs of local industries at the county and city level. It was anticipated that the Fund would help to transform the face of Taiwan’s local communities, encouraging people to move back to their home areas from the big cities and from overseas, creating new job opportunities, and imbuing local economic development with new vigor. Based on the Ministry of Economic Affairs’ approval of the Key Points Regarding the Provision of Subsidies by the Local Industry Development Fund and the Key Points Regarding the Provision of Micro Park Subsidies by the Local Industry Development Fund, the establishment of the micro park is supported by the Local Industry Development Fund, central government agencies, municipalities and county (city) governments.

The volume of global trade has been growing rapidly in recent years. To help Taiwan’s SMEs develop new business opportunities both at home and overseas, the Ministry of Economic Affairs has been formulating a variety of business opportunity development and marketing plans that approach this issue from the point of view of markets, industries, individual companies, industry associations, branding, etc. The idea is to help business enterprises develop new markets successfully, expand their marketing and distribution networks both in Taiwan and overseas, and enhance the export competitiveness of their products.

11. Participation in International SME Affairs, and Other Relevant Resources

The main purpose of this chapter is to outline the results achieved through Taiwan’s participation in major international conferences, to present statistics regarding the utilization of government resources to assist SMEs, and to describe the SME-related manpower cultivation and legal/regulatory adjustment work that has been undertaken by the government. Taiwan has for many years been an active participant in the SME-related meetings and activities undertaken by international organizations such as Asia Pacific Economic Cooperation (APEC), the International Small Business Congress (ICSB), the International Council for Small Business (ICSB), and the Asian Association of Business Incubation (AABI), and uses these events and activities as an opportunity to share Taiwan’s experience in SME development with other countries.

In 2011, total government resources allocated to SMEs including: government procurement from SMEs reached NT$695.92 billion; assistance to SMEs totaled NT$30.7 billion and provision of special loans totaling NT$2.7 billion to SMEs.

To help solve the problem of shortages of human talent which have been affecting Taiwan's SMEs, the government has been allocating budgets and coordinating the efforts of government agencies and experts from industry and academia to draw up manpower cultivation plans tailored to the development needs of individual industries to support SME innovation and help Taiwan's SMEs to respond to the challenge of globalization. The Small and Medium Enterprise Administration is continuing to work to improve the legal and regulatory environment for Taiwan's SMEs, by seeking to remove restrictive policies and regulations that may place an excessively high burden on SMEs and make it difficult for them to compete on a level playing field against large enterprises.

Part One

Recent Development of SMEs

CHAPTER 1

Changes in the Domestic and International Economic Environment since 2011

Over the course of 2011, the outlook for global growth became progressively gloomier due to the weakening of the economic recovery in Europe; there was a steady downward revision of economic growth forecasts both for individual countries and regions and for the global economy as a whole by the other international economic forecasting bodies. This economic slowdown was accompanied by the emergence of an asset bubble and a credit crisis affecting a large number of countries that threatened to usher in a renewed global financial crisis. Coming on top of a series of man-made and natural disasters – including earthquakes, floods, the effects of climate change, and energy shortages – the overall picture for the macroeconomic environment was one of uncertainty.

This chapter, which is divided into three sections, examines the impact of the changes that have been taking place in the wider economic environment on Taiwan's SMEs. Section I presents an overview of the major changes in the international business environment as a whole; Section II analyzes the business environment for Taiwan's SMEs; Section III examines the state of development of SMEs in selected other nations.

I Changes in the International Business Environment

1. A Progressive Slowing of the Pace of Global Growth

In 2011 the U.S. and the European nations were experiencing severe fiscal problems and high unemployment. Emerging markets were affected by inflation and asset bubbles, as well as the impact of rising oil prices. As a result, the outlook for the global economy as a whole grew steadily worse over the course of 2011, and global growth slowed. The overall picture was one of economic downturn in the developed nations, contrasting with slow but steady growth in the emerging economies. According to data compiled by Global Insight Inc., in 2011 the global economy grew by 3.0%, significantly lower than the figure of 4.3% posted in 2010 (Table 1-1-1). The IMF estimated that, while the volume of global trade grew by 12.9% in 2010, in 2011 the growth rate fell to 5.8%.

2. Rising International Oil Prices

There was considerable fluctuation in international oil prices over the course of 2012. The main factor pushing up oil prices in the first half of 2011 was the political unrest in the Middle East and North Africa, which raised concerns that the supply to other parts of the world might be disrupted. The major earthquake and tsunami that struck Japan in March 2011 forced Japan to import very large quantities of oil to compensate for the reduction in electric power generating capacity caused by the closure of nuclear power plants; at one point, the price of oil rose to its highest level since September 2008. In the second half of 2011, market demand for oil weakened due to the economic slowdown in the U.S. and the failure to resolve the European debt crisis. However, although oil

prices fell in the second half of the year, the tension related to developments in Iran and Syria ensured that international oil prices remained above the US$100 per barrel level (Fig. 1-1-1).

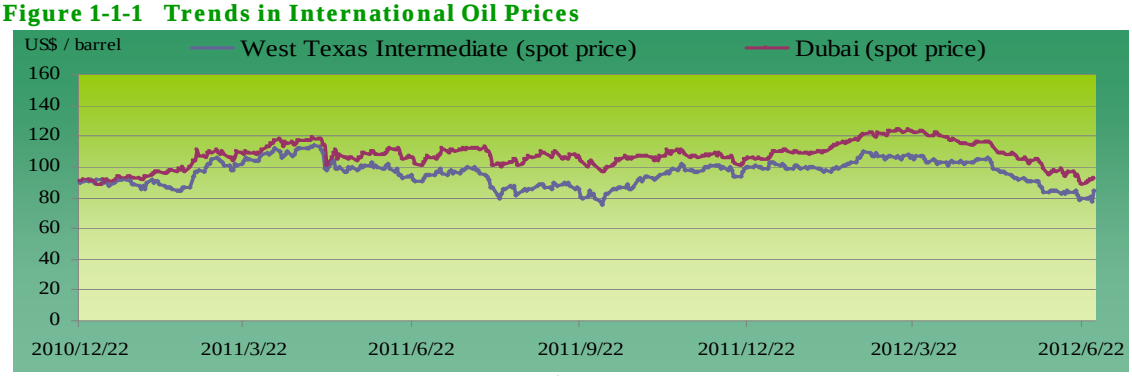
Table 1-1-1 Economic Growth Rates of Other Nations, 2007 – 2012

Unit: %

Country/Region	2007	2008	2009	2010	2011	2012(f)
World	4.1	1.6	-2.0	4.4	3.0	2.7
Taiwan	6.0	0.7	-1.8	10.7	4.0	3.1
U.S.A.	1.9	-0.3	-3.5	3.0	1.7	2.1
Canada	2.2	0.7	-2.8	3.2	2.4	2.0
Japan	2.2	-1.0	-5.5	4.4	-0.7	2.4
Germany	3.3	1.1	-5.1	3.7	3.0	1.0
France	2.3	-0.1	-3.1	1.7	1.7	0.0
U.K.	3.5	-1.1	-4.4	2.1	0.7	0.1
Italy	1.5	-1.2	-5.5	1.8	0.5	-1.9
Singapore	8.9	1.7	-1.0	14.8	4.9	2.6
South Korea	5.1	2.3	0.3	6.3	3.6	2.6
Hong Kong	6.4	2.3	-2.6	7.1	5.0	3.0
China	14.2	9.6	9.2	10.4	9.2	7.9
Thailand	5.0	2.5	-2.3	7.8	0.1	5.0
Malaysia	6.3	5.1	-1.6	7.2	5.1	4.4
Philippines	6.6	4.2	1.1	7.6	3.7	5.2
Indonesia	6.3	6.0	4.6	6.1	6.6	5.9
India	9.8	4.9	7.1	9.6	6.9	6.6
Brazil	6.1	5.2	-0.3	7.5	2.7	2.5
Russia	8.5	5.2	-7.8	4.3	4.3	3.5
Vietnam	8.5	6.2	5.3	6.9	5.9	5.4

Notes: 1. 2012 forecasts are based on Global Insight data.
2. The IMF forecast a global economic growth rate of 3.5% in 2012.
Source: Directorate-General of Budget, Accounting and Statistics (DGBAS), Executive Yuan, Quarterly National Economic Trends; Council for Economic Planning and Development (CEPD), International Economic Indicators; individual nations' monthly economic indicator reports.

Figure 1-1-1 Trends in International Oil Prices



Note: The values given are the West Texas Intermediate and Dubai spot prices for the date in question.
Source: Bureau of Energy, Ministry of Economic Affairs (MOEA), Oil Information System.

3. The Worsening Impact of the European Debt Crisis

As of the end of 2010, the governments of Greece, Portugal and Ireland all had external debt ratios in excess of 50%; French, German and British banks' exposure to the foreign debt of the "PIIGS" nations (Portugal, Ireland, Italy, Greece and Spain) amounted to around US$2 trillion. Given the scale of the debt crisis, there was no sign of any real recovery from the global financial crisis in Europe. While assistance from the IMF, and internal assistance from within the European Union (EU), enabled Europe's severely indebted nations to keep going, there has been no real improvement in the state of indebtedness of the worse-affected countries. In 2011, the pressure of debt repayment obligations became even more severe. The overall volume of debt continued to grow, and the number of countries affected increased. Despite repeated assistance to Greece, the most badly affected country (which is an EU member state) by the European Commission, leading EU members Germany and France, and the IMF, Greece has displayed a strong reluctance to accept the terms imposed on it, giving the whole crisis an increasingly farcical air. There is a serious danger that the European debt crisis will harm the outlook for growth for the global economy as a whole.

II Changes in the Business Environment for SMEs in Taiwan

Taiwan's economic growth rate fell from 10.72% in 2010 to a still respectable 4.03% in 2011. The growth rate for the first quarter of 2011 was 6.62%; in the second quarter, the weakening of the impetus for global economic recovery caused this figure to fall to 4.52%, followed by a continued decline to 3.45% in the third quarter and 1.85% in the fourth quarter. The economic downturn in Europe and the U.S. caused Taiwan's export growth rate to fall from 7.89% in the first half of 2011 to 1.46% in the second half, giving a whole-year growth rate of 4.53%. Private-sector investment grew by 7.62% in the first half of the year, but in the second half a weakening of overseas demand and falling capacity utilization rates resulted in negative growth of –11.47%, giving a whole-year growth rate of –2.47%. The steady reduction in the unemployment rate has boosted consumer spending, which rose by over 3% every quarter during the first three quarters of 2011; however, the negative impact of an uncertain economic outlook on consumer confidence resulted in a lower growth rate of just 1.06% in the fourth quarter, giving a whole-year consumer spending growth rate of 2.97%. Key macroeconomic indicators for Taiwan in 2011 are discussed individually below.

1. Economic Growth Starts Strong in Early 2011, but then Falls Off Later in the Year

Following the impressive economic growth rate of 10.72% that Taiwan posted in 2010, the 2011 whole-year growth rate was more modest, at 4.03%. The average growth rate for the first half of 2011 was 5.54% (6.62% in the first quarter, and 4.52% in the second quarter). However, in the second half of the year export growth and consumer spending weakened as a result of the downturn in the global economy as a whole; the second-half growth rate was 2.64% (3.45% in the third quarter, and 1.85% in the fourth quarter). The whole-year growth rate of 4.03% put Taiwan in third place among the "Four Asian Dragons" (Taiwan, Singapore, South Korea and Hong Kong).

2. A Slackening of Economic Vitality in 2011

The Council for Economic Planning and Development (CEPD) uses “traffic light” symbols to represent the state of health of the economy. Although January and February 2011 were both given a “yellow-red light,” indicating that the economy was continuing to heat up, followed by a “green light” denoting steady growth from March through to July, August saw a “yellow-blue light” warning that the economy was on the brink of a downturn, which continued through into September and October, and in November there was a “blue light” denoting a downturn, which continued into December. This steady deterioration in “traffic light” performance indicates that the economy has been gradually falling into a slump (Fig. 1-2-1).

3. A Gradual Rise in Consumer Prices

International commodity prices remained high in the first half of 2011. However, in the second half of the year the downturn in the global economy led to slower growth in prices and an easing of inflationary pressure. Global Insight estimates that the inflation rate for the global economy as a whole in 2011 was 4.0%. Taiwan was largely spared extreme weather conditions in 2011, ensuring that vegetable and fruit prices remained more or less stable. With the upward revaluation of the New Taiwan Dollar, the wholesale price index (WPI) rose by 4.32%, while the consumer price index (CPI) rose by 1.42%, which was lower than for any of the other “Four Asian Dragons” (the corresponding rates for South Korea, Singapore and Hong Kong were 4.0%, 5.2% and 5.3%. respectively). The annual rate of increase in Taiwan’s core CPI (excluding perishables and energy) was 1.13% (Table 1-2-1).

4. An Upward Revaluation of the New Taiwan Dollar, Followed by a Leveling Off

Up until September 2011, the New Taiwan Dollar had tended to rise against the U.S. Dollar. Subsequently, with the European debt crisis continuing to drag on, and the markets increasingly worried about the outlook for the global economy as a whole, there was a flight to the U.S. Dollar as a safe haven, which has caused the U.S. Dollar to increase in value. At the same time, foreign institutional investors have been reducing their holdings of New Taiwan Dollars, causing the New Taiwan Dollar to weaken still further against the U.S. Dollar. By September 22, 2011, the exchange rate had fallen to NT$30.37 to the U.S. Dollar, and by October 4 it had reached NT$30.68, although indications that the European debt crisis might be easing caused the exchange rate to rise again in late December to NT$30.29. The whole-year average was NT$29.46 to the US Dollar (Table 1-2-1).

5. A Slight Rise in Salary Levels in 2011

In 2011, the average monthly income for employed persons in the manufacturing and service sectors in Taiwan was NT$45,642, up 2.73% compared to 2010, and representing a historic high. Regular monthly earnings (excluding bonuses, etc.) averaged NT$36,803, representing a 1.47% increase on 2010. After allowing for inflation, real growth in monthly income and regular monthly income in 2011 was 1.29% and 0.04% respectively.

Figure 1-2-1 Economic Indicator Signals for Taiwan in 2011

Item \ Month		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Comprehensive Evaluation	Light												
	Comprehensive Index Score	34	34	31	29	27	25	23	20	21	19	16	14
M1B money supply													
Direct and indirect financing													
Stock market index													
Industrial production index													
Employment (non-agricultural sector)													
Value of exports (as reported by the Customs)													
Value of machinery and electromechanical equipment imports													
Manufacturing industry sales													
Wholesaling, retailing and restaurant industry sales index													

Notes: 1. indicates a "red light"; indicates a "yellow-red light"; indicates a "green light"; indicates a "yellow-blue light"; indicates a "blue light."
2. The overall growth performance scores corresponding to each light are as follows: 45 – 38 = red light; 37 – 32 = yellow-red light; 31 – 23 = green light; 22 – 17 = yellow-blue light; 16 – 9 = blue light..
3. With the exception of stock prices, all of the items making up the growth performance index are seasonally adjusted. Please note that the items used in each year's index do not necessarily correspond exactly to those used in previous years; care should therefore be exercised when interpreting the scores.

Source: Council for Economic Planning and Development, Executive Yuan, Economic Indicators for Taiwan, Feb. 2012.

Table 1-2-1 Key Indicators for the Taiwanese Economy, 2005 - 2011

Unit: %

Indicator / Year	Economic Growth Rate	Wholesale Price Index	Consumer Price Index	Tax Revenue	Money Supply		Exchange Rate (NT$ to the US$)	Labor Force Participation Rate	Unemployment Rate
					M1B	M2			
2005	4.70	0.62	2.31	12.98	7.10	32.17	6.20	57.78	4.13
2006	5.44	5.63	0.60	2.13	5.30	32.53	6.18	57.92	3.91
2007	5.98	6.47	1.80	8.31	6.44	32.84	4.16	58.25	3.91
2008	0.73	5.15	3.53	1.53	-2.94	31.52	2.71	58.28	4.14
2009	-1.81	-8.74	-0.87	-13.07	16.54	33.05	7.45	57.90	5.85
2010	10.72	5.46	0.96	6.01	14.93	31.64	4.53	58.07	5.21
2011	4.03	4.32	1.42	8.78	7.16	29.46	5.83	58.17	4.39

Note: With the exception of the labor force participation rate, unemployment rate and exchange rate (which are all whole-year averages), all indicators are expressed as annual growth rates.

Sources: 1. DGBAS, Executive Yuan, Quarterly National Economic Trends (Feb. 2012); DGBAS, Monthly Bulletin of Manpower Statistics (Feb. 2012).
2. Central Bank, Financial Statistics Monthly.

6. An Increase in Total Foreign Trade and in Taiwan's Export Surplus in 2011

With continued economic growth in 2011, Taiwan's total foreign trade rose to US$589.7 billion (representing a growth rate of 12.14%). Exports increased to US$308.3 billion (a 12.26% growth

rate), while imports rose by US$281.4 billion (12.02%). Taiwan's trade surplus increased by 14.79% in 2011 (Table 1-2-2).

Table 1-2-2 Taiwan's Foreign Trade Performance, 2005 - 2011

Units: US$ billions; %

Indicator / Year	Total Foreign Trade		Exports		Imports		Trade Surplus or Deficit	
	Amount	Annual Growth Rate	Amount	Annual Growth Rate	Amount	Annual Growth Rate	Amount	Annual Growth Rate
2005	381.0	8.52	198.4	8.81	182.6	8.21	15.8	16.19
2006	426.7	11.99	224.0	12.89	202.7	11.00	21.3	34.78
2007	465.9	9.19	246.7	10.12	219.3	8.17	27.4	28.64
2008	496.1	6.47	255.6	3.63	240.4	9.67	15.2	-44.65
2009	378.0	-23.79	203.7	-20.32	174.4	-27.48	29.3	93.03
2010	525.8	39.09	274.6	34.82	251.2	44.08	23.4	-20.47
2011	589.7	12.14	308.3	12.26	281.4	12.02	26.8	14.79

Notes: 1. Total exports = exports + re-exports; total imports = imports + re-imports.
2. The figures for total imports and total exports may not add up exactly to the corresponding figure for total foreign trade due to rounding.
Source: Bureau of Foreign Trade, MOEA, Foreign Trade Statistics (Feb. 2012).

7. China is Still Taiwan's Main Trading Partner

Taiwan's exports to China (including Hong Kong) increased by 8.1% in 2011 compared to 2010; China accounted for 40.2% of Taiwan's total exports. Direct exports to China (i.e., without transshipment in Hong Kong or elsewhere) accounted for 27.2% of total exports, and rose by 9.1% compared to 2010. Exports to the six other ASEAN member nations rose by 22.7% in 2011, and accounted for 16.5% of Taiwan's total exports.

2011 saw an increase in imports from all of Taiwan's main import sources. Imports from Japan continued to account for the largest share of Taiwan's total imports, at 18.5%, although in absolute terms imports from Japan increased by only 0.6% compared to 2010. Direct imports from China accounted for 15.5% of Taiwan's total imports, and rose by 21.3% compared to 2010 (Table 1-2-3).

Table 1-2-3 Taiwan's Trade with its Main Trading Partners in 2011

Units: US$ millions; %

Indicator / Country / Region	Exports			Imports			Trade Surplus / Deficit	
	Amount	Share of Total	Annual Growth Rate	Amount	Share of Total	Annual Growth Rate	Amount	Annual Growth Rate
Total	308,299	100.0	12.3	281,605	100.0	12.0	26,694	14.9
China (including Hong Kong)	124,054	40.2	8.1	45,283	16.1	20.5	78,771	2.1
China	83,965	27.2	9.1	43,607	15.5	21.3	40,358	-1.5
Hong Kong	40,089	13.0	6.0	1,676	0.6	2.9	38,413	6.2
U.S.A.	36,365	11.8	15.6	25,759	9.1	1.5	10,607	74.3
Japan	18,238	5.9	1.3	52,211	18.5	0.6	-33,972	0.2
Singapore	16,881	5.5	39.6	7,958	2.8	4.1	8,922	100.4
South Korea	12,382	4.0	15.9	17,866	6.3	11.25	-5,484	2.0
European Union	31,214	10.1	6.3	29,590	10.5	13.8	1,624	-51.8
ASEAN (Six Other Member Nations)	50,741	16.5	22.7	32,659	11.6	13.5	18,082	43.8
Other	18,424	6.0	29.5	70,279	25.1	31.94	-51,855	32.8

Notes: 1. Total exports = exports + re-exports; total imports = imports + re-imports.
2. The figures for total imports and total exports may not add up exactly to the corresponding figure for total foreign trade due to rounding.
Source: Ministry of Finance, Customs Import/Export Trade Statistics Bulletin for December 2011 (published on Jan. 9, 2012).

III Important Developments Related to SMEs in Japan, China and South Korea

This section examines the state of development of SMEs in selected other nations in light of the transformation of the global business environment.

1. SMEs in Japan

According to the data presented in the *2011 White Paper on Small and Medium Enterprises in Japan*, in 2011 there were approximately 4,191,000 SMEs in Japan, accounting for 99.7% of the 4,203,000 business enterprises in the country. SMEs employed 28.27 million people in 2011, representing 66.2% of the 42.73 million employed persons in Japan, and they accounted for 57.8% of total manufacturing sector value-added (80.3 trillion Yen).

In terms of whole-year performance, the percentage of Japanese SMEs that felt there had been an improvement in business conditions in 2011 was smaller than the percentage that felt business conditions had deteriorated. The disparity between these percentages was most pronounced in the second quarter, when Japan had just experienced the impact of the Great Eastern Japan Earthquake; in the second and third quarters the disparity narrowed. As a result of the earthquake, of the 14 manufacturing industry categories defined by the *White Paper*, there were only three industries – the furniture and furnishings industry, the ceramic, stone and clay products industry, and the iron, steel and non-ferrous metals industry – where the gap between the share of firms reporting a worsening of business conditions and the share reporting an improvement narrowed; in all of the other 11

categories – including food products, textiles, wood and wood products, and the chemical industry – the gap widened. In the non-manufacturing sector, the gap between the percentage of firms that felt business conditions had improved and the percentage that felt they had worsened shrank for two consecutive quarters starting in the third quarter of 2011; the gap also narrowed in whole-year terms. As regards the situation in individual non-manufacturing industries, the disparity between the share of firms reporting an improvement in business conditions and the share reporting a deterioration widened for all industries in the second quarter, due to the impact of the Great Eastern Japan Earthquake, but in whole-year terms all industries (including construction and wholesaling and retailing) saw a narrowing of the gap.

As regards the appraisal of business conditions in eight individual regions within Japan, in the first quarter the only region where the disparity between the share of firms reporting an improvement in business conditions and the share reporting a deterioration increased was the Kyushu-Okinawa region; in all of the other seven regions (including Hokkaido) the disparity shrank. In the second quarter, due to the impact of the Great Eastern Japan Earthquake, the disparity widened in all eight regions (including Hokkaido, Tohoku, and Kanto), but in the third and fourth quarters it narrowed in all eight regions. In whole-year terms, the disparity narrowed.

The disparity between the share of firms reporting an improvement in their cash-flow status and the share reporting a deterioration increased in the second quarter, but shrank in whole-year terms. A similar situation was seen with the share of firms reporting an improvement in the ease with which long-term funding could be obtained and the share reporting a deterioration, and also with respect to short-term funding. As regards the share of firms reporting over-manning or worker shortages, the percentage of firms reporting a shortage of workers rose in both the third and fourth quarters and in whole-year terms.

2. SMEs in China

According to the 2011 edition of the *Blue Book of Small and Medium Enterprises in China*, the overall situation for SMEs in China in 2010 was as follows:

(1) The Current Status of SMEs Classed as “Above-scale Enterprises”

In 2010, China’s “above-scale” SMEs had an annual production value of 49.77 trillion Yuan, representing an annual growth rate of 32.88%, and accounting for 70.32% of the total annual production value of all China’s “above-scale” enterprises (including both SMEs and large enterprises).

Over the period January – November 2010, China’s “above-scale” SMEs posted combined sales revenue of 42.55 trillion Yuan, representing a year-on-year growth rate of 33.47%, and paid taxes totaling 1,470,784 million, up 28.32% year-on-year; realized profits totaled 2,594,443 million, representing a year-on-year growth rate of 50.50%. The total number of “above-scale” SMEs in China was 449,300, up 7.11% year-on-year; the total number of persons employed by them was 705,617, representing year-on-year growth of 8.64%.

(2) The Actual Number of SMEs in China

When seeking to determine the actual number of SMEs in China, one needs to consider both the number of actually existing business enterprises and the number of actually existing small private businesses. Currently, the Chinese government does not compile data regarding the number of SMEs in China, but if it is assumed that 99% of enterprises in China are SMEs, then the data for the number of business enterprises and the number of small private businesses can be used as proxies to gauge the overall trend in the number of SMEs.

As of the end of 2010, there were 11,364,800 actually existing business enterprises in China, representing an increase of 931,300 enterprises (8.93%) on 2009. This total included 2,464,400 domestic enterprises, down 127,200 (4.91%) on 2009, along with 8,455,100 private enterprises, which represented an increase of 14.23% compared to 2009, and 445,200 foreign-invested enterprises, up 2.53% from 2009. There were 1,762,100 newly-registered enterprises (up 15.02% from 2009), including 1,576,600 newly-registered private enterprises (up 20.84%), 40,600 newly-registered foreign-invested enterprises (up 2.27%), and 141,900 newly-registered domestic enterprises (down 5.4% on 2009).

The number of actually existing small private businesses in China in 2010 was 34,528,900 (up 7.99% on 2009); these firms employed a total of 79,075,600 people (up 6.41%), and had capitalization of 1.34 trillion Yuan (up 23.31%).

(3) SME Distribution by Industry

The breakdown of actually-existing Chinese enterprises by industry is, in order of the number of firms, as follows: wholesaling and retailing industry – 3,970,000 enterprises (up 9.11% from 2009); manufacturing industry – 2,422,500 enterprises (up 4.33%); leasing and commercial services – 1,055,000 enterprises (up 17.32%); irrigation, environment and public facilities management – 52,700 enterprises (up 11.42%); healthcare, social assistance and social welfare industry – 16,400 enterprises (roughly the same as in 2009); education – 16,400 enterprises (up 5.8%).

Table 1-3-1 SME Development Indicators for China in 2010

Quarter / Indicator	Q1	Q2	Q3	Q4
SMEDI	107.1	106.7	108.9	106.3
Capitalization Index	107.2	105.6	99.6	94.8
Labor Requirements Index	104.3	106.8	114.8	109.1
Investment Index	112.2	111.8	122.1	126.1
Comprehensive Management Index	98.8	99.2	112.1	116.1
Overall Business Sentiment	113.1	113.1	123.5	113.5

Source: Blue Book of Small and Medium Enterprises in China (2011).

(4) China's SME Service System

The number of SME credit guarantee institutions in China rose from 97 in 2000 to 5,547 in 2010, a 57-fold increase; over the same period, the amount of credit guarantee funding has risen 113-fold, from 3 billion Yuan to 338.9 billion Yuan. China thus now has a sound SME credit guarantee infrastructure in place. The number of agencies providing support for SMEs has increased from 33

in 2000 to 818 in 2010. Since 2003, the Chinese central government authorities have allocated 180 million Yuan in funding to these agencies, and have provided free training for over 300,000 people, remote online training for 500,000 people, and other forms of computerized training for 1.1 million people. As regards services supporting SME start-up, China's central government authorities have provided 72.62 million Yuan in funding for SME start-up guidance, and have helped 522 organizations to provide support to 119,000 entrepreneurs. In addition, the government has speeded up the establishment of shared service platforms to support SME start-up and development, and has also accelerated the putting in place of IT service networks to ensure smooth access to information for SMEs.

(5) SME E-Enablement in China

China's SMEs are currently undergoing a process of transformation and upgrading, with a shift in emphasis away from boosting raw production towards raising efficiency and improving performance so as to be able to exert more influence over the market. As of 2010, the Chinese government had established a total of 280 SME e-enablement guidance stations, with a total of 1,125 certified SME e-enablement diagnostic advisors who have provided management diagnostics for over 50,000 SMEs, and helped 130,000 SMEs to achieve e-enablement.

3. SMEs in South Korea

According to OECD data for 2006, 98.9% of South Korea's business enterprises are SMEs, with 1.1% being large enterprises. 71% of the employed population works in SMEs, with 29% working in large enterprises.

Back in 1996, the South Korean government initiated the New Technology Purchasing Assurance Programme to help SMEs innovate. Joint purchasing of SME products was used to stimulate the development of home-grown technology. Also in 1996, South Korea established the Small and Medium Business Administration (SMBA) to provide subsidies to public-sector organizations for the purchasing of hi-tech products developed by Korean SMEs, with the aim of stimulating technology development by SMEs. South Korea's *Promotion of Small and Medium Enterprises and Encouragement of Purchase of Their Products Act* stipulates that, if an SME's hi-tech product is designated a "guaranteed purchase product," then the SMBA can recommend that all public sector organizations and government agencies give priority to the purchase of that product (as opposed to rival products). At least 20% of products are classified as "New Excellent Products" (NEPs), for which the government provides a guarantee of purchase under this program.

In 2010, purchases of new technology products by public-sector organizations and government agencies in South Korea accounted for over 10% of total government procurement, with the purchasing of SMEs' new hi-tech products accounting for 2,078.5 billion Won (approximately US$1.9 billion) (Table 1-3-2).

Table 1-3-2 The Performance of South Korea's Guaranteed Purchasing Program for New Hi-tech Products

Unit: million Won

Item \ Year	2004	2005	2006	2007	2008	2009
Government purchasing of SMEs' products	150,973	158,184	190,128	193,010	242,052	224,302
Of which, government purchasing of SMEs' new hi-tech products	5,251	6,144	10,744	13,705	16,808	20,785
Government purchasing of SMEs' new hi-tech products as share of total government purchasing of SMEs' products	3.5%	3.9%	6.9%	7.1%	6.9%	9.3%

Source: OECD (2011), Demand-Side Innovation Policies.

CHAPTER 2

Major Trends in the Development of SMEs

This chapter will examine the indicators of small and medium enterprises (SMEs) development in Taiwan in 2011.

The chapter is separated into six parts. Part 1 deals with the general business environment of SMEs, and there are four indices (number of enterprises, total annual sales, domestic sales, and export sales) for observations in terms of scales and sectors, and a year-by-year comparison. Part 2 is on the business environment of the manufacturing industry from the results of the survey from the Department of Statistics, Ministry of Economic Affairs. Part 3 is also from the survey, but on the wholesaling and retailing industry business environment. Part 4 shows the distribution of the number of enterprises and total annual sales in different regions in terms of sectors and counties/cities. Part 5 focuses on the current situation of female enterprises based on the four indices mentioned above and business structures. Part 6 is the analysis on SME R&D costs based on *Indicators of Science and Technology, Taiwan* published by the National Science Council, and the *2011 Survey on Taiwanese-invested Enterprises Operating Overseas* published by the Investment Commission, Ministry of Economic Affairs.

For details of the sources used to determine the number of employed persons and number of paid employees in 2010, see Part 1, Chapter Four of this White Paper. For more detailed statistical data, broken down by industry, scale of operations and geographical location (county and city), and for more detailed information relating to the manufacturing sector and female-owned enterprises, see the SME statistical data tables for 2011 presented in Appendix C. In the following sections we examine the scale (in terms of the number of enterprises, total annual sales, domestic sales, export sales, etc.) and industry structure of Taiwan's SME sector, as well as undertaking comparisons based on the changes seen from year to year. The data presented in Part 1 are based on sales tax data compiled by the Tax Data Center, Ministry of Finance, with the definition of SMEs being based on paid-in capital or sales.

I General SME Business Environment

The following section reviews the general performance of SMEs in 2011. The overall performance is better.

1. 97.63% of Taiwan's Enterprises are SMEs

As of 2011, there were a total of 1,310,791 business enterprises in Taiwan, of which 1,279,784 were SMEs, accounting for 97.63% of the total number of business enterprises in Taiwan. This figure represented an increase of 31,786 enterprises (2.55%) compared to 2010. The number of large enterprises was 31,007 enterprises, accounting for 2.37% of the total number of business enterprises, which rose by 4.80% and increased by 1,420 enterprises. (Table 2-1-1)

2. A Slight Increase in Total Sales of SMEs Compared to 2010

In 2011, the total sales of all business enterprises in Taiwan came to NT$37,881.7 billion, representing a 4.53% increase compared to 2010. SMEs' sales totaled NT$11,226.9 billion, 4.84% up on 2010, while large enterprises posted total sales of NT$26,654.7 billion, 4.40% up on 2010. As a result, SMEs' share of the total sales of all business enterprises rose from 29.55% in 2010 to 29.64% in 2011.

In 2011, the total domestic sales of SMEs in Taiwan amounted to NT$9,576.9 billion (85.30%), increasing by NT$488 billion, representing a 5.37% increase compared to 2010. Taiwan's SMEs posted total export sales of NT$1,650.0 billion in 2011, 1.85% up on 2010, and represented 16.29% of the total export sales of all business enterprises in Taiwan (NT$10,126.9 billion).

Table 2-1-1 The Number of Enterprises in Taiwan, Their Annual Sales, the Number of Employed Persons and the Number of Paid Employees in 2010 and 2011

Units: enterprises; NT$ millions; thousand persons; %

Enterprise Size / Indicator	All Enterprises		SMEs		Large Enterprises	
	2010	2011	2010	2011	2010	2011
No. of enterprises	**1,277,585**	**1,310,791**	**1,247,998**	**1,279,784**	**29,587**	**31,007**
Share of total	100.00	100.00	97.68	97.63	2.32	2.37
Annual growth rate	1.54	2.60	1.30	2.55	12.78	4.80
Total annual sales	**36,239,637**	**37,881,681**	**10,709,005**	**11,226,933**	**25,530,632**	**26,654,748**
Share of total	100.00	100.00	29.55	29.64	70.45	70.36
Annual growth rate	20.87	4.53	16.54	4.84	22.79	4.40
Domestic sales	**26,216,138**	**27,754,779**	**9,088,972**	**9,576,948**	**17,127,166**	**18,177,832**
Share of total	100.00	100.00	34.67	34.51	65.33	65.49
Annual growth rate	18.20	5.87	15.44	5.37	19.71	6.13
Export sales	**10,023,499**	**10,126,901**	**1,620,033**	**1,649,985**	**8,403,466**	**8,476,916**
Share of total	100.00	100.00	16.16	16.29	83.84	83.71
Annual growth rate	28.46	1.03	23.07	1.85	29.57	0.87
No. of employed persons	**10,493**	**10,709**	**8,191**	**8,337**	**1,253**	**1,334**
Share of total	100.00	100.00	78.06	77.85	11.94	12.46
Annual growth rate	2.09	2.06	1.56	1.78	6.77	6.50
No. of paid employees	**8,104**	**8,328**	**5,805**	**5,958**	**1,250**	**1,332**
Share of total	100.00	100.00	71.63	71.54	15.42	15.99
Annual growth rate	2.72	2.77	2.22	2.64	6.73	6.58

Note: The figures (and percentages) given in the table for the number of employed persons and number of paid employees working in all enterprises include 1,040,000 government employees, accounting for 9.69% of all employed persons and 12.48% of all paid employees.
Sources: 1. Ministry of Finance Tax Data Center, VAT data for 2011.
2. DGBAS, Monthly Bulletin of Manpower Statistics, 2011.

Over the past six years, there had been a decline in the total annual sales and the domestic sales in both 2008 and 2009. In 2010 the strong economic growth had led to a huge growth. Even

though the economy has slowed down in 2011, there was still a 5% increase; exports declined sharply (up to 20%) in 2009, but it rebounded up to 23.01% in 2010 (Table 2-1-2).

Table 2-1-2 The Shares of All SMEs in Taiwan Held by Individual Sectors and Key Industries, 2006–2011

Units: enterprises; NT$ millions; thousand persons; %

Year / Sector/Industry	2006	2007	2008	2009	2010	2011
All SMEs	**1,244,099**	**1,237,270**	**1,234,749**	**1,232,025**	**1,247,998**	**1,279,784**
Ratio	97.77	97.63	97.70	97.91	97.68	97.63
Annual growth rate	1.47	-0.55	-0.20	-0.22	1.30	2.55
Total Sales	**10,241,215**	**10,481,910**	**10,462,696**	**9,189,463**	**10,709,005**	**11,226,933**
Ratio	29.84	28.34	29.69	30.65	29.55	29.64
Annual growth rate	2.41	2.35	-0.18	-12.17	16.54	4.84
Domestic Sales	**8,678,992**	**8,842,983**	**8, 817,989**	**7,873,111**	**9,088,972**	**9,567,948**
Ratio	33.91	32.49	34.23	35.50	34.67	34.51
Annual growth rate	2.33	1.89	-0.28	-10.72	15.44	5.37
Export Sales	**1,562,224**	**1,638,927**	**1,644,707**	**1,316,352**	**1,620,033**	**1,649,985**
Ratio	17.89	17.06	17.36	16.87	16.16	16.29
Annual growth rate	2.86	4.91	0.35	-19.96	23.01	1.85

Source: Ministry of Finance Tax Data Center, VAT data for 2006–2011.

The structural change in the sectors of industry over the past six years can be observed from Table 2-1-3. The SMEs are mostly concentrated in the service sector, with the proportion being over 80% (80.09% to 80.99%), and the industrial sector accounts for 18% to 19%.

Table 2-1-3 The Shares of All SMEs in Taiwan Held by Individual Sectors, 2006–2011

Units: enterprises; %

Year / Sector/Industry	2006	2007	2008	2009	2010	2011
All SMEs	**1,244,099**	**1,237,270**	**1,234,749**	**1,232,025**	**1,247,998**	**1,279,784**
Agricultural Sector	0.88	0.87	0.89	0.90	0.91	0.90
Industrial Sector	18.13	18.79	18.83	18.75	18.67	19.01
Service Sector	80.99	80.33	80.28	80.24	80.42	80.09
Total Sales	**10,241,215**	**10,481,910**	**10,462,696**	**9,189,463**	**10,709,005**	**11,226,933**
Agricultural Sector	0.14	0.15	0.16	0.18	0.17	0.16
Industrial Sector	48.85	50.04	50.09	45.85	49.41	50.13
Service Sector	51.01	49.81	49.75	53.96	50.42	49.70
Domestic Sales	**8,678,992**	**8,842,983**	**8, 817,989**	**7,873,111**	**9,088,972**	**9,567,948**
Agricultural Sector	0.15	0.16	0.16	0.19	0.18	0.17
Industrial Sector	45.00	46.14	46.05	42.35	45.47	46.28
Service Sector	54.85	53.71	53.79	57.46	54.36	53.55
Export Sales	**1,562,224**	**1,638,927**	**1,644,707**	**1,316,352**	**1,620,033**	**1,649,985**
Agricultural Sector	0.10	0.11	0.11	0.15	0.14	0.12
Industrial Sector	70.25	71.09	71.77	66.82	71.52	72.50
Service Sector	29.64	28.79	28.12	33.03	28.34	27.38

Source: Ministry of Finance Tax Data Center, VAT data for 2006–2011.

3. The Number of SMEs Accounted for 99.72% of New Enterprises and 64.34% of Total Sales

For the purposes of this chapter, newly-established enterprises are defined as those that have been in existence for less than one year. In 2011, there were 99,584 newly-established SMEs in Taiwan, representing 99.76% of the total of 99,827 newly-established enterprises. Newly-established SMEs posted total sales of NT$180.9 billion in 2011, accounting for 64.34% of the total sales of all newly-established enterprises; they posted domestic sales of NT$172.4 billion, representing

81.53% of the total domestic sales of all newly-established enterprises, and export sales of NT$8.6 billion, accounting for 12.28% of the export sales of all newly-established enterprises (Table 2-1-4, Appendix C).

From Table 2-1-4, the total annual sales, domestic sales, and export sales of newly-established SMEs as percentages of the total for all SMEs are the lowest in 2011 over the past six years. Except for the number of enterprises, other ratios declined sharply from 2010.

Table 2-1-4 The Number of Newly-established SMEs and Their Sales as a Percentage of the Total for All SMEs, 2006–2011

Units: enterprises; NT$ millions; %

Item \ Year		2006	2007	2008	2009	2010	2011
No. of enterprises	All SMEs	1,244,099	1,237,270	1,234,749	1,232,025	1,247,998	1,279,784
	Newly-established SMEs	108,320	92,956	86,325	88,531	86,682	99,584
	Newly-established SMEs as % of total	8.71	7.51	6.99	7.19	6.95	7.78
Total annual sales	All SMEs	10,241,215	10,481,910	10,462,696	9,189,463	10,709,005	11,226,933
	Newly-established SMEs	236,973	209,849	176,941	157,579	390,536	180,937
	Newly-established SMEs as % of total	2.31	2.00	1.69	1.71	3.65	1.61
Domestic sales	All SMEs	8,678,992	8,842,983	8,817,989	7,873,111	9,088,972	9,576,948
	Newly-established SMEs	221,496	192,999	165,219	147,318	357,740	172,362
	Newly-established SMEs as % of total	2.55	2.18	1.87	1.87	3.93	1.80
Export sales	All SMES	1,562,224	1,638,927	1,644,707	1,316,352	1,620,033	1,649,985
	Newly-established SMEs	15,477	16,851	11,722	10,261	32,797	8,575
	Newly-established SMEs as % of total	0.99	1.03	0.71	0.78	2.02	0.52

Source: Ministry of Finance Tax Data Center, VAT data, consecutive years.

In terms of the sectors, the service sector accounted for the most in the largest number of enterprises, total annual sales, domestic sales, and export sales (more than 70%) in 2011 (Table 2-1-5).

Table 2-1-5 The Number of Newly-established SMEs and Newly-established SME Sales Performance by Sector in 2011

Units: enterprises; NT$ millions; %

Item	No. of Enterprises	Share of Total	Total Sales	Share of Total	Domestic Sales	Share of Total	Export Sales	Share of Total
All sectors	**99,584**	**100.00**	**180,937**	**100.00**	**172,362**	**100.00**	**8,575**	**100.00**
Agricultural sector	618	0.62	460	0.25	438	0.25	22	0.26
Industrial sector	13,901	13.96	43,632	23.86	41,446	24.05	2,186	25.49
Service sector	85,065	85.42	137,305	75.89	132,716	77.00	6,389	74.51

Source: Ministry of Finance Tax Data Center, VAT data for 2011.

4. 56.72% of Taiwan's SMEs are Sole Proprietorships

Sole proprietorships constituted the largest group of SMEs, with 725,885 firms or 56.72% of the total, followed by limited corporations, with 362,162 firms (28.30% of the total), and corporations limited by shares, with 109,465 firms (8.55%). These three types accounted for a

combined total of 93.57% of all SMEs in Taiwan; none of the other forms of enterprise organization accounted for more than a very small share of the total (Table 2-1-6).

Table 2-1-6 Business Enterprises in Taiwan by Form of Organization, 2010–2011

Units: enterprises; %

Year / Form of Organization	2010				2011			
	SMEs	Share of Total	Large Enterprises	Share of Total	SMEs	Share of Total	Large Enterprises	Share of Total
Total	**1,247,998**	**100.00**	**29,587**	**100.00**	**1,279,784**	**100.00**	**31,007**	**100.00**
Corporation limited by shares	112,220	8.99	17,635	59.60	109,465	8.55	17,340	55.92
Limited corporation	351,979	28.20	6,683	22.59	362,162	28.30	7,238	23.34
Unlimited corporation	43	0.00	2	0.01	50	0.00	2	0.01
Unlimited corporation with limited liability shareholders	11	0.00	1	0.00	10	0.00	1	0.00
Partnership	20,714	1.66	72	0.24	21,948	1.71	86	0.28
Sole proprietorship	710,894	56.96	164	0.55	725,885	56.72	175	0.56
Foreign company	3,039	0.24	694	2.35	3,164	0.25	715	2.31
Representative office of foreign company	101	0.01	19	0.06	93	0.01	19	0.06
Branch office	28,157	2.26	2,517	8.51	30,854	2.41	2,988	9.64
Other	20,840	1.67	1,800	6.08	26,153	2.04	2,443	7.88

Source: Ministry of Finance Tax Data Center, VAT data for 2010, 2011.

5. 47.01% of Taiwan's SMEs Have Been in Existence for Over 10 Years

As of 2011, 7.78% of start-ups in Taiwan had been in existence for less than one year. 30.69% of SMEs had been operating for less than 5 years, and 47.01% for over 10 years (Table 2-1-7). The corresponding percentages for large enterprises were 0.78%, 11.18% and 69.52%, respectively. These figures show that, in terms of market entry and exit, SMEs display more flexibility than large enterprises.

An examination of the changes in the percentage of SMEs that have been in business for a particular length of time shows that, from 2006 to 2011, the percentage of newly-established SME start-ups (as a share of all SMEs) peaked in 2006 at 8.71%, and was at its lowest in 2008, at 6.99%. The percentage of SMEs that had been in existence for over 20 years was only 19.58% in 2007. Since then it has risen gradually, climbing to 21.96% by 2011 (Table 2-1-7).

Table 2-1-7 The Share of All SMEs Held by SMEs of Particular Ages over the Period 2006–2011

Units: %

Age / Year	2007	2008	2009	2010	2011	
					SMEs	Large enterprises
Total number of SMEs	**1,237,270**	**1,234,749**	**1,232,025**	**1,247,998**	**1,279,784**	**31,007**
Less than 1 Year	7.51	6.99	7.19	7.50	7.78	0.78
1 – 2 Years	8.57	7.25	6.76	6.95	7.20	2.06
2 – 3 Years	8.09	7.34	6.16	5.75	5.88	2.64
3 – 4 Years	6.31	7.08	6.45	5.38	5.04	2.70
4 – 5 Years	5.86	5.61	6.33	5.75	4.79	3.00
5 – 10 Years	20.11	20.64	21.01	21.95	22.30	19.30
10 – 20 Years	23.97	24.63	25.10	25.33	25.05	33.95
Over 20 Years	19.58	20.47	21.02	21.39	21.96	35.57

Source: Ministry of Finance Tax Data Center, VAT data.

6. A Steady Decline in SMEs' Share of Exports, but a Slight Increase in SMEs' Export-orientedness

Using Ministry of Finance Tax Data Center data, total SME exports in 1997 amounted to NT$1,250.0 billion, representing an SME export contribution rate of 26.42%. It declined year by year, and reached the lowest level of 16.16% in 2010, before slowly increasing to 16.29% in 2011 (Table 2-1-8).

If we calculate the SMEs' export-orientedness as the SME export sales' share of the SMEs' total sales, we can see that this indicator has never exceeded 20% in any year since 1997. The highest level that it ever reached was 15.72% in 2008; the lowest was in 2009, when SME export-orientedness was just 14.32%.

The changes in the export contribution rate and export-orientedness of Taiwan's SMEs are generally attributed to the transformation in the structure of Taiwanese industry and in the form taken by exportation, the raising of the technology level of Taiwanese industry, a reorientation towards high-value-added and low-energy-consuming industries (such as the electronics and IT industry, precision machinery manufacturing, and metallurgy), and the emergence of new hi-tech industries (including the information industry, consumer electronics, the semiconductor industry, aerospace, advanced materials, biotech and pharmaceuticals), which have shifted the focus of Taiwan's export trade towards large enterprises. Rather than exporting products themselves, SMEs have become satellite firms of large enterprises. SMEs have thus continued to make a major contribution to Taiwan's export performance; it is simply that there has been a shift away from direct exportation by SMEs themselves towards indirect exports via large enterprises, with SMEs playing a supporting or ancillary role.

Table 2-1-8 The Export Contribution Rate and Export-orientedness of Taiwan's SMEs, 2006–2011

Units: NT$ millions; %

Item \ Year		2006	2007	2008	2009	20101	2011
All Enterprises	**Export Sales（A）**	**8,731,753**	**9,608,324**	**9,476,222**	**7,802,519**	**10,023,499**	**10,126,901**
SMEs	Total Sales（B）	10,241,215	10,481,910	10,462,696	9,189,463	10,709,005	11,226,933
	Export Sales（C）	1,562,224	1,638,927	1,644,707	1,316,352	1,620,033	1,649,985
	Export Contribution Rate (C/A)	17.89	17.06	17.36	16.87	16.16	16.29
	Export-orientedness(C/B)	15.25	15.64	15.72	14.32	15.13	14.70

Note: SME export contribution rate = (SME export sales / Total export sales) × 100%.
SME export-orientedness = (SME export sales / SME total sales) × 100%.
Source: Ministry of Finance Tax Data Center, VAT data, consecutive years.

II SMEs and the Local Economy

1. Taiwan's SMEs are Heavily Concentrated in Northern Taiwan

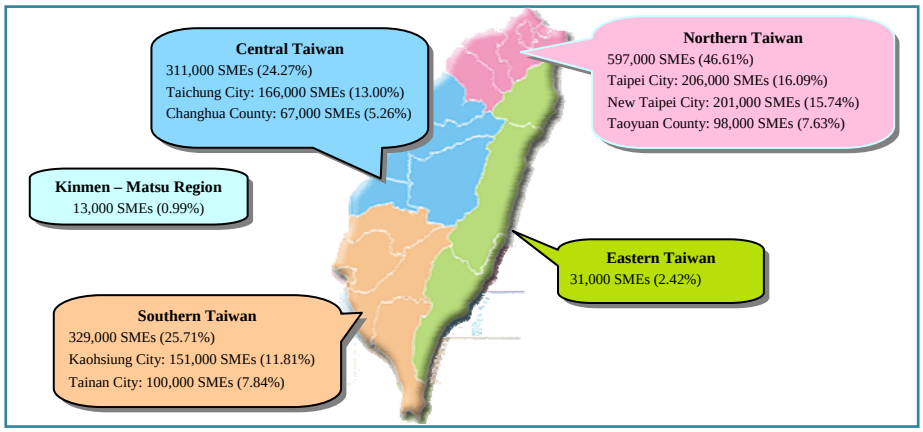
In regional terms, in 2011 46.61% of Taiwan's SMEs were concentrated in Northern Taiwan; 24.27% were located in Central Taiwan and 25.71% in Southern Taiwan (Figure 2-2-1). The concentration in Northern Taiwan was even more marked in the case of large enterprises; 63.11% of Taiwan's large enterprises were based in Northern Taiwan in 2011.

2. Taipei City Had the Highest Percentage in terms of the Number of Taiwan's SMEs

In 2011, the 10 counties and cities that had the largest number of SMEs comprised mainly the major metropolitan areas on Taiwan's west coast and their satellite cities and counties. Taipei City had the largest number of SMEs, at 206,000 representing 16.09% of all SMEs in Taiwan. New Taipei City was in second place with 201,000 SMEs (15.74% of the total), followed by Taichung City with 166,000 SMEs (13.00% of the total) (Figure 2-2-1).

Taipei City had the largest number of Taiwan's large enterprises (with 10,204), followed by New Taipei City with 4,743, and Taichung City with 3,391.

Figure 2-2-1 The Distribution of SMEs by Region, and the Counties/Cities with the Largest Shares of SMEs, in 2011



Note: Northern Taiwan includes Taipei City, New Taipei City, Keelung City, Ilan County, Taoyuan County, Hsinchu City, and Hsinchu County. Central Taiwan includes Miaoli County, Taichung City, Changhua County, Nantou County and Yunlin County. Southern Taiwan includes Chiayi City, Chiayi County, Tainan City, Kaohsiung City, Pingtung County and Penghu County. Eastern Taiwan includes Hualien County and Taitung County. The Kinmen-Matsu Region includes Kinmen County and Lienchiang County.

Source: Ministry of Finance Tax Data Center, VAT data for 2011.

3. New Taipei City Accounts for the Highest Share of Total SME Sales

Examination of SME sales in 2011 by county/city shows that the largest share of overall SME sales was held by those SMEs located in New Taipei City (formerly Taipei County), with 19.15% of total sales. Taipei City was in second place (with 18.68%), followed by Kaohsiung City (12.87%). Analysis of the number of SMEs by industry sector and region shows that Kaohsiung City had the largest share of SMEs in the agriculture (including both arable and pastoral farming), forestry and fisheries sector (with 37.01% of the total); Kaohsiung City also posted the largest

share of agriculture, forestry and fisheries SME sales, at 31.99%. New Taipei City, Taichung City and Changhua County had the largest number of manufacturing sector SMEs; in terms of manufacturing sector SME sales, Taichung City, New Taipei City and Tainan City had the highest shares. The largest share of service sector SMEs was found in Taipei City.

Table 2-2-1 Number of SMEs by Sector and Region – The Three Counties/Cities with the Largest Number of SMEs in Each Industry Sector

Item / Industry Sector	Largest no. of SMEs		Second largest no. of SMEs		Third largest no. of SMEs	
	County / City	Share (%)	County / City	Share (%)	County / City	Share (%)
SMEs (all industry sectors)	Taipei City	16.09	New Taipei City	15.74	Taichung City	13.00
Agriculture (arable and pastoral), forestry and fisheries	Kaohsiung City	37.02	Yilan County	18.43	New Taipei City	11.15
Secondary industry	New Taipei City	20.92	Taichung City	17.82	Kaohsiung City	9.37
Manufacturing	New Taipei City	22.61	Taichung City	22.02	Changhua County	12.40
Construction	New Taipei City	19.37	Kaohsiung City	12.62	Taichung City	12.60
Service sector	Taipei City	18.38	New Taipei City	14.56	Kaohsiung City	12.11
Wholesaling and retailing	Taipei City	17.70	New Taipei City	15.24	Taichung City	12.02
Hotel and restaurant industry	Taipei City	15.59	Kaohsiung City	13.55	Taichung City	11.59

Source: Ministry of Finance Tax Data Center, VAT data for 2011 (original data).

Table 2-2-2 Total Sales of SMEs by Sector and Region – The Three Counties/Cities with the Largest Number of SMEs in Each Industry Sector

Item / Industry Sector	Largest no. of SMEs		Second largest no. of SMEs		Third largest no. of SMEs	
	County / City	Share (%)	County / City	Share (%)	County / City	Share (%)
SMEs (all industry sectors)	New Taipei City	19.15	Taipei City	18.68	Kaohsiung City	12.87
Agriculture (arable and pastoral), forestry and fisheries	Kaohsiung City	31.99	Changhua County	7.75	Tainan City	7.72
Secondary industry	New Taipei City	16.67	Taichung City	15.96	Tainan City	11.70
Manufacturing	Taichung City	16.80	New Taipei City	16.55	Tainan City	13.68
Construction	New Taipei City	17.49	Taipei City	16.68	Kaohsiung City	13.60
Service sector	Taipei City	24.91	New Taipei City	16.76	Taichung City	12.62
Wholesaling and retailing	Taipei City	22.88	New Taipei City	18.07	Taichung City	13.01
Hotel and restaurant industry	Taipei City	26.20	Taichung City	12.25	New Taipei City	11.97

Source: Ministry of Finance Tax Data Center, VAT data for 2011 (original data).

4. Number of SMEs, SME Sales and SME Employment in Taiwan's Five Special Municipalities

The main goal behind the upgrading of Taipei County to the status of "New Taipei City" and the merging of Taichung County into Taichung City, Tainan County into Tainan City and Kaohsiung County into Kaohsiung City, giving Taiwan a total of five "Special Municipalities," was to use this consolidation of administrative districts to create districts with a larger geographical area that would be able to integrate resources more effectively, thereby enhancing their overall competitiveness.

As can be seen from the data presented in Table 2-2-3, of the five Special Municipalities, Taipei City has the largest number of SMEs, and the larger number of people employed by SMEs. New Taipei City is in second place in terms of the number of SMEs, but ranks top in terms of its share of overall SME sales. Taichung City ranks third out of the five Special Municipalities in terms of the number of SMEs and in terms of SME sales, but ranks last in terms of the number of people employed by SMEs. Kaohsiung City has seen a significant amount of its manufacturing industry relocated to other countries; as a result, the number of SMEs in Kaohsiung City, and their total sales, surpass only the totals for Tainan City, putting Kaohsiung City in fourth place; on the other hand, in terms of the number of people employed by SMEs, Kaohsiung City is in second place, behind Taipei City.

Table 2-2-3 The Number of SMEs, SME Sales, and Number of People Employed by SMEs, of Taiwan's Five Special Municipalities in 2011

Units: enterprises; NT$ millions; thousand persons; %

Indicator \ Municipality		Combined Total for the Five Municipalities	Taipei City	New Taipei City	Taichung City	Tainan City	Kaohsiung City
No. of Firms	All enterprises	1,310,791	216,143	206,159	169,779	102,197	154,203
	SMEs	1,279,784	205,939	201,416	166,388	100,384	151,096
	Share of total	100.00	16.09	15.74	13.00	7.84	11.81
	Large enterprises	31,007	10,204	4,743	3,391	1,813	3,107
Sales	All enterprises	37,881,681	12,216,800	4,177,230	3,575,047	2,461,579	4,181,297
	SMEs	11,226,933	1,828,023	1,874,483	1,603,292	1,031,318	1,259,396
	Share of total	100.00	16.28	16.70	14.28	9.19	11.22
	Large enterprises	26,654,747	10,388,777	2,302,746	1,971,754	1,430,261	2,921,901
No. of Employees	All enterprises	10,708,808	1,207,066	1,852,786	1,237,935	897,327	1,270,379
	SMEs	1,334,163	201,824	167,776	113,066	117,161	171,722
	Share of total	100.00	15.13	12.58	8.47	8.78	12.87
	Large enterprises	1,334	202	168	113	117	172

Note: The percentages given in the table are the shares (of sales, or number of employed persons) held by the Special Municipality in question out of the combined total for the five Special Municipalities.
Source: Small and Medium Enterprise Administration, MOEA, 2012.

Examination of the distribution of SMEs among the five Special Municipalities by industry sector shows that, following the merger of Kaohsiung County into Kaohsiung City, the new Special Municipality of Kaohsiung City now has the largest share of agriculture (including arable and pastoral farming), forestry and fisheries SMEs (at 37.01% of the total) of any of the five

Special Municipalities. New Taipei City has the largest share of secondary industry (manufacturing and construction) SMEs, followed by Taichung City. Taipei City has the largest share of service sector SMEs (at 18.38% of the total).

Table 2-2-4 The Number of SMEs of Taiwan's Five Special Municipalities in 2011

Units: enterprises; %

Indicator \ Municipality		Combined Total for the Five Municipalities	Taipei City	New Taipei City	Taichung City	Tainan City	Kaohsiung City
No. of Firms	All enterprises	11,612	296	1,292	325	301	4,288
	SMEs	11,569	285	1,290	322	299	4,282
	Share of total	100.00	2.46	11.15	2.78	2.58	37.01
Sales	All enterprises	250,286	18,562	52,134	44,143	19,353	23,340
	SMEs	243,228	17,254	50,876	43,340	18,817	22,687
	Share of total	100.00	7.09	20.92	17.82	7.74	9.33
No. of Employees	All enterprises	1,048,915	197,291	152,735	125,315	82,544	126,575
	SMEs	1,025,009	188,406	149,252	122,730	81,269	124,127
	Share of total	100.00	18.38	14.56	11.97	7.93	12.11

Source: Small and Medium Enterprise Administration, MOEA, 2012.

The distribution of sales revenue by sector among the five Special Municipalities is broadly the same as the distribution of the number of SMEs among the five. The share of agriculture, forestry and fisheries SME sales revenue held by Kaohsiung City (31.99%) was much higher than that of any of the other Special Municipalities; Tainan City had the second highest share, at 7.72%. New Taipei City held the highest share of secondary industry SME sales revenue, followed by Taichung. Taipei City's share of service sector SME sales revenue was by far the highest (Table 2-2-5).

Table 2-2-5 SME Sales of Taiwan's Five Special Municipalities in 2011

Units: NT$ millions; %

Indicator \ Municipality		Combined Total for the Five Municipalities	Taipei City	New Taipei City	Taichung City	Tainan City	Kaohsiung City
No. of Firms	All enterprises	33,843	5,503	1,692	1,668	5,496	6,966
	SMEs	18,321	1,168	996	965	1,414	5,861
	Share of total	100.00	6.38	5.44	5.27	7.72	31.99
Sales	All enterprises	17,273,196	2,742,019	1,843,629	1,860,165	1,529,437	2,317,477
	SMEs	5,628,418	436,668	938,039	898,297	658,786	611,868
	Share of total	100.00	7.76	16.67	15.96	11.70	10.87
No. of Employees	All enterprises	20,574,642	9,469,278	2,331,909	1,713,214	926,646	1,856,853
	SMEs	5,580,194	1,390,188	935,448	704,030	371,117	641,667
	Share of total	100.00	24.91	16.76	12.62	6.65	11.50

Source: Small and Medium Enterprise Administration, MOEA, 2012.

To summarize, of the five Special Municipalities, Kaohsiung City has the largest share of agriculture, forestry and fisheries SMEs, New Taipei City has the largest share of secondary

industry (manufacturing and construction) SMEs, and Taipei City has the largest share of service sector SMEs. Taichung City ranks third in terms of the number of secondary industry SMEs, but fifth in terms of the number of persons employed by SMEs.

5. Southern Taiwan has Received the Largest Share of Government Guidance Resources for Local Industries

Over the period 2009 – 2011, a total of 65 guidance projects were implemented by the government under the Local Specialty Industry Guidance Plan and the Local Industry Development Fund Subsidies Plan; the total amount of funding provided came to NT$4,083,240. Whether in terms of the number of projects or the amount of funding involved, projects making a contribution towards the development of local industries in Southern Taiwan (including Chiayi County, Chiayi City, the Greater Tainan region, the Greater Kaohsiung region, and Pingtung County) accounted for nearly 30% of the total, a higher share than that of any other region (Table 2-2-6). This situation is partly due to the extensive potential for the development of specialty local industries in Southern Taiwan, and partly due to the fact that, over the past few years, Southern Taiwan has suffered more from natural disasters (including typhoons and flooding caused by torrential rains) than other parts of Taiwan, and has thus been in greater need of funds for industrial rebuilding, transformation and redevelopment.

Table 2-2-6 Allocation of Government Resources to the Development of Local Industries, 2009 – 2011

Units: cases NT$ thousands; %

Item		All Regions	Northern Region	Central Region	Southern Region	Eastern Region	Trans-regional Projects
All categories	No. of projects	225	42	59	65	54	5
	Funding	1,377,068	245,650	361,414	408,324	306,604	55,076
	Share of total	100%	17.84%	26.25%	29.65%	22.26%	4.00%
Local Specialty Industry Guidance Plan	No. of projects	18	3	6	3	4	2
	Funding	69,688	5,250	19,914	10,824	12,624	21,076
	Share of total	100	7.53	28.58	15.53	18.12	30.24
Local Industry Development Fund (subsidies)	No. of projects	148	28	38	47	32	3
	Funding	1,209,180	223,300	315,000	369,900	266,980	34,000
	Share of total	100%	18.47%	26.05%	30.59%	22.08%	2.81%
Local Industry Development Fund (guidance)	No. of projects	59	11	15	15	18	0
	Funding	98,200	17,100	26,500	27,600	27,000	0
	Share of total	100%	17.41%	26.99%	28.11%	27.49%	0

Source: Small and Medium Enterprise Administration, MOEA, 2012.

As regards the main areas addressed by these projects, as Southern Taiwan has, historically, always been oriented mainly towards primary industry, taking into account the characteristics of the local industrial structure and the region's development needs, the development projects targeting this region have in the past focused mainly on food processing, agro-tourism, and innovative cuisine making use of local specialty products, with a particular emphasis on local food processing industries. However, in recent years, reflecting the new trends in domestic industrial development in Taiwan, there has been a gradual increase in efforts to enhance the cultural and tourism-related content of the region's products. The idea is to use culture to add

value in industry, while also making use of the opportunities presented by tourism to integrate individual specialist local industries so that different industries can collaborate with one another and create synergy, building a new model of industrial development based on mutual support and cooperation.

III The Number of Female-owned SMEs, and the Sales Performance of Female-owned SMEs

In this section, enterprises where the owner is a juridical person or foreigner have to be excluded from the calculations. In addition, it is not possible to eliminate those enterprises where a woman is the nominal owner but is not actually running the business, or where the female "owner" actually controls only a minority of the firm's shares. The number of female-owned SMEs in 2011, their sales structure, and the significant changes, are outlined below:

1. Female-owned Enterprises Account for Over 30% of All Business Enterprises in Taiwan

In 2011, there were 1,300,599 business enterprises in Taiwan for which the sex of the business owner could be determined. Of these, 468,553 (36.03% of the total) were owned by women. The percentage was more than 33%, and the number of firms increased by 14,245 (3.14%) from 2010. 98.83% (463,061) of female-owned enterprises were SMEs (Table 2-3-1).

2. The Sales of Female-owned Enterprises Account for Less Than 20% of the Total Sales of All Business Enterprises

In 2011, Taiwan's female-owned business enterprises posted total sales of NT$5,057 billion, accounting for 14.80% of the combined total for all business enterprises. Female-owned enterprises had domestic sales of NT$4,062 billion (15.81% of the total for all enterprises), and export sales of NT$994.9 billion (11.73%). The female-owned enterprises' share of overall sales was far lower than the share held by male-owned enterprises (Table 2-3-1).

3. 45% of Female-owned Enterprises Have Been in Existence for Over 10 Years

As of 2011, 8.35% of female-owned enterprises in Taiwan had been in existence for less than one year, compared to a figure of 7.16% for male-owned enterprises. 67.56% of female-owned enterprises had been in existence for over 5 years, and 44.52% for over 10 years; the corresponding percentages for male-owned enterprises were 71.17% and 49.40%, respectively (Table 2-3-2).

Table 2-3-1 Number of Enterprises and Sales Performance in 2011 – by Sex of Business Owner

Units: enterprises; NT$ millions; %

Indicator \ Enterprise Size	All Enterprises	SMEs	Large Enterprises
No. of enterprises	**1,300,559**	**1,271,506**	**29,053**
Female-owned enterprises	468,553	463,061	5,492
Share of total 1	100.00	98.83	1.17
Share of total 2	36.03	36.42	18.90
Male-owned enterprises	832,006	808,445	23,561
Total sales	**34,182,204**	**10,873,920**	**23,308,284**
Female-owned enterprises	5,057,364	2,595,187	2,462,176
Share of total 1	100.00	51.32	48.68
Share of total 2	14.80	23.87	10.56
Male-owned enterprises	29,124,840	8,278,733	20,846,107
Domestic sales	**25,700,249**	**9,367,829**	**16,332,421**
Female-owned enterprises	4,062,436	2,325,972	1,736,464
Share of total 1	100.00	57.26	42.74
Share of total 2	15.81	24.83	10.63
Male-owned enterprises	21,637,813	7,041,856	14,595,957
Export sales	**8,481,955**	**1,506,092**	**6,975,863**
Female-owned enterprises	994,928	269,215	725,713
Share of total 1	100.00	27.06	72.94
Share of total 2	11.73	17.88	10.40
Male-owned enterprises	7,487,027	1,236,877	6,250,150

Notes: 1. Whether an enterprise should be classed as male-owned or female-owned was determined using the registered identity of the business owner.
2. The totals for all enterprises given in this table do not conform to those given in Table 2-1-1 because some enterprises are registered as being owned by other enterprises or by foreigners; these enterprises were excluded from the data used in this table.
3. Ratio 1 in the table represents the percentages of SMEs and large enterprises in all female-owned enterprises; ratio 2 represents the percentage of female-owned enterprises in all enterprises.

Source: Ministry of Finance Tax Data Center, VAT data for 2011.

Table 2-3-2 Enterprise Age Structure in 2011 – by Sex of Enterprise Owner

Units: enterprises; %

Sex of Owner / Enterprise Age	All Enterprises		Female-owned Enterprises		Male-owned Enterprises	
	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total
Total	**1,300,559**	**100.00**	**468,553**	**100.00**	**832,006**	**100.00**
Less than 1 year	98,683	7.59	39,132	8.35	59,551	7.16
1 – 2 years	91,654	7.05	35,227	7.52	56,427	6.78
2 – 3 years	75,206	5.78	29,510	6.30	45,696	5.49
3 – 4 years	64,663	4.97	24,862	5.31	39,801	4.78
4 – 5 years	61,688	4.74	23,266	4.97	38,422	4.62
5 – 10 years	289,102	22.23	107,970	23.04	181,132	21.77
10 – 20 years	328,624	25.27	114,007	24.33	214,617	25.80
20 years or more	290,939	22.37	94,579	20.19	196,360	23.60

Notes and Source: See Table 2-3-1 above.

4. 63.43% of Taiwan's SMEs are Sole Proprietorships

Sole proprietorships were the most common form of organization for female-owned enterprises, accounting for 63.43% of all female-owned enterprises, followed by limited corporations and corporations limited by shares. The share of sole proprietorships that were female-owned enterprises was higher than that in the case of male-owned enterprises, while the shares held by limited corporations and corporations limited by shares were smaller than the corresponding shares in male-owned enterprises (Table 2-3-3).

Table 2-3-3 Number of Different Enterprises – by Sex of Business Owner 2011

Units: enterprises; %

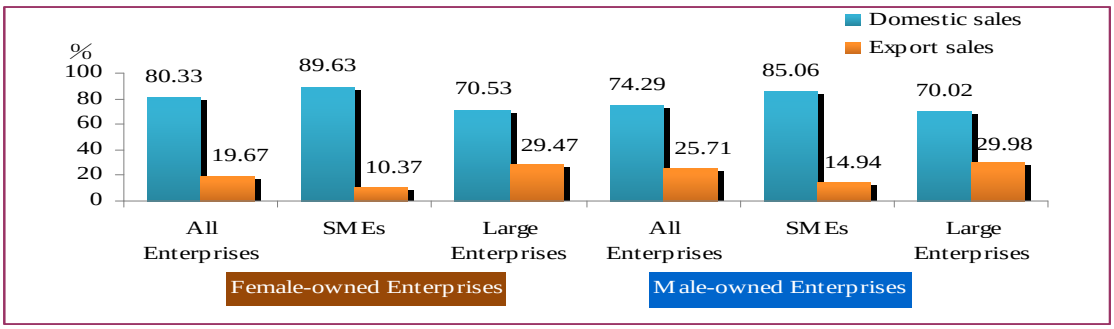
Indicator \ Sex of Owner	All Enterprises		Female-owned Enterprises		Male-owned Enterprises	
	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total
Total	**1,300,559**	**100.00**	**468,553**	**100.00**	**832,006**	**100.00**
Corporation limited by shares	123,449	9.49	29,854	6.37	93,595	11.25
Limited corporation	367,036	28.22	121,472	25.92	245,564	29.51
Unlimited corporation	51	0.00	19	0.00	32	0.00
Unlimited corporation with limited liability shareholders	11	0.00	2	0.00	9	0.00
Partnership	22,008	1.69	7,534	1.61	14,474	1.74
Sole proprietorship	725,557	55.79	297,226	63.43	428,331	51.48
Foreign company	2,174	0.17	736	0.16	1,438	0.17
Representative office of foreign company	57	0.00	10	0.00	47	0.01
Branch office	32,468	2.50	5,446	1.16	27,022	3.25
Other	27,748	2.13	6,254	1.33	21,494	2.58

Notes and Source: See Table 2-3-1 above.

5. Female-owned Enterprises are More Oriented Towards the Domestic Market

In 2011, domestic sales accounted for 80.33% of the total sales of female-owned enterprises, with export sales accounting for only 19.67%, (giving a disparity of 60.66 percentage points). By contrast, export sales accounted for 25.71% of the total sales of male-owned enterprises, while domestic sales accounted for 74.29%, giving a disparity of only 48.58 percentage points (Figure 2-3-1).

Figure 2-3-1 Number of Enterprises and Sales Performance in 2011 – by Sex of Business Owner

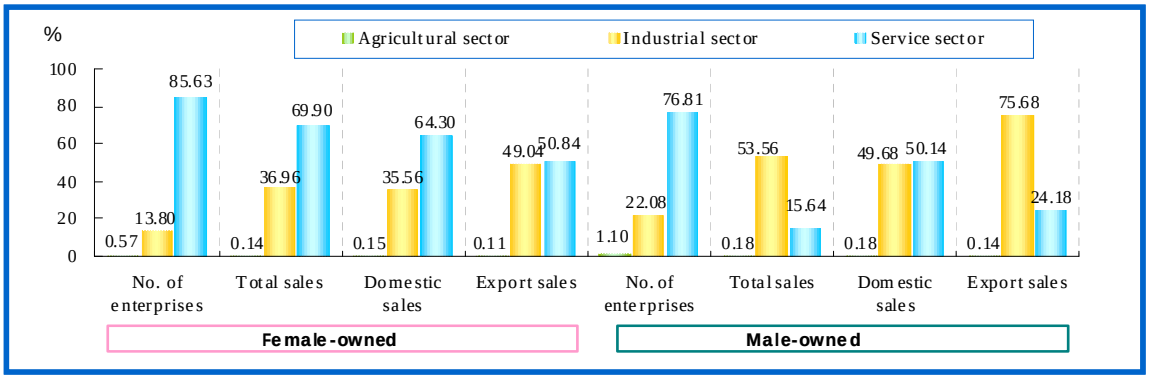


Notes and Source: See Table 2-3-1 above.

6. Female-owned Enterprises are Heavily Concentrated in the Service Sector

The service sector accounts for the largest share of the total number of female-owned enterprises, and also for the largest share of female-owned enterprises in total sales and export sales. In particular, 85.63% of female-owned enterprises are in the service sector, the corresponding percentage for male-owned enterprises being 76.81%. Both the service sector and the manufacturing sector's domestic sales were close, and the manufacturing sector's export sales were obviously higher than those of the service sector. For male-owned enterprises, the manufacturing sector accounts for the largest share of export sales (75.68%) (Figure 2-3-2).

Figure 2-3-2 SME Performance Indicators in 2010 – by Sector and Sex of Enterprise Owner



Notes and Source: See Table 2-3-1 above.

IV Business Environment of SME Manufacturing Sector

To provide a clearer picture of the current state of Taiwan's manufacturing sector, its export performance, development of self-owned brands, and the impact of trade liberalization, this section presents data from the Survey of Manufacturing Industry Operations report published by the Department of Statistics, Ministry of Economic Affairs, in October 2011. The effective sample size in this survey was 2,926 enterprises (representing a questionnaire return rate of 95.19%). For the purposes of this section, medium enterprises are defined as firms with 100 or more but less than 200 employees and small enterprises are defined as firms with less than 100 employees.

1. Operational Status of and Outlook for Taiwan's Manufacturing Sector

(1) The Percentage of Firms Expecting Earnings to Rise from 2010 in 2011 accounted for 32%

Because of the debt crisis in the United States and Europe and the 3.11 Earthquake in Japan, the speed of economic recovery in each country has slowed down. With increasing prices of commodities leading to smaller profits, enterprises have been conservative in their earnings

growth. The number of firms expecting earnings to rise accounted for 32.02%, firms expecting earnings to fall accounted for 33.97%, and firms expecting earnings to remain the same accounted for 34.01%. The enterprises that were larger in size had a higher percentage that were expecting earnings to rise; the outlook index (percentage of firms expecting earnings to rise + 0.5x percentage of firms expecting earnings to fall) of all enterprises was 49.03%. Large and medium-sized enterprises were more optimistic (57.09% and 52.45%, respectively), while small enterprises were more pessimistic (44.02%).

Table 2-4-1 Percentage of Manufacturing Firms Expecting Earnings to Rise in 2011, and Percentage Expecting Earnings to Decline

Unit: %

Item	All Enterprises	Large Enterprises	SMEs	
			Medium-sized Enterprises	Small Enterprises
Total	**100.00**	**100.00**	**100.00**	**100.00**
Firms expecting earnings to rise	35.75	45.79	39.64	22.98
Firms expecting no change in earnings	49.76	22.60	25.61	42.07
Firms expecting earnings to fall	14.49	31.61	34.74	34.95
Outlook Index	60.63	57.09	52.45	44.02

Note: Outlook Index = percentage of firms expecting earnings to rise + 0.5×percentage of firms expecting earnings to fall.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

(2) The Main Reason Given for Expecting to See an Increase in Earnings was "Increased Market Demand"

The five main reasons given by manufacturing firms for anticipating an increase in earnings in 2011 were, in order: "increased market demand," "new product launch," "increased production capacity," "higher prices" and "improved marketing methods." The percentage of SMEs giving "improved marketing methods" as a reason was higher than the corresponding percentage for large enterprises. The percentage of large enterprises giving "new product launch," "increased production capacity" or "higher prices" as reasons was higher than the corresponding shares of SMEs (Table 2-4-2).

Table 2-4-2 Reasons Given for Anticipating Higher Earnings in 2010 and 2011 (Weighted)

Unit: %

Item	All Enterprises		Large Enterprises		Medium-sized Enterprises		Small Enterprises	
	2010	2011	2010	2011	2010	2011	2010	2011
Increased market demand	40.09	32.88	39.79	32.09	40.47	29.13	40.13	35.54
New product launch	12.49	14.93	13.88	16.68	12.39	14.98	11.31	13.03
Improved marketing methods	8.60	10.91	9.49	12.21	8.80	12.29	7.67	8.87
Increased production capacity	8.07	10.52	9.53	11.97	7.18	10.43	7.32	9.02
Higher prices	8.66	8.18	6.71	7.82	10.07	10.43	9.52	7.47
Lower administrative and sales costs	5.12	4.23	5.25	3.96	5.26	3.82	4.92	4.71
Improved yield rate	4.79	3.40	4.35	2.87	4.10	2.38	5.62	4.46
Reduced materials costs	4.78	4.19	4.18	3.44	4.25	3.82	5.65	5.16
Expanded distribution channels	3.05	4.37	2.61	3.02	3.44	5.27	3.19	5.36
Own brand development	1.50	3.97	1.50	3.35	1.57	4.96	1.47	4.16
Exchange rate fluctuations	1.30	1.20	1.03	1.18	1.16	0.93	1.63	1.35
Other	1.54	1.22	1.68	1.41	1.32	1.55	1.57	0.85

Note: This table uses weighted ratios, whereby the importance attached to each reason is divided by the total value for all respondents; a score of 3 indicates that the highest level of importance is attached to the reason, 2 denotes less importance, and 1 denotes the lowest level of importance.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

(3) The Main Reason Given for Anticipating a Decline in Profits was "Rising Raw Materials Prices"

The five main reasons given by manufacturing firms for anticipating that earnings would have fallen in 2011 were, in order: "rising raw materials prices," "declining market demand," "falling product prices," "exchange rate fluctuations," and "new competitors." The share of firms reporting "increased materials costs," and "declining market demand" as reasons for expecting lower earnings was higher among SMEs than among large enterprises, while the share of firms reporting "exchange rate fluctuations," and "falling product prices," as reasons for anticipating lower earnings was higher among large enterprises than among SMEs (Table 2-4-3).

Table 2-4-3 Reasons Given for Anticipating Lower Earnings in 2011 than in 2010 (Weighted)

Unit: %

Item	All Enterprises		Large Enterprises		Medium-sized Enterprises		Small Enterprises	
	2010	2011	2010	2011	2010	2011	2010	2011
Rising raw materials prices	32.97	30.01	33.01	27.00	31.66	29.78	33.38	31.46
Declining market demand	26.14	26.34	19.48	23.85	25.24	22.13	28.24	28.68
Falling product prices	15.19	13.32	17.07	16.66	14.64	14.04	14.84	11.57
Increased administrative and sales costs	5.26	11.79	8.53	15.56	7.25	14.61	3.73	9.25
New competitors	5.81	5.29	4.83	5.21	6.00	5.73	6.02	5.20
Exchange rate fluctuations	6.14	5.01	8.05	4.39	6.28	5.28	5.58	5.23
High product substitutability	2.02	2.07	3.22	1.51	1.95	2.47	1.71	2.22
Shrinking distribution channels	1.99	1.14	0.32	0.27	2.37	0.79	2.33	1.65
Wear and tear on equipment, leading to reduced production capacity	1.83	1.40	2.09	1.23	1.26	1.24	1.93	1.52
Products no longer marketable	1.02	1.11	0.97	0.96	1.95	1.46	0.75	1.08
Other	1.63	2.52	2.42	3.36	1.39	2.47	1.49	2.15

Note: This table uses weighted ratios, whereby the importance attached to each reason is divided by the total value for all respondents; a score of 3 indicates that the highest level of importance is attached to the reason, 2 denotes less importance, and 1 denotes the lowest level of importance.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

(4) Regarding their Future Business Strategy for their Taiwan Operations, 84.44% of Small Enterprises Reported Planning to Maintain their Current Scale of Operations

The survey results in 2011 showed that, as regards their business strategy for their Taiwan operations, over 18% of manufacturing firms were planning to expand their scale of operations; larger enterprises were more likely to report planning to do this. This high figure suggests that SMEs are adopting a more conservative stance compared to 2010 (Figure 2-4-4).

Table 2-4-4 Future Business Strategy with Respect to Firm's Taiwan Operations

Unit: %

Item \ Enterprises/Year	Total Enterprises		Large Enterprises		Medium-Sized Enterprises		Small Enterprises	
	2010	2011	2010	2011	2010	2011	2010	2011
Planning to expand scale of operations	23.73	18.05	36.91	32.21	28.85	20.04	14.75	10.33
Planning to maintain current scale of operations	72.38	78.43	61.7	66.71	68.75	78.17	79.43	84.44
Planning to reduce scale of operations	3.89	3.52	1.39	1.08	2.40	1.78	5.82	5.23

Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

2. Developing Export Markets

(1) The Main Problem Experienced by Manufacturing Firms in Export Markets in 2011 was Intense Competition from Other Companies in the Same Industry

The factors that manufacturing firms reported as constituting their three most serious problems in their most important export market in 2011 were: intense competition from other companies in the same industry, excessive exchange rate fluctuations, and inadequate marketing channels. Besides the three main problems noted above, the share of SMEs reporting a shortage of export sales development talent as being a major problem was higher than the corresponding share for large enterprises, while for large enterprises the percentage of firms reporting problems with "unfair tariffs" was higher (Table 2-4-5).

Table 2-4-5 Problems Experienced by Manufacturing Firms in their Most Important Export Market in 2010 and 2011 (weighted)

Unit: %

Item	All Enterprises		Large Enterprises		Medium-sized Enterprises		Small Enterprises	
	2010	2011	2010	2011	2010	2011	2010	2011
Intense competition from other companies in the same industry	41.64	38.27	42.85	39.11	40.01	35.43	41.68	38.76
Excessive exchange rate	17.90	32.14	17.78	31.83	17.91	33.26	17.99	31.93
Inadequate marketing channels	7.78	5.90	7.72	5.79	8.56	6.62	7.36	5.69
Shortage of export sales development talent	7.09	5.62	6.13	4.97	7.07	5.84	7.81	6.08
Unfair tariffs	5.90	4.56	7.27	5.41	6.18	4.72	4.73	3.78
Lack of access to market information	4.62	4.14	4.63	4.16	4.16	4.35	4.87	4.04
Excessively strict environmental requirements	3.31	2.04	2.81	1.58	3.38	2.83	3.64	2.08
Product piracy	2.31	1.72	1.50	1.23	2.17	1.39	2.98	2.27
Cash-flow problems	1.77	1.51	1.28	1.14	1.71	1.48	2.16	1.82
Rigorous and/or time-consuming inspection and quarantine procedures	1.88	1.28	1.87	1.16	2.31	1.85	1.65	1.15
Protectionist sentiment	2.01	1.27	2.65	1.99	2.42	0.74	1.30	0.91
Other	3.80	1.54	3.51	1.63	4.12	1.48	3.82	1.49

Note: This table uses weighted ratios, whereby the importance attached to each reason is divided by the total value for all respondents; a score of 3 indicates that the highest level of importance is attached to the reason, 2 denotes less importance, and 1 denotes the lowest level of importance.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

(2) China is the Main Export Market for 25.27% of SMEs

The survey results showed that, in 2010, China was the main export market for over 25% of firms in the manufacturing sector. As a result of China's rapid economic growth in recent years, there has been a dramatic increase in the spending power of its consumers, and this increased market demand has ensured that China now plays a major role in the global economy. Regardless of enterprise size, the export market that manufacturing firms were most intent on developing in 2011 was the China market, followed by the North American market; this trend was even more pronounced among larger enterprises.(Table 2-4-6).

Table 2-4-6 The Main Export Markets for Manufacturing Firms in 2010 (weighted)

Unit: %

Item	All Enterprises		Large Enterprises		Medium-sized Enterprises		Small Enterprises	
	2010	2011	2010	2011	2010	2011	2010	2011
China (inc. Hong Kong)	21.86	25.27	25.92	28.50	22.01	25.49	19.20	23.06
North America (U.S.A., Canada and Mexico)	18.58	16.37	21.72	21.65	20.66	18.47	15.52	12.18
Europe	12.90	11.95	15.41	13.51	13.67	14.51	10.93	10.06
ASEAN	12.03	9.65	11.79	10.82	12.74	10.72	11.82	8.52
Japan	10.15	9.48	11.15	10.82	10.23	12.37	9.47	7.62
Central and South America	2.59	1.98	2.78	2.09	2.89	2.44	2.31	1.75
India	1.77	1.40	1.27	1.22	1.73	1.00	2.10	1.66
Middle East	1.80	1.48	1.50	1.27	1.86	1.70	1.96	1.54
New Zealand and Australia	1.73	1.60	1.68	1.40	2.31	2.31	1.47	1.48
South Korea	1.94	2.46	2.65	3.51	2.05	2.44	1.44	1.78
Other	1.32	1.48	1.60	1.93	0.99	1.35	1.29	1.22

Note: This table uses weighted ratios, whereby the importance attached to each reason is divided by the total value for all respondents; a score of 3 indicates that the highest level of importance is attached to the reason, 2 denotes less importance, and 1 denotes the lowest level of importance.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

(3) Other Taiwanese Firms are Taiwanese Manufacturing Firms' Main Source of Competition in Overseas Markets

As regards the situation in export markets, 27.14% of firms reported that other Taiwanese manufacturing firms had emerged as their single biggest source of competition. (Table 2-4-7)

Small enterprises were significantly more likely than medium-sized and large enterprises to report experiencing intense competition from Chinese companies, other Taiwanese companies, and Taiwanese-invested overseas firms. For large enterprises, the main sources of competition were Japanese, South Korean, U.S. and European companies (Table 2-4-7).

Table 2-4-7 Sources of Competition in Export Markets (weighted)

Unit: %

Item	All Enterprises		Large Enterprises		Medium-sized Enterprises		Small Enterprises	
	2010	2011	2010	2011	2010	2011	2010	2011
Other Taiwanese firms	24.89	27.14	23.68	24.98	25.19	24.26	25.66	30.27
Chinese firms	26.00	26.43	23.14	22.35	25.81	25.64	28.32	30.33
Taiwanese-invested overseas firms	15.35	15.41	12.32	12.84	15.33	16.04	17.70	17.40
Japanese firms	9.81	9.71	12.15	12.60	9.49	11.47	8.19	6.43
South Korean firms	7.84	8.54	10.07	11.42	6.68	7.97	6.78	6.26
U.S. firms	6.25	5.56	8.44	7.47	6.17	6.30	4.60	3.58
European firms	5.04	3.81	5.51	4.34	5.29	4.82	4.53	2.91
ASEAN member state firms	4.06	2.75	4.12	3.30	5.11	2.71	3.40	2.30
Other	0.76	0.65	0.57	0.72	0.91	0.79	0.82	0.53

Note: This table uses weighted ratios, whereby the importance attached to each reason is divided by the total value for all respondents; a score of 3 indicates that the highest level of importance is attached to the reason, 2 denotes less importance, and 1 denotes the lowest level of importance.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

(4) 25% of Manufacturing Firms Believe that the Key Factor Affecting Competitive Advantage in the Marketplace is "Superior Product Quality"

The survey results in 2011 showed that Taiwanese manufacturing firms felt the main factor affecting competitive advantage to be "superior product quality" (24.52% of firms). The

percentage was dramatically lower than the corresponding share of 2010, followed by "company reputation," (15.84%), and "superior after-sales service" (9.67%) (Table 2-4-8).

Large enterprises were more likely than SMEs to give "company reputation," "new product development capability," "extensive marketing channels" or "superior managerial capabilities" as key factors affecting competitiveness. SMEs were more likely than large enterprises to list "product distinctiveness," "speed of delivery," "pricing strategy," or "superior after-sales service" (Table 2-4-8).

Table 2-4-8 Key Factors Determining Competitiveness in the Marketplace (weighted)

Unit: %

Item	All Enterprises		Large Enterprises		Medium-sized Enterprises		Small Enterprises	
	2010	2011	2010	2011	2010	2011	2010	2011
Superior product quality	35.52	24.52	34.05	22.56	36.63	24.89	35.79	25.51
Company reputation	13.60	15.84	14.06	14.01	12.20	16.25	14.00	16.75
Superior after-sales service	6.10	9.67	5.38	8.83	6.27	8.02	6.39	16.63
Product distinctiveness	9.66	9.40	9.36	9.63	9.66	10.11	9.82	9.07
Speed of delivery	8.05	8.08	6.58	5.80	8.09	6.22	8.79	9.92
Pricing strategy	8.00	6.31	7.09	5.17	8.09	5.32	8.44	7.23
New product development capability	7.92	6.06	10.85	9.50	8.17	6.30	6.27	4.07
Production efficiency	4.72	7.57	4.65	8.18	4.78	7.08	4.73	7.38
Extensive marketing channels	2.94	4.54	4.34	6.06	3.15	5.20	2.12	3.50
Superior managerial capabilities	2.47	4.18	2.89	5.46	2.37	6.22	2.30	2.86
Superior capabilities of controlling market information	-	3.13	-	4.37	-	3.81	-	2.23
Other	0.52	0.67	0.48	0.41	0.11	0.57	0.73	0.85

Note: This table uses weighted ratios, whereby the importance attached to each reason is divided by the total value for all respondents; a score of 3 indicates that the highest level of importance is attached to the reason, 2 denotes less importance, and 1 denotes the lowest level of importance.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

3. The Impact of Trade Liberalization

(1) The coming into effect of FTAs between China, Japan, South Korea and ASEAN is having a negative impact on manufacturing industry's sales revenue and on the competitiveness of its products

The survey results showed that the Outlook Index for the impact of FTAs between China, Japan, South Korea and ASEAN on the sales revenue, product competitiveness and scale of domestic production of Taiwan's manufacturing firms was –17.16%, –18.42% and –13.29% respectively. For both large and small enterprises, the Outlook Index with respect to the impact of "ASEAN Plus Three" was negative; in every case, the percentage of firms anticipating a negative impact from "ASEAN Plus Three" exceeded 14%, with less than 10% of firms expecting to benefit from it. The percentage of large enterprises anticipating that "ASEAN Plus Three" would have a negative impact on their sales revenue, product competitiveness and scale of domestic production was in every case higher than the corresponding percentage for medium-sized and small enterprises; large enterprises also had more pronouncedly negative Outlook Index values (Table 2-4-9).

Table 2-4-9 The impact of FTAs signed between the EU and South Korea, between the U.S. and South Korea and between China, Japan, South Korea and ASEAN

Unit: %

Item	ASEAN Plus Three				FTAs signed between the EU and South Korea and between the U.S. and South Korea			
	2010 Survey	Large Enterprises	Medium Enterprises	Small Enterprises	2011 Survey	Large Enterprises	Medium Enterprises	Small Enterprises
Sales Revenue								
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Positive impact	5.60	7.57	6.01	4.50	4.65	4.81	4.01	4.74
Negative impact	71.63	63.22	69.93	76.35	74.98	66.59	76.84	78.72
No impact	22.76	29.21	24.05	19.15	20.37	28.61	19.15	16.53
Outlook Index	-17.16	-21.64	-18.04	-14.65	-15.72	-23.80	-15.14	-11.79
Product Competitiveness								
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Postive impact	5.37	7.21	4.90	4.56	4.55	4.69	3.79	4.68
Negative impact	70.85	61.78	69.49	75.81	74.63	65.99	75.95	78.65
No impact	23.79	31.01	25.61	19.64	20.82	29.33	20.27	16.67
Outlook Index	-18.42	-23.80	-20.71	-15.08	-16.27	-24.64	-16.48	-11.99

Note: Outlook Index = (Percentage of firms expecting earnings to rise – Percentage of firms expecting earnings to fall) ÷ 2.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

(2) The FTAs signed between the EU and South Korea and between the U.S. and South Korea are also hurting the sales revenue and competitiveness of Taiwanese enterprises.

The FTA signed between the European Union and South Korea (which is one of Taiwan's main competitor nations in terms of foreign trade) came into effect in July 2011, while the FTA signed between South Korea and the U.S. came into effect on January 1, 2012. These FTAs have resulted in a significant increase in the competitive pressure that Taiwanese industry faces.

Survey results indicate that more than 20% of Taiwanese firms feel that the coming into effect of the FTAs between the EU and South Korea and between the U.S. and South Korea has had a negative impact on their sales revenue and on the competitiveness of their products. This percentage is far higher than the share of firms that feel these FTAs have benefited them (less than 5%). It is clear that the threat that South Korean competition poses to Taiwanese products in the European and U.S. markets is becoming increasingly severe (Table 2-4-9).

In no enterprise size class (i.e. large enterprises, medium-sized enterprises, and small enterprises) was the share of firms reporting that the South Korea – EU and South Korea – U.S. FTAs had had a negative impact on their business less than 16%, and in all enterprise size classes the share of firms reporting that these FTAs had had a positive impact was less than 5%. The share of large enterprises indicating that the South Korea – EU and South Korea – U.S. FTAs were having a negative impact on their sales revenue and the competitiveness of their products was higher than the corresponding share for small enterprises for both of these items, giving a negative outlook indicator (–23.80% and –24.64%, respectively) that was more pronounced the larger the enterprise.

(3) The Types of Assistance Manufacturing Firms Most Hope for From the Government in Response to the Impact of ASEAN-centered Regional Economic Integration are "Assistance in Developing New Markets" and "Improving the Investment Environment in Taiwan"

18.86% of manufacturing firms hoped that, in response to the impact of regional economic integration in the East Asia region (such as "ASEAN Plus Three"), the government would focus on "Assistance in developing new markets." Other areas in which a high share of manufacturing firms hoped the government would provide support included: "Improving the investment environment in Taiwan" (18.33%), and "Incentives for innovation and R&D" (10.72%) (Table 2-4-10).

The areas with respect to which medium-sized and large enterprises were most eager for the government to take action were: "Assistance in developing new markets" (19.05% and 16.72% respectively) to improve export opportunities. These figures were all higher than the corresponding percentages for large enterprises. Areas where the share of large enterprises looking for support from the government was higher than the corresponding shares for SMEs included "speeding up the negotiating of FTAs with ASEAN member states," "Getting China to speed up the expansion of the scope of products covered by the Early Harvest List" and "Negotiating tariff barrier reductions with key trading partners." The issue that small enterprises are most anxious for the government to address is the "improvement of the domestic investment environment" (21.36%), to encourage both domestic and overseas firms to invest in Taiwan. Small enterprises also reported a higher level of demand than large enterprises for "guidance to support industrial upgrading" and "support for industries affected by trade liberalization."

Table 2-4-10 Areas Where Manufacturing Firms Hope the Government Will Take Action in Response to the Impact of East Asian Regional Economic Integration

Unit: %

Item	All Enterprises	Large Enterprises	SMEs	
			Medium Enterprises	Small Enterprises
Assistance in developing new markets	18.86	16.72	19.05	20.01
Improving the investment environment in Taiwan	18.33	14.37	15.58	21.36
Incentives for innovation and R&D	10.72	12.34	12.40	9.32
Industry upgrading guidance	9.95	6.95	9.58	11.74
Speeding up the negotiation of FTAs with ASEAN member states	9.64	16.26	11.38	5.43
Speeding up the cultivation of the talent industry needs	7.22	7.08	6.97	7.37
Negotiating the reduction of tariff barriers with key trading partners	5.06	7.57	6.00	3.38
Getting China to speed up the expansion of the scope of products covered by the Early Harvest List	4.77	6.30	6.04	3.54
Relaxing restrictions on overseas investment	4.02	4.83	4.16	3.53
Improving the handling of anti-dumping cases	2.06	2.05	2.16	2.03
Support for affected industries	4.59	3.41	3.83	5.47
Other	4.79	2.14	2.85	6.84

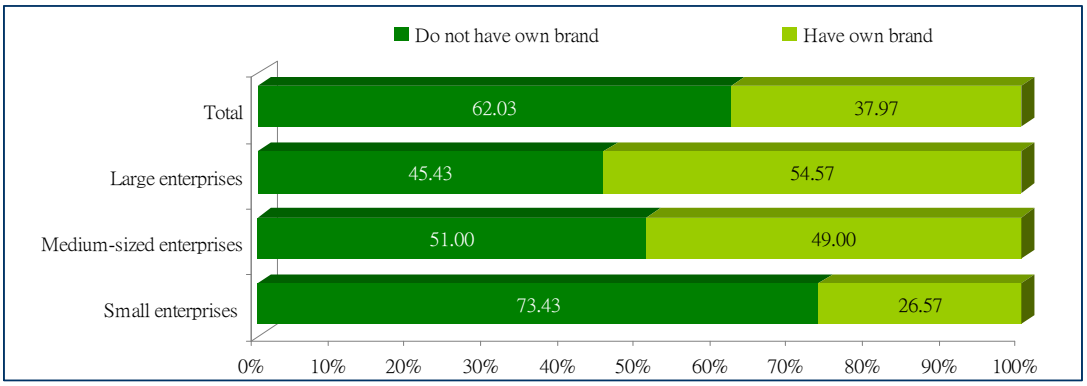
Note: This table uses weighted ratios, whereby the importance attached to each reason is divided by the total value for all respondents; a score of 3 indicates that the highest level of importance is attached to the reason, 2 denotes less importance, and 1 denotes the lowest level of importance.
Source: Department of Statistics, Ministry of Economic Affairs, Survey of Manufacturing Industry Operations 2011.

4. Own-brand Development

(1) 38% of Firms have Established their Own Brand; the Percentage is Highest Among Large Enterprises

With profit margins on contract manufacturing growing steadily thinner, those firms that continue to rely on the ODM/OEM model are finding it increasingly difficult to stay in business. One of the most important means of enhancing competitiveness is to develop one's own brand and undertake branded marketing on a global scale, working to build up brand recognition. Survey results indicate that 37.97% of firms have established their own brand. The larger the enterprise, the more likely it is to have its own brand; the percentage of large enterprises with their own brand (54.57%) is significantly larger than the corresponding percentage for small enterprises (26.57%) (Figure 2-4-1).

Figure 2-4-1 The Current State of Own-brand Development in the Manufacturing Sector



Source: Department of Statistics, MOEA, Survey of the Current State of Manufacturing Industry Operations, 2011.

(2) Shortage of R&D Talent and Excessively High Cost are the Main Obstacles to Own-brand Development

The most commonly noted reasons for not developing one's own brand were "shortage of R&D talent" and "excessively high cost of establishing own brand"; both of these were noted as factors by just over 21% of firms, suggesting that the main obstacles to successful own-brand development are lack of talent and insufficient capital. The other main factors were, in order: "lack of funds," "lack of product/service differentiation or suitable niches to develop," "insufficient experience in branded marketing management," "lack of market information," and "unclear product positioning" (Table 2-4-11).

For enterprises of all sizes (large, medium or small), "shortage of R&D talent" and "excessively high cost of establishing own brand" were felt to be the biggest obstacles to successful brand development. Larger enterprises were noticeably more likely than small enterprises to feel that "lack of product/service differentiation or suitable niches to develop" and "insufficient experience in branded marketing management" constituted significant obstacles to own-brand development. By contrast, small enterprises were more likely than large or medium-sized enterprises to report "lack of funds" as a major factor preventing them from establishing their own brand (Table 2-4-11).

Table 2-4-11 Reasons for Not Establishing Own Brand, and Obstacles Encountered in Attempts to Develop In-house R&D (weighted)

Unit：%

Item	All Enterprises	Large Enterprises	SMEs	
			Medium-sized Enterprises	Small Enterprises
Shortage of R&D talent	21.76	18.99	22.52	22.95
Lack of funds	9.74	4.90	7.91	12.67
Excessively high cost of establishing own brand	21.13	19.98	21.85	21.50
Failure to secure support from within the organization or from shareholders	1.28	1.00	1.72	1.30
Unclear product positioning	5.77	4.85	5.41	6.34
Lack of market information	6.89	7.26	7.00	6.68
Lack of product/service differentiation or suitable niches to develop	9.65	13.25	11.50	7.33
Insufficient experience in branded marketing management	7.40	10.21	6.76	6.16
Other	16.38	19.87	15.33	15.06

Notes and Sources: See Table 2-4-2.

(3) The Types of Government Assistance to Support Own-brand Development for which there is Greatest Need are “Provision of Guidance for Across-the-board Upgrading of Product and Service Quality” and “Provision of Financing Assistance”

The three areas where business enterprises feel that there is the greatest need for government assistance to facilitate own-brand development are “provision of guidance for across-the-board upgrading of product and service quality” (16.69% of firms), “provision of financing assistance” (16.22%), and “assistance in the development of marketing networks” (14.79%). The other main areas where firms felt that government assistance was needed were, in order: “provision of business information,” “provision of guidance to help firms establish comprehensive brand management systems,” “provision of funding support,” “provision of legal consulting services,” and “holding of domestic and overseas sales promotion activities” (Table 2-4-12).

While small enterprises felt that the single most important area where government assistance was needed was “provision of financing assistance” (18.82% of small enterprises), the type of assistance for which medium-sized and large enterprises felt there was the most need was “provision of guidance for across-the-board upgrading of product and service quality” (17.27% of medium-sized enterprises, and 17.29% of large enterprises). Medium-sized and large enterprises were more likely than small enterprises to feel a need for “assistance in the development of marketing networks,” “provision of guidance to help firms establish comprehensive brand management systems,” and “holding of domestic and international sales promotion activities” (Table 2-4-12).

Table 2-4-12 Government Assistance Measures to Promote Own-brand Development for which there is Felt to be the Most Need (weighted)

Unit：%

Item	All Enterprises	Large Enterprises	SMEs	
			Medium-sized Enterprises	Small Enterprises
Provision of guidance for across-the-board upgrading of product and service quality	16.69	17.29	17.27	16.19
Provision of financing assistance	16.22	12.16	14.86	18.82
Provision of assistance in the developing of marketing networks	14.79	16.18	17.13	13.36
Provision of business information	11.89	11.03	11.26	12.53
Provision of guidance to help firms establish comprehensive brand management systems	8.21	9.92	9.61	6.89
Provision of financial and legal consulting services	6.88	6.87	6.99	6.85
Holding of domestic and international sales promotion activities	6.37	7.96	7.74	5.11
Holding of brand management talent cultivation activities	4.35	6.07	3.87	3.56
Provision of guidance to help firms with their own brand secure stock market or OTC listing	2.29	2.03	2.40	2.41
Other	12.31	10.49	8.86	14.29

Notes and Sources: See Table 2-4-2.

V Operational Status of Wholesaling and Retailing Industry

With the aim of gaining a clearer picture of the operational environment and development strategies of Taiwan's wholesaling and retailing companies, in April 2012 the Department of Statistics, Ministry of Economic Affairs implemented the Survey of the Operational Status of the Wholesaling and Retailing Industry. A total of 3,023 completed questionnaires were returned, giving a completion rate of 93.02%. Large enterprises (defined as those with 100 or more employees) and small and medium-sized enterprises (defined as those with 100 or less employees) are each considered in this chapter.

1. Product Sales Trends in the Wholesaling and Retailing Industry

(1) Wholesaling and Retailing Industry Account for the Largest Share in Domestic Sales of SMEs in 2011

In 2011, domestic sales accounted for 74.33% of the total sales of Taiwan's wholesaling and retailing industry, with exports accounting for 25.67%. The wholesaling and retailing industry is thus heavily oriented towards the Taiwanese domestic market. The domestic sales accounted for 71.33% of the total sales of SMEs and the share of domestic sales accounted for by larger enterprises was 76.39%, which was markedly higher than that for SMEs.

Of wholesaling and retailing industry sales that fall under the category of domestic sales, the largest share (26.01% of total sales) went to consumers, followed by sales to other wholesalers and retailers (23.83%), and private-sector factories (16.30%). Among small and medium-sized wholesaling and retailing firms, the largest domestic sales' share of total sales was 74.35% distributed to wholesalers and retailers (25.66%), followed by private-sector factories (21.90%),

and consumers (15.55%), while for large enterprises the percentage going to consumers was 33.16%. (Table 2-5-1).

Table 2-5-1 Changes in Domestic Sales Flow, 2010-2011

Unit:%

Item		Total (2011)	SMEs					Larger enterprises (2011)
			Total (2010)	Total (2011)	less than 5 persons	5~49 persons	50~99 persons	
Total sales		**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Domestic sales	Total	74.33	57.17	71.33	91.66	75.17	61.82	76.39
	Private-sector factories	16.30	18.45	21.90	19.50	24.76	16.94	12.47
	Public-sector agencies	0.53	0.37	0.73	0.43	0.84	0.55	0.39
	Domestic trading companies	7.14	5.26	6.99	6.18	6.98	7.10	7.24
	Wholesaling and retailing	23.83	21.81	25.66	54.15	26.02	21.57	22.58
	Government	0.53	0.42	0.50	0.67	0.58	0.33	0.54
	Consumer	26.01	10.86	15.55	10.74	15.99	15.33	33.16
Export sales	Total	25.67	42.83	28.67	8.34	24.83	38.18	23.61
	Japan	2.42	11.09	1.99	2.53	2.45	1.09	2.71
	United States	1.73	2.01	2.92	0.65	3.18	2.72	0.91
	Europe	1.94	2.74	3.85	0.48	5.35	1.49	0.64
	Korea	1.24	-	2.98	0.48	0.35	8.09	0.06
	China (including Hong Kong and Macao)	14.68	20.52	12.57	1.84	8.39	21.53	16.12
	South Asia	2.01	4.16	2.75	1.97	2.92	2.55	1.51
	Others	1.65	2.32	1.62	0.39	2.20	0.71	1.66

Source: Survey of the Operational Status of the Wholesaling and Retailing Industry (2012).

(2) China Accounted for the Highest Share of Export Sales

The single largest export market for the wholesaling and retailing industry is China (including Hong Kong and Macao), which accounts for 14.68% of the industry's total export sales, followed by Japan (2.42%). Among small and medium-sized wholesaling and retailing firms, China (including Hong Kong and Macao) is the largest export market, which accounts for 12.57% of SMEs' total exports, followed by Europe (3.85%). (Table 2-5-1).

(3) Sales through Physical Stores Account for the Largest Share of Sales to Consumers

In 2011, sales through physical, bricks-and-mortar stores accounted for the largest share of the wholesaling and retailing industry's sales to consumers (at 87.05% of the total), indicating that consumers still like to be able to browse through goods in a physical store. Online sales accounted for the next largest share of sales to consumers (7.18%), followed by direct sales(1.82%) (Table 2-5-2).

Table 2-5-2 Channels Used for Sales to Consumers,2010-2011

Unit:%

Sector	2010	2011	SMEs		Larger enterprises (2011)
			2010	2011	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Physical stores	89.03	87.05	70.92	64.25	94.35
Online sales	5.57	7.18	19.35	25.55	1.31
Direct sales	2.84	1.82	6.12	5.41	0.67
Through the TV channels	0.11	0.62	0.42	0.03	0.81
Through the auto sales machine	0.33	0.51	0.04	0.23	0.60
Mail-order	0.10	0.16	0.07	0.14	0.16
Others	2.02	1.76	3.08	3.31	1.26

Source: Survey of the Operational Status of the Wholesaling and Retailing Industry (2012).

2. Business Environment and Business Strategies

(1) Intense Market Competition Accounted for the Largest Share of Management Difficulty with 27.30%

With the rapid pace of change in consumer habits, the large-scale adjustment of production systems and the widespread adoption of international management techniques, the traditional retailing model has been gradually declining; in its place, there has been a trend towards ever larger enterprise size, hybridization, the growth of chain stores, diversification, the growth of online business, and the emergence of virtual retailing. It can be seen from the weighted survey results that the most widely reported problem experienced by enterprises in the wholesaling and retailing industry is the intense market competition in the business environment (27.30% of enterprises), followed by difficulty in keeping purchasing costs down (17.99%) and loss of customers due to the economic downturn (16.57%) (Table 2-5-3).The shares of SMEs reporting difficulties experienced by the wholesaling and retailing industry due to the difficulty in keeping purchasing costs down and the economic downturn, were all higher than the corresponding percentages for large enterprises.

(2) Developing New Sales Channels is the Most Widely Adopted Business Strategy in the Wholesaling and Retailing Industry

It can be seen from the weighted survey results (Table 2-5-4) that the four business strategies most widely adopted by enterprises in the wholesaling and retailing industry are: developing new sales channels (18.64%), improving the quality of service provided to customers (18.27%), upgrading product value (15.41%), and adopting a low-margin, high-volume strategy (15.17%).

The most pronounced disparity between SMEs and large enterprises in terms of business strategy is with regard to the adoption of a low-margin, high-volume strategy; the percentage of SMEs reporting the adoption of such a strategy is 11.82 percentage points higher than the corresponding percentage for large enterprises. This suggests that when facing fierce competition, SMEs enjoy more flexibility than large enterprises when it comes to unit price, and are better placed to achieve profitability through a high-volume, low-unit-price strategy. There was a higher percentage of large enterprises (which are at an advantage because of their greater capitalization and larger manpower resources) focusing on strategies such as “upgrading service

quality," "enhancing product value," "expanding the network of direct outlets and/or franchise stores," "stepping up advertising and promotional activities," and "adopting innovative business models."

Table 2-5-3 Operational Difficulties Experienced by Firms in the Wholesaling and Retailing Industry (weighted)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Intense market competition	28.23	27.30	27.74	27.02	28.77
Difficulty in keeping purchasing costs down	17.26	17.99	17.73	18.46	15.50
Loss of customers due to the economic downturn	12.91	16.57	13.62	17.12	13.69
Excessively heavy tax burden	7.02	6.16	7.32	6.45	4.68
High labor costs	4.96	5.14	4.67	4.85	6.67
High land prices and high rentals	4.99	4.90	4.43	4.11	9.01
Falling prices	4.48	4.89	4.51	5.09	3.81
Changes in consumer preferences	5.17	4.41	5.03	4.24	5.28
Difficulty in securing working capital	3.86	3.93	4.10	4.28	2.11
Lack of professional talent	3.12	2.75	3.10	2.55	3.85
Shorter product life-cycles	2.59	2.27	2.28	2.18	2.75
Deficiency of internationalization capability	1.32	0.79	1.39	0.87	0.38
Hard to upgrade product development due to R&D deficiency	1.08	0.79	1.06	0.77	0.87
Difficulty in collecting industrial information	0.99	0.46	1.02	0.41	0.75
Lack technical application capability	0.57	0.20	0.63	0.24	0.00
Other	1.43	1.44	1.36	1.35	1.89

Note: The weighted percentages were obtained by dividing the importance score for each item by the total value of all items for all respondents; a value of 3 denoted most important, 2 denoted of secondary importance, and 1 denoted less important.
Source: Survey of the Operational Status of the Wholesaling and Retailing Industry (2012).

Table 2-5-4 Business Strategies Adopted by Firms in the Wholesaling and Retailing Industry (weighted)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Improving the quality of service provided to customers	18.37	18.64	18.79	18.78	17.96
Developing new sales channels	19.72	18.27	19.54	17.84	20.43
Upgrading product value	14.87	15.41	14.63	15.05	17.22
Adopting a low-margin, high-volume strategy	13.83	15.17	15.40	17.10	5.28
Strengthening promotional activity of advertisements	6.11	5.97	5.83	5.69	7.37
Developing new enterprises	5.16	5.71	5.20	5.80	5.28
Strengthening promotional activities of advertising	5.13	4.53	5.27	4.78	3.22
Product internationalization	4.44	4.44	4.46	4.56	3.82
Increasing the number of direct outlets and/or franchise stores	4.00	4.24	3.01	3.09	10.14
Adoption of innovative business models	4.43	3.95	4.06	3.63	5.61
Strategic alliances (collaboration with other enterprises)	2.64	2.51	2.48	2.42	2.96
Other	1.31	1.17	1.33	1.26	0.71

Note: The weighted percentages were obtained by dividing the importance score for each item by the total value of all items for all respondents; a value of 3 denoted most important, 2 denoted of secondary importance, and 1 denoted less important.
Source: Survey of the Operational Status of the Wholesaling and Retailing Industry (2012).

(3) The Main Environmental Factor Affecting Business Operations is Domestic Market Demand

The survey results showed that 35.02% of firms felt “domestic market demand” to be the single most important external environmental factor affecting their operations. The second and third most frequently listed factors were “international market demand” (15.48% of firms) and “fluctuations in the New Taiwan Dollar exchange rate” (11.95%). SMEs were more likely than large enterprises to view “international market demand,” “fluctuations in the New Taiwan Dollar exchange rate” and “domestic political situation” as important environmental factors; large enterprises were more likely than SMEs to consider “domestic market demand,” “adjustments in legally mandated working hours and the minimum wage,” “domestic stock market fluctuations” and “deregulation” as constituting important environmental factors (Table 2-5-6).

Table 2-5-5 Environmental Factors Affecting Enterprise Operations (weighted)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Domestic market demand	33.90	35.02	33.45	34.64	36.94
International market demand	14.29	15.48	14.62	16.06	12.53
New Taiwan Dollar exchange rate	12.84	11.95	13.15	12.26	10.35
Domestic political situation	4.99	6.24	4.94	6.42	5.35
“Cross-strait” relations	4.28	4.18	4.38	4.18	4.16
Adjustments in legally mandated working hours and the minimum wage	3.69	4.01	3.48	3.71	5.54
Convenience of transportation	5.66	4.00	5.61	4.02	3.90
Domestic stock market fluctuations	3.85	3.95	3.79	3.53	6.07
Deregulation	3.28	3.49	3.22	3.12	5.39
Government administrative efficiency	2.78	2.92	2.83	2.95	2.75
Domestic real estate prices	1.97	2.33	2.07	2.48	1.57
Crime level	2.37	1.87	2.41	2.00	1.22
E-Business penetration	2.04	1.70	1.88	1.76	1.41
Establishment of industrial/business districts	1.82	1.21	1.86	1.25	0.99
Other	2.25	1.67	2.30	1.63	1.83

Notes and Source: See Table 2-5-4.

3. Operational Trends

(1) Quality, Price and Utility are the Three Aspects of Product Sales that Companies Emphasize Most

According to the 2012 survey results, the aspect of product sales that business enterprises emphasize most is “product quality” (25.25% of firms), suggesting that quality is of particular importance, followed by “product utility” (18.13% of firms), and “product pricing” (16.59%). SMEs were more likely than large enterprises to emphasize the importance of “product quality,” “product utility” and “product pricing”; large enterprises were more likely than SMEs to emphasize the importance of “product brand recognition” (Table 2-5-6).

Table 2-5-6 Most Emphasized Aspects of Wholesaling and Retailing Product Sales (weighted)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Product quality	23.28	25.25	22.88	25.42	24.33
Product utility	16.82	18.13	17.24	19.02	13.18
Product pricing	17.68	16.59	18.69	17.57	11.07
Product brand recognition	11.8	11.58	11.04	10.69	16.54
Product distinctiveness	8.61	7.71	9.01	7.61	8.27
Comprehensive product line	8.65	7.63	8.57	7.36	9.13
Product value	5.21	5.66	5.08	5.33	7.49
Product fashionableness	3.27	3.43	3.00	3.04	5.60
Product innovation	3.61	3.10	3.45	2.95	3.92
Other	1.06	0.93	1.04	1.02	0.47

Notes and source: See Table 2-5-4.

(2) SMEs Hope for "Development of Business Opportunities in Emerging Markets" and "Increased provision of low-interest loans for business enterprises " the Most

The weighted survey results indicate that, as of 2012, the area in which the largest number of enterprises anticipate government support is "development of business opportunities in emerging markets" (22.74% of firms), followed by "increased provision of low-interest loans for business enterprises" (22.15%) and "provision of new management knowledge and information" (14.66%). SMEs were more eager than large enterprises for the government to provide support in terms of "increased provision of low-interest loans for business enterprises"; large enterprises were more interested than SMEs in having the government "build a comprehensive e-business environment" "review business-related regulations and simplify administrative procedures" and "asistance with manpower cultivation"(Table 2-5-7).

Table 2-5-7 Areas Where Firms are Seeking Government Support to Help Boost Competitiveness (weighted)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Development of business opportunities in emerging markets	23.90	22.74	23.96	22.73	22.79
Increased provision of low-interest loans for business enterprises	20.88	22.15	21.97	23.29	16.33
Provision of new management knowledge and information	17.25	14.66	17.57	14.76	14.13
Assistance with the establishment of strategic alliances	11.29	10.28	11.34	10.29	10.25
Provision of guidance for e-enablement	8.67	8.03	8.51	8.27	6.83
Building a comprehensive e-business environment	5.22	6.13	4.66	5.60	8.79
Reviewing business-related regulations and simplifying administrative procedures	3.65	5.70	3.23	5.03	9.08
Assistance with manpower cultivation	3.04	4.56	2.95	4.24	6.21
Other	6.09	5.75	5.8	5.78	5.58

Notes and source: See Table 2-5-4.

(3) Approximately 74% of Firms Rely on Promotion by Sales Representatives as their Main Sales Promotion Strategy

The survey results show that, for around 74% of wholesaling and retailing enterprises, sales promotion activity undertaken by sales representatives is the most important form of sales promotion. This high figure reflects the advantages conferred by having direct, face-to-face contact with the customer. The next most commonly used sales promotion methods are distributors and agents (32.90% of firms) and online marketing (24.19%, including 15.26% of firms that have their own website, and 8.93% that make use of a third-party portal site). Large enterprises (which benefit from their higher capitalization and more extensive resources) are significantly more likely than SMEs to emphasize online marketing, catalog-based marketing and television marketing (Table 2-5-8).

Table 2-5-8 Sales Promotion Methods Used by Business Enterprises (respondents could list more than one method)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Sales promotion by sales representatives	76.94	73.38	77.14	73.97	69.98
Distributors and agents	30.57	32.90	30.56	32.48	35.35
Online marketing (own website)	13.85	15.26	12.70	13.66	24.46
Catalog-based marketing	11.62	12.75	10.08	11.15	22.03
Online marketing (via portal site)	8.43	8.93	7.09	7.50	17.19
Television marketing	4.22	4.43	3.11	3.23	11.38
Multi-level marketing (direct sales)	1.91	2.22	2.01	2.10	2.91
Other	8.4	10.75	7.74	10.35	13.08

Notes and source: See Table 2-5-4.

4. The Internationalization of Taiwanese Industry, and the Outlook for the Future

(1) Approximately 60% of Firms Hope to Step Up their Development of the China Market in the Future

Reflecting the enormous business opportunities that China offers, and its geographical proximity to Taiwan, around 63% of firms stated that they hoped to step up their development of the China market. Other overseas markets that Taiwanese enterprises were looking to develop included, in order of the frequency with which they were listed: ASEAN (27.58% of firms), Europe (23.57%), North America (23.33%), Japan and South Korea (18.10%), emerging markets, including India, Central and South America, the Middle East, etc. (17.01%) and Africa (2.92%). (Table 2-5-9).

Large enterprises were significantly more likely than SMEs to emphasize the importance of the China market (81.12% of large enterprises), while SMEs were more likely than large enterprises to be planning to step up development of the ASEAN, European, North American and the emerging markets .

In comparison with the results obtained in the 2011 survey, in 2010 the percentage of SMEs seeking to develop the China market fell by 8.44 percentage points.

Table 2-5-9 Overseas Markets that Business Enterprises Wish to Step Up Development of in the Future (respondents could list more than one market)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
China	69.71	63.18	67.85	59.41	81.12
ASEAN	24.95	27.58	25.54	28.82	21.68
Europe	16.58	23.57	17.11	26.62	9.09
North America	16.87	23.33	17.60	24.85	16.08
Japan and South Korea	16.02	18.10	17.19	18.38	16.78
Emerging markets (including India, Central and South America, and the Middle East)	11.95	17.01	12.89	18.68	9.09
Africa	1.41	2.92	1.57	3.09	2.10
Other	3.44	2.07	3.31	1.76	3.50

Notes and source: See Table 2-5-4.

(2) "Insufficient Market-oriented Policy Formulation", "Excessively small scale of operations of domestic enterprises" and "Administrative inefficiency" are Felt to be the Biggest Obstacle to Ongoing Industrial Development

The weighted survey results showed that business enterprises believed the single biggest obstacle to future industrial development was "insufficient market-oriented policy formulation" (listed by 16.09% of firms), followed by "excessively small scale of operations of domestic enterprises" (13.35%) and "administrative inefficiency" (13.25%).(Table 2-5-10)

SMEs were more likely than large enterprises to feel that the biggest obstacles to ongoing industrial development were "excessively small scale of operations of domestic enterprises", "insufficient market-oriented policy formulation", "administrative inefficiency" and "insufficient coordination of local industries." Large enterprises were more likely to see "insufficient internationalization", "insufficient market-oriented policy formulation", "insufficient internationalization" and "administrative inefficiency" as key obstacles.

(3) 47% of Business Enterprises believe that the Most Effective Measure for Increasing Internationalization would be to "Implement a Strategy of Promoting Taiwanese Brands"

The survey results indicated that business enterprises felt that the most effective strategy for increasing the extent of internationalization in Taiwanese industry would be to "implement a strategy of promoting Taiwanese brands" (listed by 46.84% of firms), suggesting that business enterprises believe that promoting brand development can not only help to boost product value, it is also an effective means of developing overseas markets. The second most commonly listed measure was "actively promoting participation in regional economic integration" (32.29% of firms) (Table 2-5-11).

Table 2-5-10 Factors Which Business Enterprises Felt to be the Main Obstacles to Future Industrial Development (respondents could list more than one factor)

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Insufficienting market-oriented policy formulation	15.92	16.09	16.03	15.71	18.22
Excessively small scale of operations of domestic enterprises	12.86	13.35	13.37	14.24	8.42
Administrative inefficiency	10.38	13.25	10.49	13.60	11.27
Insufficient internationalization	9.34	10.88	9.05	10.72	11.80
Insufficient coordination of local industries	10.94	10.51	11.38	11.23	6.52
Excessive focus on product technology in industrial policy	7.94	8.03	7.66	7.78	9.42
Failure to develop business opportunities based on local lifestyles	8.25	6.99	8.29	6.74	8.42
Insufficient cultivation of high-level international management talent	4.39	4.91	4.15	4.48	7.33
Domestic websites too small and insufficiently secure	4.63	4.28	4.51	4.12	5.14
Slow development of green industries	5.13	3.35	5.16	3.12	4.66
Failure to put satisfactory money flow mechanisms for online transactions in place	3.24	3.16	3.11	2.85	4.90
Other	6.97	5.19	6.81	5.42	3.90

Notes and source: See Table 2-5-4.

Table 2-5-11 Measures that Business Enterprises Believe Would be Most Effective for Enhancing the Internationalization of Taiwanese Industry

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Implement a strategy of promoting Taiwanese brands	40.16	46.84	40.07	46.75	47.30
Actively promoting participation in regional economic integration	34.16	32.29	33.85	32.31	32.16
Making effective use of Taiwanese firms' global presence	16.82	11.15	17.36	11.22	10.79
Leveraging the resources of government agencies	8.85	9.73	8.72	9.72	9.75

Notes and source: See Table 2-5-1.

(4) Around 24% of Firms in the Wholesaling and Retailing Industry Reported that their Sales Revenue had Received a Direct Boost from the Government's Relaxation of the Restrictions on Travel to Taiwan by Chinese Tourists

With the steady increase in the intensity of "cross-strait" contacts and exchange between Taiwan and China, on July 18, 2008 the Taiwanese government implemented a formal relaxation of the restrictions on travel to Taiwan by Chinese tourists. The survey results showed that 23.59% of firms in the wholesaling and retailing industries felt that their sales performance had benefited directly from the government's relaxation of the controls on travel to Taiwan by Chinese tourists; the percentage of large wholesaling and retailing enterprises that had benefited directly was

significantly higher (at 35.48%) than the corresponding percentage for SMEs (21.33%) (Table 2-5-12).

Table 2-5-12 The Direct Impact on the Sales Performance of Wholesaling and Retailing Firms of the Relaxation of Restrictions on Travel to Taiwan by Chinese Tourists

Unit: %

Item	All Enterprises (2011)	All Enterprises (2012)	SMEs		Large Enterprises (2012)
			2011	2012	
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Have benefited	19.84	23.59	17.44	21.33	35.48
Have not benefited	80.16	76.41	82.56	78.67	64.52

Notes and source: See Table 2-5-1.

VI R&D Inputs of SMEs

When seeking to measure enterprises' innovation and R&D inputs, the most commonly used indicator is firms' R&D expenditure. This section will explore the R&D spending of the nation as a whole and of the corporate sector. At the same time, in order to gain a clearer understanding of the R&D inputs of the overseas operations of Taiwanese business enterprises, we will also analyze the original data from the 2011 *Survey of the Operational Status of Taiwanese-invested Businesses Operating Overseas*, implemented by the Investment Commission, Ministry of Economic Affairs, so as to be able to provide a more comprehensive picture of the current state of the R&D inputs of Taiwan's business enterprises.

1. R&D Expenditure at there the in National and in the Business Sector

(1) National R&D Expenditure

According to the data presented in the 2011 edition of Taiwan's *Indicators of Science and Technology*, in 2010 total R&D expenditure in Taiwan came to NT$394,960 million, representing an annual growth rate of 7.57%. 71.54% of this spending was in the business sector; 15.96% was undertaken by government, 12.15% was in the higher education sector, and just 0.36% was in the nonprofit sector. These data reflect the fact that the business sector has always accounted for the largest share of R&D spending in Taiwan (Table 2-6-1).

Table 2-6-1 R&D Spending by Sector, 2007-2010

Unit: NT$ millions

Item	2007	2008	2009	2010
All sectors	**331 386**	**351 405**	**367,174**	**394,960**
Business sector	229,126	248,363	257,405	282,546
Public sector	60,643	58,928	61,587	63,020
Higher education sector	40,400	42,905	46,823	47,970
Non-profit sector	1,218	1,209	1,359	1,424

Source: National Science Council, Executive Yuan, Indicators of Science and Technology, 2011.

(2) R&D Spending in the Business Sector

Within the business sector, manufacturing industry accounts for the largest single share of overall R&D spending. Using the definition of "manufacturing firms" specified by the 8th Revision of

the R.O.C. Standard Industry Classification, total annual R&D expenditure in the manufacturing sector in 2011 was approximately NT$257,149 million, representing 91.01% of all business sector R&D expenditure. The share held by the service sector was 7.24%; the combined total for all other industries (including electric power and gas, water supply, pollution prevention and construction) was just 0.31%. As a rule, manufacturing firms (and particularly those in hi-tech industries) have more need to undertake R&D than firms in the service sector or other industries, which is why R&D expenditure in the manufacturing sector is so much higher than that in other sectors.

Examination of the trends in R&D spending in each sector over the past few years shows a pronounced increase in R&D expenditure in the business sector, rising from NT$207,238 million in 2006 to NT$282,546 million in 2010 (representing an annual growth rate of 7.27%). The business sector's share of overall national R&D expenditure has also increased over the same period, from 69.14% in 2007 to 71.54% in 2010. In all sectors, the increase in business sector R&D expenditure is the highest.

Total R&D expenditure by SMEs (defined as enterprises with fewer than 200 employees) has risen for three years in a row, with a growth rate of 17.17% in 2008, 2.05% in 2009 and 4.46% in 2010. While R&D spending by large enterprises has also risen, the growth rate in 2008 (compared to 2007) was only 6.68%, which was significantly lower than the corresponding growth rate for SMEs. However, the growth rate in 2009 (compared to 2008) was 3.98% and the growth rate in 2010 was 10.89% compared to 2009, significantly higher than the corresponding growth rate for SMEs. Overall, business sector R&D spending has continued to grow steadily every year (Table 2-6-2).

Table 2-6-2 Business Sector R&D Expenditure by Enterprise Size, 2006–2010

Unit: NT$ millions

Item	2006	2007	2008	2009	2010
Total	**207,238**	**229,126**	**248,363**	**257,405**	**282,546**
SME Sub-total	33,159	37,437	43,864	44,764	46,759
0 - 99 employees	17,803	19,140	23,200	23,600	23,115
100 - 199 employees	15,356	18,297	20,664	21,164	23,644
Large Enterprises Sub-total	174,078	191,690	204,498	212,640	235,787
200 – 499 employees	27,417	31,614	36,039	35,401	38,530
500 or more employees	146,661	160,076	168,459	177,239	197,257

Source: See Table 2-6-1 above.

2. R&D Expenditure by Taiwanese Enterprises' Overseas Operations

(1) R&D Expenditure by the Parent Companies of Taiwanese-invested Enterprises Operating Overseas

Table 2-6-3 is based on the original data from the 2011 Survey of the Operational Status of Taiwanese-invested Businesses Operating Overseas undertaken by the Investment Commission, Ministry of Economic Affairs. 2010 average R&D expenditure by large enterprises with overseas operations was NT$291.52 million, 6.17 times the average R&D spending of SMEs (NT$47.2 million).

Table 2-6-3 R&D Expenditure by the Parent Companies of Taiwanese-invested Enterprises Operating Overseas in 2010

Units: enterprises; NT$ millions; %

Enterprise Size	No. of Respondents	Average Annual Sales Revenue	No. of Respondents	Average Annual R&D Expenditure	Average Annual R&D Expenditure as a % of Annual Sales Revenue
Large enterprises	461	2,339,584	400	29,152	1.25
SMEs	142	112,842	95	4,720	4.18

Source: Investment Commission, Ministry of Economic Affairs, 2011 Survey of the Operational Status of Taiwanese-invested Businesses Operating Overseas.

(2) Allocation of R&D Expenditure by the Parent Companies of Taiwanese-invested Enterprises Operating Overseas

The data can be broken down to show R&D spending by Taiwan-based and overseas-based operations, to explore R&D spending by overseas operations. In 2010, the Taiwan-based operations of the total R&D expenditure of large enterprises rose from 75.24% to 96.09% (compared to 2009), while the figure for SMEs fell from 67.15% to 86.14%. These data show that Taiwanese enterprises kept their R&D in Taiwan (Table 2-6-4).

Table 2-6-4 Domestic Operations' and Overseas Operations' Shares of the Total R&D Expenditure of Taiwanese Companies Investing Overseas in 2009 and 2010

Unit: %

Enterprise Size	Item	Share of Total Annual Sales Revenue		Share of Total Annual R&D Revenue	
		2009	2010	2009	2010
Large enterprises	Taiwan-based operations	61.39	67.54	75.24	96.09
	Overseas operations	38.61	32.46	24.76	3.91
SMEs	Taiwan-based operations	65.73	68.84	67.15	86.14
	Overseas operations	34.27	31.16	32.85	13.86

Source: Investment Commission, Ministry of Economic Affairs, 2011 Survey of the Operational Status of Taiwanese-invested Businesses Operating Overseas.

CHAPTER 3

Financial Status and Fund Intermediation of SMEs

Financial analysis has a vital role to play in facilitating an understanding of the current state of Taiwan's SMEs and the outlook for their future development; the various financial indicators can be used to examine SMEs' operational management. The first section of this chapter presents an overview of the financial status of Taiwan's SMEs, using business income tax return data for 2010 provided by the Tax Data Center of the Ministry of Finance; there is thus a one-year time lag as compared with the data presented in the other chapters of this White Paper. The second section examines the interaction between SMEs and the banking sector, using survey data from the Financial Supervisory Commission. The third section outlines the assistance that the SME Credit Guarantee Fund provides to SMEs with respect to credit guarantees and helping SMEs to obtain financing.

The definition of SMEs used in the first and second sections of this chapter is based on the revised Standard for the Determination of SME Status promulgated by the Ministry of Economic Affairs (MOEA) in September 2009. The data presented in the third section of this chapter are taken mainly from Statistics of Banking Business, compiled by the Financial Supervisory Commission, Executive Yuan, the Directorate-General of Budget, Accounting and Statistics (DGBAS), and the Central Bank; the definition of SMEs used in the third section is the same as that used in the first and second sections.

I Overall Financial Status of SMEs

In this section, consolidated balance sheet data (where the figures for each account in the balance sheet are converted into percentages of total assets) are used to examine the fund utilization and asset allocation status of SMEs, so as to gain an overall understanding of SMEs' financial structure.

1. Analysis of Asset Allocation by SMEs

(1) Adequate Current Assets, an Increased Inventory Ratio, and a Slightly Decreased Ability to Cope with Changes in the Wider Environment

As can be seen from Table 3-1-1, current ratios in both large enterprises and SMEs declined in 2010, for large enterprises the share of total assets accounted for by current assets decreased by 1.97 percentage points in 2010 (compared to the previous year), to 58.57%. For SMEs, this percentage decreased by 1.95 percentage points, to 48.43%. There was a downturn in short-term repayment ability compared to 2009, and it is significant that the share of SME total assets accounted for by current assets was less than 50%. With regard to cash's share of total assets, for large enterprises this decreased by 0.22 percentage points in 2010 to 23.66%. For SMEs, it

decreased from 20.14% to 17.64%, reflecting the fact that SMEs are more flexible and more able to respond rapidly to changing circumstances than large enterprises.

Table 3-1-1 Consolidated Financial Data for Taiwanese Enterprises, 2008–2010

Unit: %

Item \ Size / Year	Large Enterprises			SMEs		
	2008	2009	2010	2008	2009	2010
Current assets	62.34	60.54	58.57	49.76	50.38	48.43
Cash	24.87	23.88	23.66	15.13	20.14	17.64
Accounts receivable	28.27	26.32	26.09	12.80	11.48	11.83
Inventories	5.75	7.19	7.21	17.89	15.57	15.49
Advance payments	1.19	0.45	0.47	1.46	1.34	1.46
Other current assets	2.26	2.70	1.14	2.48	1.85	2.02
Funds and long-term investments	18.15	20.89	23.24	22.61	25.41	27.59
Fixed assets	15.22	14.13	13.91	24.08	21.00	20.75
Land and buildings	6.52	6.21	5.99	13.85	13.52	13.83
Machinery	7.84	7.09	6.82	8.92	6.35	5.69
Other fixed assets	0.85	0.83	1.10	1.31	1.13	1.23
Intangible and other assets	4.29	4.43	4.28	3.56	3.21	3.23
Total assets = Liabilities + Net worth	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Liabilities	74.66	73.57	73.83	52.80	55.87	56.47
Current liabilities	55.19	54.07	53.01	43.60	46.94	47.54
Short-term loans	37.34	37.64	35.32	11.55	12.07	12.29
Accounts payable	8.06	8.46	8.48	11.37	12.77	13.44
Income received in advance	5.39	3.99	3.92	3.81	3.91	3.84
Other current liabilities	4.40	3.98	5.29	16.87	18.19	17.96
Long-term liabilities	11.49	9.40	13.04	7.02	7.22	7.39
Long-term loans repayable	4.55	5.65	5.90	5.11	5.10	5.61
Other long-term liabilities	6.94	3.75	7.15	1.90	2.12	1.79
Other liabilities	7.98	10.10	7.77	2.18	1.72	1.54
Net worth	25.34	26.43	26.17	47.20	44.13	43.53

Source: Ministry of Finance, Business income tax return data.

As can be seen from Table 3-1-1, the growth rate of inventories' share of large enterprises' total assets has declined, and the inventories' share of large enterprises is 7.21%, a mere 0.02% increase in 2010 compared to an increase of 1.44% in 2009. For SMEs, inventories' share of total assets still kept falling from 2008 to 2010; in 2010, it stood at 15.49%, reflecting a slight decrease of 0.08% compared to 2009. These figures indicate that during the period of economic recovery, the SMEs' abilities to cope with changes in the wider environment might slightly decrease because of the European sovereign debt crisis.

(2) A Continuously Increasing Trend towards Cautious Management Reflected in Funds and Long-term Investment Ratios

Long-term investments are investments undertaken by an enterprise for financial or operational reasons, where the investments are held over the long term, for example in the form of shares or convertible bonds, etc. Long-term investments are generally defined as investments that the enterprise does not intend to convert into cash within the coming year. As can be seen from Table 3-1-1, for large enterprises the share of total assets held by funds and long-term investments rose by 2.35 percentage points in 2010 to 23.24%. For SMEs it rose by 2.18 percentage points to 27.59%. Even though the global economy had gradually recovered from the financial tsunami in 2010, from the observation of the ratios above, both large enterprises and SMEs still increased the percentages of their funds allocated in funds or long-term investments. Enterprises are still

conservative on the future business environment possibly because of the European sovereign debt crisis. In the new era of low-interest rates, enterprises are unwilling to leave funds sitting in the bank earning meager returns; they have therefore been adjusting their asset mix, increasing the share of total assets held by funds and investments, and making use of different investment tools to secure higher returns.

(3) A Fall in Fixed Assets for SMEs

As can be seen from Table 3-1-1, for large enterprises the share of total assets held by fixed assets fell by 0.22 percentage points in 2010 compared to 2009, down to 13.91%. For SMEs the share fell by 0.25 percentage points to 20.75%.

2. Analysis of SMEs' Financial Structure

Examination of the asset allocation of Taiwan's SMEs shows that the SMEs' current asset ratio has continued to rise since 2007, standing at 48.43% in 2010. Looking at the SMEs' debt structure as well can give a more comprehensive picture of the SMEs' overall financial status. In 2010, the SMEs' current liability ratio and liability ratio continued to rise to 47.54% and 56.47%, respectively.

(1) An Upward Trend in the Current Liabilities Ratio, but Short-term Funding Pressure Remains High

As can be seen from Table 3-1-1, in 2010 the SMEs' current liability ratio rose by 0.6 percentage points to 47.54%, while the large enterprises' current liability ratio fell by 1.06 percentage points to 53.01%. Although the SMEs' current liabilities ratio was lower than that of large enterprises, current liabilities as a share of total liabilities for SMEs in 2010 remained very high, at 84.19%, which was significantly higher than the corresponding percentage for large enterprises (71.80%). Furthermore, the current liabilities ratio of large enterprises was declining. This disparity reflects the generally high level of short-term funding pressure that SMEs are under. Ideally, SMEs should try to increase their long-term liabilities at the expense of short-term borrowing, so as to reduce this kind of short-term funding pressure.

(2) An Increase in the Long-term Liabilities Ratio

As can be seen from Table 3-1-1, in 2010, the SMEs' long-term liabilities ratio rose by 0.17 percentage points, to 7.39%, while the large enterprises' long-term liabilities ratio fell by 3.64 percentage points to 13.04%. Long-term liabilities represent debt that does not have to be repaid within the next year, such as bonds payable and long-term bills payable. Most SMEs are family businesses with inadequate capitalization, finances that are not especially transparent, and inadequate managerial capabilities. As a result, financial institutions are often reluctant to lend to SMEs, which tends to make for a low long-term liabilities ratio.

3. Analysis of SMEs' Profit and Loss

(1) Increasing Enterprise Profit with a Declining Operating Cost Ratio

As regards operating costs' share of net operating income, (as can be seen from Table 3-1-2), operating costs of both large enterprises and SMEs were declining from 2008 to 2010. In

2010 the large enterprises' operating cost ratio fell by 2.08 percentage points to 89.71%, and the SMEs' operating cost ratio fell by 0.1 percentage points to 80.88%. As a result, the SME sector as a whole went into the black, with a positive current term profit.

Table 3-1-2 Profit and Loss of Taiwanese Enterprises, 2008–2010

Unit: %

Item \ Size/Year	Large Enterprises			SMEs		
	2008	2009	2010	2008	2009	2010
Net operating income	100.00	100.00	100.00	100.00	100.00	100.00
Less: Operating costs	93.12	91.79	89.71	83.70	80.98	80.88
Gross operating profit	6.88	8.21	10.29	16.30	19.02	19.12
Less: Operating expenses	5.44	6.39	6.40	17.35	18.43	16.97
Net operating profit	1.45	1.82	3.89	-1.05	0.59	2.14
Plus: Non-operating profit	2.14	1.90	2.10	1.70	1.86	2.15
Less: Interest expenses	1.51	1.47	1.34	1.25	1.10	0.83
Less: Other non-operating expenses	0.41	0.35	0.29	0.74	0.54	0.45
Current term profit (loss)	1.67	1.90	4.35	-1.34	0.81	3.37

Source: Ministry of Finance, Business income tax return data.

(2) Rising Profit with a Decline in the Operating Expense Ratio

The term "operating expenses" is used to refer to expenditure derived from an enterprise's sales and management activities, including sales expenses, management expenses, and R&D expenses, etc. The SMEs' operating expenses ratio reversed the recent upward trend and declined in 2010. In 2010, the SMEs' operating expenses ratio was 16.97%, falling slightly by 1.46 percentage points. The large enterprises' operating expenses ratio was 6.40%, up 0.01 percentage points in 2010 compared to 2009, which is lower than the corresponding figure for SMEs. However, in 2010 the ratio of large enterprises rose slightly while the corresponding figure for SMEs started to decline from the rising trend in the past, which indicated that the profits of SMEs had risen.

A saving of one dollar in operating expenses represents an extra dollar in earnings for the enterprise. In an era of low profit margins, the fastest way for an enterprise to boost its profit margin is to implement cost-down initiatives. Regardless of whether they are making a profit or making a loss, most firms are constantly trying to think of ways to cut costs and reduce operating expenses. The pronounced disparity between the operating expenses ratio of SMEs and that of large enterprises may be due to SMEs' limited managerial capabilities, coupled with their small scale of operation and limited bargaining power, which makes it difficult for them to squeeze costs. It would be beneficial for increasing the profits of SMEs if the operating expenses ratio could be lowered.

(3) Increase in Net Operating Profit with Declines in Both Operating Costs and Operating Expenses

As noted above, the SMEs' operating expenses ratio is far higher than that of large enterprises; however, their operating costs are lower than those of large enterprises, so in the past SMEs as a whole have always maintained a positive net operating profit. However, 2008 saw a dramatic increase in SMEs' operating costs, in addition to a slight increase in operating expenses; as a result, SMEs found themselves posting a negative net operating profit (Table 3-1-2) for the first time since 2000. However, due to the decrease in operating costs being higher than the increase in operating expenses in 2009, SMEs were still able to record a positive net operating profit. The

net operating profits rose (by 1.55%) to 2.14% because of the declines in both operating costs and operating expenses.

(4) Current Term Profit and Loss Continuously Rose, Reflecting the Serious Challenges SMEs Have Been Facing

As can be seen from Table 3-1-2, in 2010, large enterprises' current term profit or loss rose by 2.45 percentage points to 4.35%. SMEs' current term profit or loss increased dramatically by 2.56 percentage points to 3.37%. Net operating profit turned positive; non-operating income rose slightly (by 0.65 percentage points) to 2.51%, while the interest expenditure ratio and non-operating expenses ratio both fell slightly.

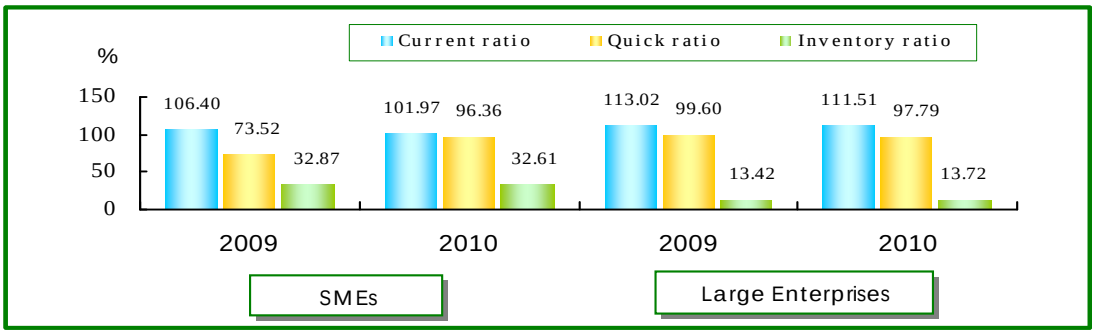
II Analysis of SMEs' Financial Ratios

1. Short-term Repayment Ability Needs to Be Improved

The current ratio of Taiwan's SMEs stood at 106.40% in 2009; in 2010 it fell by 4.43 percentage points to 101.97%, while the quick ratio also fell by 4.16 percentage points to 69.36%. The inventory ratio fell by 0.26 percentage points to 32.61% (Figure 3-2-1). The current ratio is a measure of enterprises' short-term repayment ability; ideally, a company that is in good financial health should have a current ratio of around 200%, indicating that the enterprise has NT$2 of current assets available to repay every NT$1 in current liabilities. The reference value for the quick ratio is 100%, indicating that the enterprise has NT$1 of immediately realizable current assets available to repay every NT$1 in current liabilities. Even though the current ratio and quick ratio of SMEs did not meet the good financial standard, and declined slightly in 2011, the quick ratio did exceed 100% and there was only a slight decline in the inventories' share of total assets, which showed that the economy was gradually recovering. However the SMEs' short-term repayment ability did not increase significantly, and the ability to cope with a wider environment needs to be improved. Turning to the short-term repayment ability of Taiwan's large enterprises, in 2009 large enterprises as a whole had a current ratio of 113.02%, while it fell by 1.51 percentage points in 2010 to 111.51%. The quick ratio fell by 1.81 percentage points in 2010 to 97.79%, which was lower than the 100% reference value. On the other hand, the inventory ratio rose by 0.3 percentage points to 13.72%. These data show that the large enterprises' short-term repayment ability is superior to that of SMEs.

As can be seen from the SME current ratio, quick ratio and inventory ratio data presented above, the ability of Taiwan's SMEs to cope with changes in the business environment is improving. SMEs need to focus on achieving rigorous control of their current asset and current liability structure, enhance their short-term repayment ability, and implement effective inventory management.

Figure 3-2-1 Short-term Liquidity of Taiwanese Enterprises, 2009 and 2010

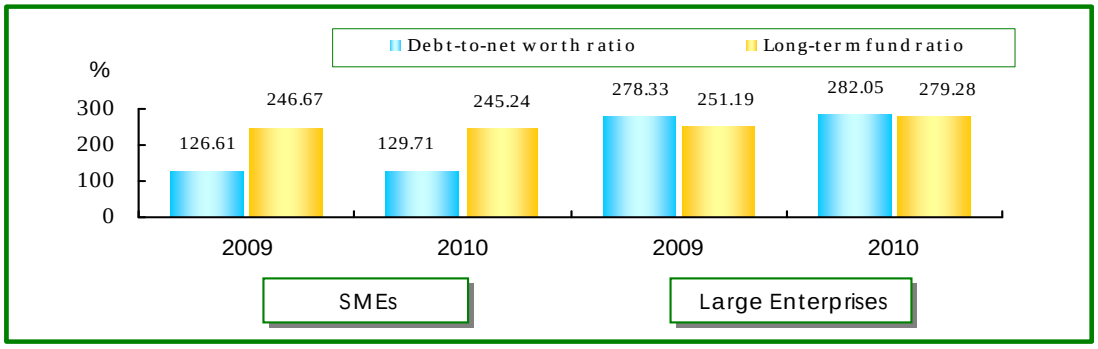


Notes: 1. Current ratio = current assets ÷ current liabilities × 100% (reference value = 200; ideally, the ratio should be higher than the reference value).
2. Quick ratio = (current assets – inventories) ÷ current liabilities × 100% (reference value = 100; ideally, the ratio should be higher than the reference value).
3. Inventory ratio = inventories ÷ current liabilities × 100% (reference value = 100; ideally, the ratio should be higher than the reference value).
Source: Ministry of Finance, Business income tax return data.

2. An Improvement in Enterprises' Long-term Stability

For the debt-to-net-worth ratio, a reference value of 100% is normally used, indicating that the enterprise has NT$1 of capital available for every NT$1 of debt. The higher the debt-to-net-worth ratio, the more heavily leveraged the enterprise is. In 2009, the average debt-to-net-worth ratio of Taiwan's SMEs was 126.61%, rising by 3.1 percentage points to 129.71% in 2010. For large enterprises, the debt-to-net-worth ratio in 2010 fell by 3.72 percentage points to 282.05% (Figure 3-2-2). The debt-to-net-worth ratios of both large enterprises and SMEs increased slightly in 2010, this being mainly due to the fact that even though the economy had slowly recovered, the future was still uncertain. Large enterprises maintained high debt-to-net-worth ratios while SMEs were conservative in terms of the way they used financial leverage.

Figure 3-2-2 Long-term Stability of Taiwanese Enterprises in 2009 and 2010



Notes: 1. Debt-to-net-worth ratio = debt ÷ net worth × 100% (reference value = 100; ideally, the ratio should be below the reference value).
2. Long-term funds ratio = (equity + long-term debt) ÷ fixed assets × 100% (reference value = 100; ideally, the ratio should be above the reference value).
Source: Ministry of Finance, Business income tax return data.

The fact that the SMEs' debt-to-net-worth ratio was close to the reference value means that creditors can be reasonably sure that their capital is protected; from the investor's point of view, it means that enterprise managers are making appropriate use of borrowing to enhance the firm's revenue performance. The debt-to-net-worth ratio of large enterprises is far higher than the

reference value, indicating that large enterprises are resorting to a high level of financial leverage. In an era of low interest rates, when the economy is starting to pick up again, taking on a reasonable level of leverage through low-interest borrowing can help firms to achieve higher earnings; however, enterprises must be careful not to become over-leveraged, otherwise the firm's financial health may be threatened.

The long-term funds ratio is mainly used to gauge whether a firm's long-term funding operations are appropriate. Ideally, enterprises should rely mainly on long-term funds for their funding of fixed asset purchases. In 2010, the long-term funds ratios of both SMEs and large enterprises remained higher than the reference value of 100%, which is conducive to the maintenance of long-term stability by the enterprise. In 2010, the SMEs' long-term funds ratio fell by 1.43 percentage points to 245.24%, while the large enterprises' long-term funds ratio rose by 28.09 percentage points to 279.28%. For both SMEs and large enterprises, the long-term funds ratio is adequate to meet long-term asset purchase needs, indicating sound long-term fund allocation.

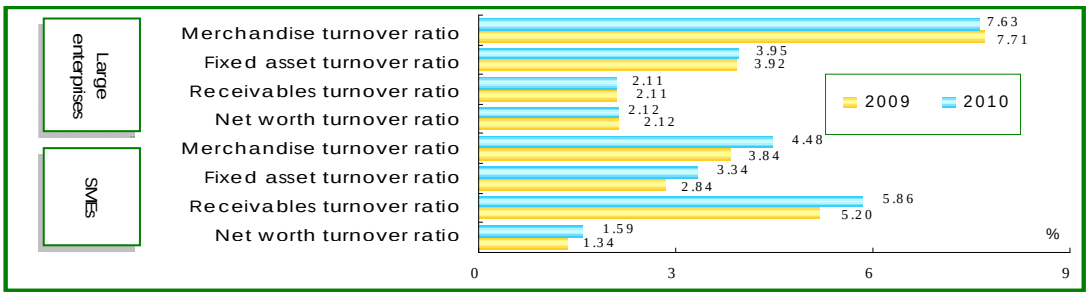
3. Slight Improvement in Operational Ability Indicators

An enterprise's operational efficiency can be gauged by examining its efficiency of merchandise utilization, efficiency of fixed asset utilization, efficiency of collections and efficiency of capital utilization. Merchandise turnover is an indicator that can be used to determine whether an enterprise is managing to achieve a reasonable balance between inventory and sales; fixed asset turnover is used to measure the efficiency of utilization of a firm's buildings, machinery, land and other fixed assets; receivables turnover measures the efficiency of a company's collection activities. Net worth turnover denotes the number of own capital recovery turns; if this figure is too high, it implies that the enterprise has insufficient capital and is not sufficiently stable; if it is too low, it indicates that the firm has too much capital, or that its sales revenue is too low.

Examination of the data for 2010 shows that receivables turnover for SMEs rose from 5.20 turns in 2009 to 5.86 in 2010, while merchandise turnover rose from 3.84 to 4.48. This indicates that the SMEs' operating ability improved slightly in 2010 compared to 2009. Turning to large enterprises, receivables turnover for large enterprises remained the same at 2.11 in 2009 and 2010, while merchandise turnover fell slightly from 7.71 to 7.63, suggesting that the SMEs' operating ability had improved from 2009 while that of the large enterprises had slightly decreased (Figure 3-2-3).

Examination of the net worth turnover and fixed asset turnover indicators shows that, for SMEs, fixed asset turnover fell from 2.84 in 2009 to 3.34 in 2010, while net worth turnover rose slightly from 1.34 to 1.59. For large enterprises, fixed asset turnover fell from 3.92 in 2009 to 3.95 in 2010, and net worth turnover remained at 2.12. Both the SMEs' and the large enterprises' fixed asset turnover did improve in 2010, and the SMEs' net worth turnover increased slightly but that of large enterprises remained the same. It is clear that the efficiency of the SMEs' fixed asset utilization was superior to that of large enterprises.

Figure 3-2-3 Operating Capability of Taiwanese Enterprises in 2009 and 2010



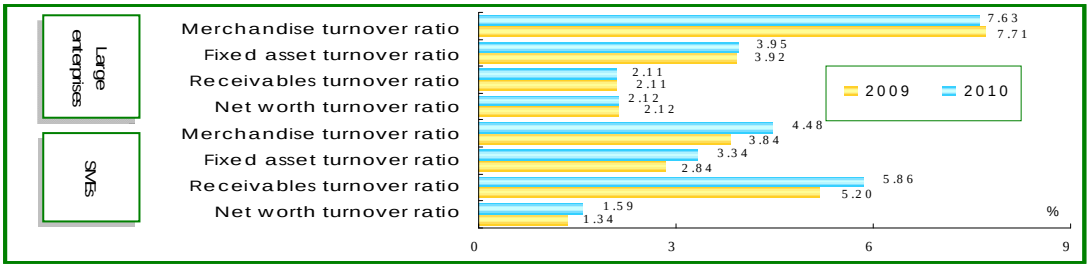
Notes: 1. Net worth turnover ratio = net sales / net worth; 2. Receivables turnover ratio = net sales / receivables.
3. Fixed asset turnover ratio = net sales / fixed assets; 4. Merchandise turnover ratio = net sales / inventories.
Source: Ministry of Finance, Business income tax return data.

To summarize, the global financial crisis of 2008 affected the operational performance of both large enterprises and SMEs. Even though the recovering strength was limited in 2009, the operating abilities of large enterprises and SMEs had gradually improved in 2010 because of the economic recovery. Overall, the SMEs performed slightly better than the large enterprises.

4. Earnings Went into the Black, Reflecting an Amelioration of the Business Environment

2010 saw a significant change in SMEs' earnings performance; all profitability indicators – including operating profits, the return on total assets, return on fixed assets, return on capital, and return on net worth – remained positive (Figure 3-2-4). The SMEs had gradually recovered from the financial crisis and improved their operating abilities. As can be seen from the comparison of SMEs and large enterprises in terms of their operational abilities, the SMEs performed better than the large enterprises in terms of the operating profit ratio and return on fixed assets, while the large enterprises were better than the SMEs with regard to the return on total assets, return on capital, and return on net worth. All the profitability indicators have shown that the profits are increasing in both large enterprises and SMEs, while operating performances in all enterprises are improving.

Figure 3-2-4 Profitability of Taiwanese Enterprises in 2009 and 2010



Notes: 1. Operating profit ratio = current profit / net operating income; 2. Return on fixed assets = current profit / fixed assets.
3. Return on total assets = current profit / total assets; 4. Return on capital = current profit / net worth.
5. Return on net worth = current profit / net worth.
Source: Ministry of Finance, Business income tax return data.

III Financial Institutions and SME Financing

Funding is the lifeline of an enterprise, and this is particularly true for SMEs, which tend to have inadequate funds. Ready access to funds and efficient fund management are among the keys to the successful operation of SMEs.

The range of funding channels open to SMEs is somewhat limited; generally speaking, SMEs remain dependent on indirect financing in the form of bank loans. The following sections analyze the provision of funding to SMEs by the banking sector (Tables 3-3-1, 3-3-2 and 3-3-3).

1. Funding Channels

(1) An Increasing Diversification of Corporate Funding Sources

The trend towards diversification in financial services has been accompanied by a similar broadening of the funding channels available to business enterprises. However, SMEs and SME business owners tend to have insufficient knowledge of the range of financing tools that are now available, and in many cases they are unable to provide the comprehensive financial statements needed to secure direct financing. As a result, direct financing currently accounts for only a very small percentage of overall SME financing. According to the report Results of the Survey of Business Funding in the R.O.C. compiled by Taiwan's Central Bank, in terms of the structure of their liabilities, large, medium-sized and small enterprises in Taiwan are all heavily reliant on borrowings from financial institutions and commercial credit (i.e., trading liabilities, mainly accounts payable and unearned receipts). Given the increasingly wide range of both direct financing and indirect financing tools that are now available, SMEs need to become more flexible in their use of funding channels (Table 3-3-1).

Table 3-3-1 Corporate Liability Structure as of the End of 2010

Units: NT$ billions; %

Item	Large Enterprises		Medium-sized Enterprises		Small Enterprises	
	Amount	%	Amount	%	Amount	%
Total liabilities	15843.1	100.00	4506.1	100.00	979.5	100.00
1. Borrowings from financial institutions	6409.2	40.45	2066.7	45.86	470.7	48.06
2. Government loans	9.4	0.06	7.6	0.17	0.1	0.01
3. Borrowings from firms and individuals	213.0	1.34	29.8	0.66	2.3	0.24
4. Overseas borrowings	99.1	0.63	1.5	0.03	0.4	0.04
5. Transactions with repurchase clause	-	-	-	-	-	-
6. Short-term bills	359.7	2.27	5.6	0.12	0	0.00
7. Domestic corporate bonds	578.2	3.65	-	-	0	0.00
8. Overseas securities	87.0	0.55	-	-	0	0.00
9. Commercial credit (trading liabilities)	7613.4	48.06	2359.8	52.37	502.2	51.27
10. Provisions and other liabilities	474.1	2.99	35.1	0.78	3.8	0.38

Notes: 1. "-" denotes no data available or data uncertain; "0" is used to denote any figure of less than NT$50 million.
2. Data may not sum to total due to rounding.

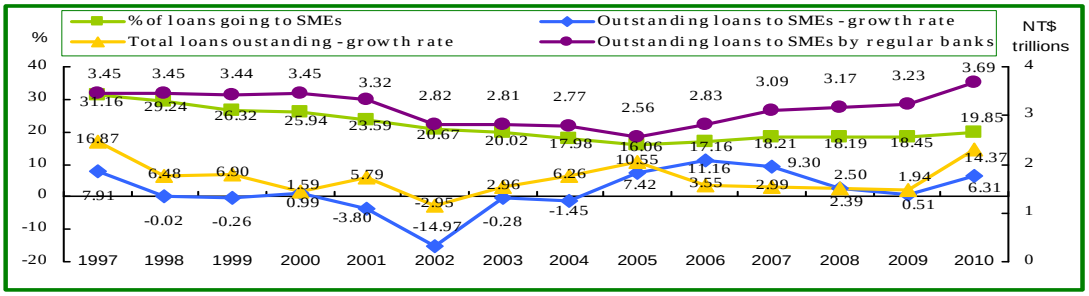
Source: Central Bank, analysis of direct and indirect financing totals presented in Results of the Survey of Business Funding for State-owned and Private-sector Enterprises in the R.O.C., Dec. 2011.

2. An Increase in Total Bank Loans to SMEs Compared to 2010

As of the end of 2011, the total outstanding loans of ordinary commercial banks in Taiwan (including the Taiwan branches of foreign banks, but excluding overseas loans) came to NT$4,092.7 billion, representing an increase of NT$399.2 billion (10.81%) compared to the end of 2010. The share of total loans going to SMEs rose slightly, from 19.85% in 2010 to 20.81% in 2011 (Figure 3-3-1). Financial Supervisory Commission data give the total volume of loans to SMEs by domestic banks as NT$4074.9 billion, accounting for 46.89% of loans to all business enterprises, and representing an increase of NT$398.4 billion compared to the 2010 total of NT$3,676.5 billion; the SMEs' share of all bank loans rose by 1.50 percentage points.

Both outstanding loans to SMEs (including overdue loans) by ordinary commercial banks and the share of total loans going to SMEs rose in 2011 compared to the end of 2010; the rate of growth of ordinary commercial banks' outstanding loans to SMEs, at 10.81%, was significantly higher than the overall growth rate of outstanding loans to all enterprises (5.70%).

Figure 3-3-1 Changes in Bank Loans to SMEs by Regular Banks, 2000–2011



Note: "Total loans oustanding" was calculated using the following formula: regular banks' outstanding loans to SMEs (including overdue loans) divided by loans to SMEs as a percentage of total loans.
Source: Banking Bureau, Financial Supervisory Commission, Executive Yuan, Statistics of Banking Business, consecutive years.

3. Domestic Banks' Outstanding Loans to SMEs Have Continued to Rise

To help SMEs overcome their financing problems, government agencies – including the Financial Supervisory Commission, the SMEA and the SME Credit Guarantee Fund – have introduced various guidance and credit guarantee measures that can help SMEs to obtain the funding they need.

Implementation of the Financial Supervisory Commission's Plan for Increasing Loans to SMEs by Domestic Banks began in July 2005. The economic downturn that was triggered by the global financial crisis in the second half of 2008 threatened the very survival of many of Taiwan's SMEs. In response, the government adopted the "Three Supports" policy, and towards the end of 2008 the SME Credit Guarantee Fund launched the SME Credit Guarantee Fund "Golden Jack" Program to help SMEs obtain the funding they needed during the downturn; this program appears to have been quite successful in helping SMEs to get through this difficult period. In order to coordinate with the employment policies in Taiwan, the SME Credit Guarantee Fund launched the "Employment Promotion Financing Guarantee" Program to assist SMEs in obtaining the

operational funds, and encouraged them to hire more workers to maintain and create more employment opportunities.

4. State-Run Banks Accounted for the Most of the Loans to SMEs While Private Banks Increased Their Shares Year-by-Year

The top 10 banks with loans outstanding to SMEs are mostly state-run banks, with the market share up to 68.14%. The reasons behind the phenomenon are that most state-run banks coordinated with the government policies, and 8 state-run banks accounted for 60.47% of total loans outstanding of all banks (including Taiwan branches of foreign banks) (Table 3-3-2).

Table 3-3-2 Top 10 Banks by Amount of Loans to SMEs in 2011

Units: NT$ millions; %

Bank	Loans Outstanding	Market Share	Loans to SMEs as % of Total Loans
Total	**3,071,448**	**75.05**	**-**
First Commercial Bank	486,558	11.89	40.91
Taiwan Cooperative Bank	484,002	11.83	26.35
Taiwan Business Bank	355,997	8.70	40.32
Hua Nan Commercial Bank	344,929	8.43	28.49
Chang Hwa Commercial Bank	293,474	7.17	28.56
Land Bank of Taiwan	288,143	7.04	16.72
Mega International Commercial Bank	269,363	6.58	26.94
Bank of Taiwan	266,238	6.51	13.13
E. Sun Commercial Bank	159,072	3.89	26.24
Shanghai Commercial & Savings Bank	123,672	3.02	37.31

Source: Banking Bureau, Financial Supervisory Commission, Executive Yuan, *Statistics of Banking Business*, No. 400, 2012.

In terms of the percentage of total loans going to SMEs in 2011, First Commercial Bank ranked first with 40.91% followed by Taiwan Business Bank. EnTie Commercial Bank replaced E Sun Commercial Bank in the top 10 banks. The rankings also changed as well since, except for four private banks, namely, Hwa Tai Commercial Bank, EnTie Commercial Bank, Shanghai Commercial & Savings Bank and Taichung Business Bank, the remaining 6 banks were state-run banks. However the private banks gradually increased their percentages of total loans going to SMEs.

Table 3-3-3 Top 10 Banks by the Percentage of Total Loans Going to SMEs in 2010 and 2011

Units: NT$ millions; %

Bank	2010		2011	
	Loans Outstanding	Loans to SMEs as % of Total Loans	Loans Outstanding	Loans to SMEs as a % of Total Loans
First Commercial Bank	455,825	41.02	486,558	40.91
Taiwan Business Bank	341,089	38.70	355,997	40.32
Shanghai Commercial & Savings Bank	115,242	37.26	123,672	37.31
Taichung Business Bank	85,779	35.30	100,920	37.01
Hwa Tai Commercial Bank	23,787	27.05	25,844	29.52
Chang Hwa Commercial Bank	257,269	26.40	293,474	28.56
Hua Nan Commercial Bank	308,250	26.15	344,929	28.49
Mega International Commercial Bank	245,490	25.44	269,363	26.94
EnTie Commercial Bank	43,395	23.13	49,865	26.82
Taiwan Cooperative Bank	436,999	25.34	484,002	26.35

Source: Banking Bureau, Financial Supervisory Commission, Executive Yuan, *Statistics of Banking Business*, No. 400, 2012.

5. Outstanding Loans to SMEs by Banking Subsidiaries of Financial Holding Companies Increased Significantly

Since the Financial Holding Company Law came into effect in late 2001, a number of financial holding companies have been established in Taiwan. As of December 2011, there were 16 banks in Taiwan that were subsidiaries of financial holding companies. According to statistics compiled by the Financial Supervisory Commission, between them, these banks had total outstanding loans to SMEs of NT$2,873.7 billion, representing an increase of NT$304.4 billion (11.85%) compared with the 2010 total of NT$2,569.3 billion. The rate of increase was more than the rate of increase in loans to SMEs by all regular commercial banks in 2010 (10.81%). It can thus be seen that, while outstanding loans to SMEs by all regular commercial banks did rise significantly in 2010, the increase was smaller than the increase in loans to SMEs by the banking subsidiaries of financial holding companies (Table 3-3-4).

Table 3-3-4 Outstanding Loans to SMEs by the Banking Subsidiaries of Financial Holding Companies in 2010 and 2011

Units: NT$ millions; %

Bank	2010		2011			
	Outstanding Loans to SMEs	Loans to SMEs as % of Total Loans	Outstanding Loans to SMEs	Loans to SMEs as % of Total Loans	Increase in Loans to SMEs	Annual Growth Rate
Total (all regular commercial banks)	**3,693,542**	**19.85**	**4,092,752**	**20.81**	**399,210**	**10.81**
First Commercial Bank	455,825	41.02	486,558	40.91	30,733	6.74
Taiwan Cooperative Bank	436,999	25.34	484,002	26.35	47,003	10.76
Hua Nan Commercial Bank	308,250	26.15	344,929	28.49	36,679	11.90
Chang Hwa Bank	257,269	26.40	293,474	28.56	36,205	14.07
Bank of Taiwan	239,794	12.12	266,238	13.13	26,444	11.03
Mega International Commercial Bank	245,490	25.44	269,363	26.94	23,873	9.72
E. Sun Commercial Bank	137,057	24.34	159,072	26.24	22,015	16.06
Bank SinoPac	88,326	14.66	86,676	14.58	-1,650	-1.87
Cathay United Bank	97,656	12.15	106,482	12.33	8,826	9.04
Taipei Fubon Commercial Bank	75,908	9.80	84,648	10.12	8,740	11.51
Chinatrust Commercial Bank	65,227	8.25	68,888	8.51	3,661	5.61
Yuanta Bank	58,831	21.47	76,909	23.91	18,078	30.73
Taiwan Shin Kong Commercial Bank	44,796	14.40	77,739	22.46	32,943	73.54
Taishin International Bank	45,731	9.30	54,615	10.22	8,884	19.43
Jih Sun Commercial Bank	11,160	9.25	13,811	11.36	2,651	23.75
China Development Industrial Bank	940	1.57	257	0.41	-683	-72.66

Source: Banking Bureau, Financial Supervisory Commission, Executive Yuan, *Statistics of Banking Business*, No. 400, 2012.

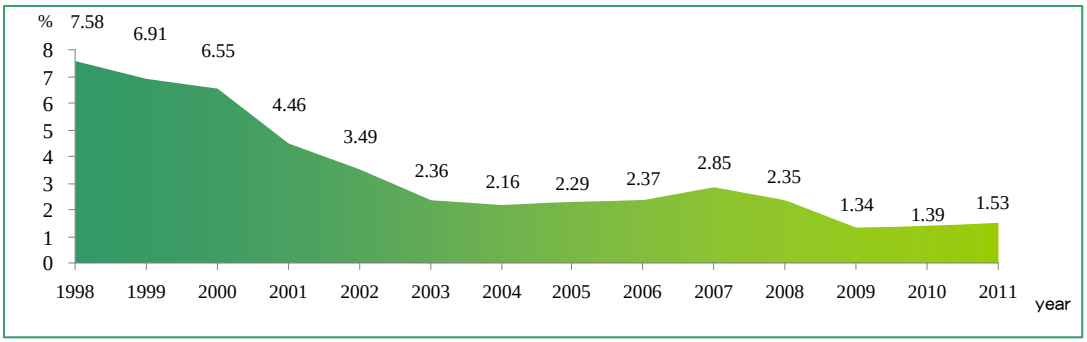
6. A Slight Rise in the Cost of Financing in 2011

In June 2008, the rediscount rate reached 3.625%, its highest level since 2001. Subsequently, the impact of the global financial crisis and the resulting economic downturn pushed interest rates down. The Central Bank implemented several downward revisions of the rediscount rate, which by February 19, 2009 had fallen to 1.25%, its lowest level since June 2008. However, with the economic recovery, in order to avoid economic overheating and in line with the international

trend towards interest rate rises, the Central Bank gradually began to increase interest rates to 1.875% on July 1, 2011.

Central Bank data show that the average interest rate on new loans extended by Taiwan's five largest banks had fallen steadily from 7.58% in 1998 to 2.16% in 2004. In 2006, the rate rose to 2.37%, and in 2007 it climbed still further to 2.85%. The average interest rate on new loans then fell back to 2.35% in 2008 due to the impact of the global financial crisis, and in 2009 it fell even further, to 1.34%, making the cost of financing for business enterprises slightly higher in 2011 than it had been in 2010, or 1.53% (Figure 3-3-2).

Figure 3-3-2 The Average Interest Rate on New Loans Extended by Taiwan's Five Largest Banks, 1998–2011



Notes: 1. The interest rates given in the figure are weighted averages for the month of December in each year.
2. Up until October 2008, the five largest banks in Taiwan were the Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank and Chang Hwa Commercial Bank; from November 2008 onwards the five largest banks were the Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank and Land Bank of Taiwan.
Source: Central Bank of China (Taiwan).

CHAPTER 4

SME Human Resources

Following the global financial crisis, the global economy started to recover in early 2011. However, the Japanese earthquake and the European debt crisis in the second quarter of 2011 caused a high degree of uncertainty in the global economy. The emerging economies also launched various measures to slow down the pace of economic growth under the pressure of inflation. According to the forecast by IHS Global Insight, the 2011 economic growth rate will reach 3.0%, which is lower compared to the 4.0% forecast in 2010. The growth of exports has decreased quarter by quarter because of the weakening global economy—and private investment has declined as a result of the decline in foreign demand and the degree of capacity utilization. However, as the number of tourists has risen significantly, the revenue in the tourism industry has remained strong, and the number of employees has increased significantly. Its economic growth rate that reached as high as 4.04% has been driven by the strong growth of private investment and exports, thereby further pushing up the demand for manpower. This chapter examines small and medium enterprise (SME) manpower utilization, working conditions, manpower cultivation and manpower requirements.

The official criteria for determining whether a business enterprise should be classed as an SME were revised in September 2009. With respect to the mining and quarrying, manufacturing and construction industries, the definition of an SME as being an enterprise with 200 or fewer employees has been retained, while for other industries the cutoff point for SME status has been raised to 100 or fewer employees.

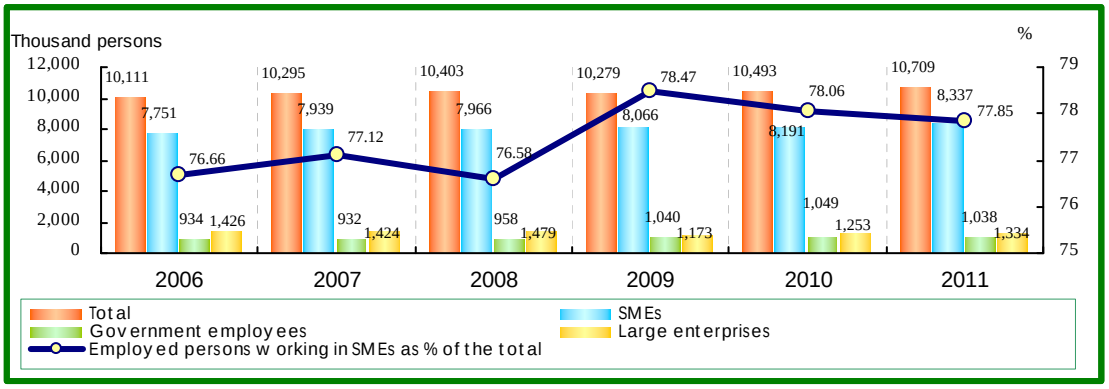
I Labor Utilization by SMEs

In 2011, the workforce in Taiwan totaled 11,200,000 people, including 10,709,000 employed persons (including employers, own-account workers, unpaid family workers, and paid employees) and 491,000 unemployed persons; the labor participation rate was 58.17%, and the unemployment rate averaged 4.39% over the course of the year. Due to the recovery of the global economy, the workforce increased by 130,000 compared to 2010, and the number of employed persons rose by 216,000, while the number of unemployed persons declined by over 80,000. The following section examines SME labor utilization in 2011.

1. The SME Sector Provided Over 8,330,000 Jobs in 2011

Using the revised definition of SMEs that was introduced in September 2009, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs, in 2010 the number of employed persons working in SMEs in Taiwan totaled 8,337,000, which was higher than the total of 8,191,000 in 2010, and accounted for 77.85% of all employed persons in Taiwan (Figure 4-1-1).

Figure 4-1-1 No. of Employed Persons in Taiwan, 2006–2011



Notes: Data for 2009 and 2010 are based on the revised definition of SMEs, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs.
Source: DGBAS, Monthly Bulletin of Manpower Statistics.

The number of employed persons working in SMEs in the manufacturing sector in 2011 stood at 2,158,000, accounting for 25.89% of all employed persons working in SMEs. The wholesaling and retailing industry had the second largest number of employed persons working in SMEs, or 1,696,000 (20.35% of all employed persons working in SMEs), followed by the construction industry, with 813,000 (9.75%) (Table 4-1-1).

Table 4-1-1 The Number of Employed Persons and Paid Employees Working in SMEs in 2010 and 2011

Units: thousand persons; %

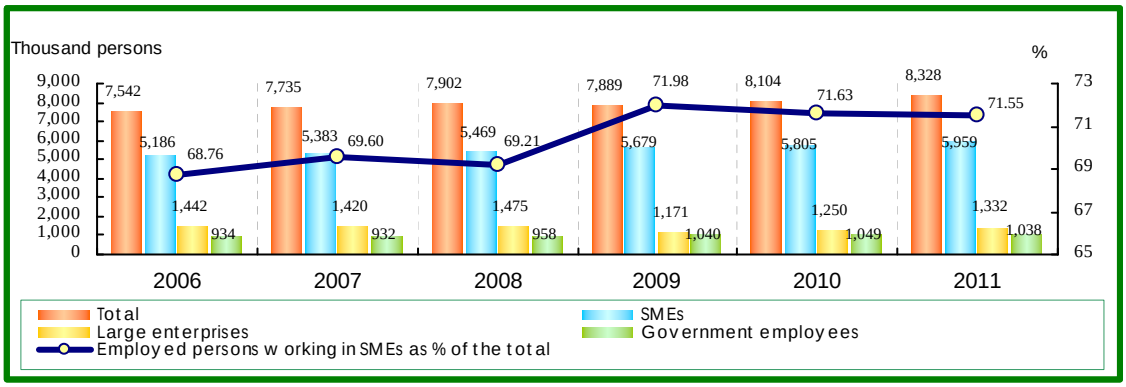
Industry \ Item/Year	No. of Employed Persons				No. of Paid Employees			
	2010	2011	Share of Total	Growth Rate	2010	2011	Share of Total	Growth Rate
Total	**8,191**	**8,337**	**100.00**	**1.75**	**5,805**	**5,959**	**100.00**	**2.58**
Agriculture, forestry, fisheries and animal husbandry	545	536	6.43	3.33	78	78	1.31	2.96
Mining and quarrying	4	3	0.04	-4.16	4	3	0.06	0.00
Manufacturing	2,127	2,158	25.89	0.31	1,867	1,895	31.80	1.12
Electric power and gas	3	3	0.04	8.96	3	3	0.05	0.00
Water supply and pollution control	29	32	0.39	-7.89	21	23	0.39	-5.41
Construction	779	813	9.75	-2.50	650	676	11.35	-1.34
Wholesaling and retailing	1,682	1,696	20.35	0.88	962	992	16.64	-0.36
Transportation and warehousing	295	296	3.55	1.71	202	204	3.43	1.44
Hotel and restaurant	708	709	8.51	1.55	399	409	6.86	0.29
Information, communications and broadcasting	148	156	1.87	-3.38	136	142	2.38	-1.28
Finance and insurance	315	321	3.85	-0.08	312	317	5.32	0.93
Real estate	70	83	0.99	-16.86	61	74	1.24	-18.10
Professional, scientific and technical services	258	270	3.24	-2.88	188	199	3.34	-3.09
Supporting services	217	227	2.72	-2.82	197	204	3.42	-0.88
Educational services	218	226	2.72	-2.10	187	195	3.28	-1.55
Medical, healthcare and social welfare services	192	203	2.43	-3.95	159	171	2.87	-4.36
Arts, entertainment and leisure services	76	75	0.89	3.85	58	53	0.90	10.00
Other service industries	525	528	6.33	1.25	319	319	5.36	2.55

Notes: Data for 2009 and 2010 are based on the revised definition of SMEs, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2010 and 2011.

2. A Total of 5,958,000 Paid Employees were Working for SMEs in 2011

The total number of paid employees in Taiwan averaged 8,328,000 in 2011 (including government employees and private company employees), representing an increase of 225,000 (2.76%) compared to 2010; of this total of 8,328,000 paid employees, 5,958,000 (71.54% of all paid employees) were working in SMEs (Figure 4-1-2). The number of employed persons working in SMEs in the manufacturing sector in 2011 stood at 1,895,000, accounting for 31.80% of all employed persons working in SMEs. The wholesaling and retailing industry had the second largest number of employed persons working in SMEs, at 992,000 (16.64% of all employed persons working in SMEs), followed by the construction industry, with 670,000 (11.35%) (Table 4-1-1).

Figure 4-1-2 No. of Paid Persons in Taiwan, 2006–2011

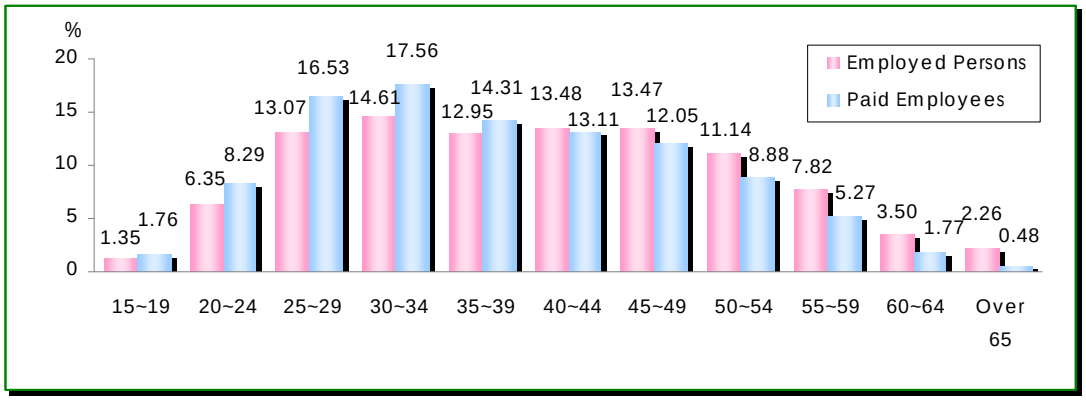


Notes: Data for 2009 and 2010 are based on the revised definition of SMEs, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs.
Source: DGBAS, Monthly Bulletin of Manpower Statistics.

3. The Share of University Education in the SMEs' Manpower Educational Structure Has Increased Gradually

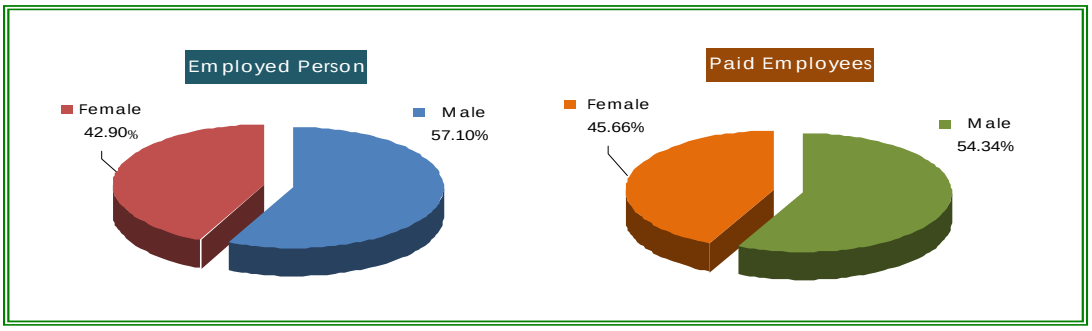
In 2011, employed persons working in SMEs were mainly between the ages of 30 and 34, with the proportion up to 14.61% and 17.56%, respectively, followed by those aged between 40 and 44, and those aged between 45 and 49. While the age of paid employees was between 25 and 29, it is obvious that paid employees were younger. The male/female ratio of employed persons or paid employees in SMEs was greater than one, which shows that employment continues to be male-dominated. As can be seen from the educational structure, the highest proportion of employed persons working in SMEs consisted of those with a vocational education and, compared to the ratio in 2010, the proportion of employed persons with a vocational degree working in SMEs declined by 0.2% and 0.56%, respectively. The share of those with a university education has gradually increased and is consistent with Taiwan's higher education expansion policy. The share of paid employees with a university education in 2011 was significantly higher than the result in 2010, having increased by 0.98% and 1.19% in employed persons and paid employees, respectively (see Figures 4-1-3, 4-1-4, and 4-1-5).

Figure 4-1-3 The Age Structure of Employed Persons and Paid Employees Working in SMEs in 2011



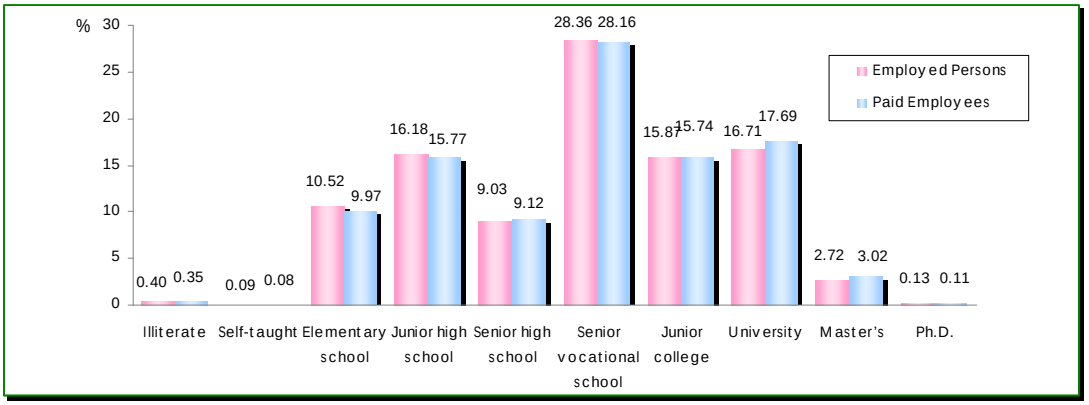
Notes: Data for 2009 are based on the revised definition of SMEs, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2011.

Figure 4-1-4 The Sex Structure of Employed Persons and Paid Employees Working in SMEs in 2011



Notes: Data for 2009 are based on the revised definition of SMEs, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2011.

Figure 4-1-5 The Educational Structure of Employed Persons and Paid Employees Working in SMEs in 2011



Notes: Data for 2009 are based on the revised definition of SMEs, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2011.

4. The Number of SME Employers Increased by 6,000 in Taiwan in 2011

There were around 478,000 SME employers in Taiwan in 2011, and approximately 1,600 large enterprise employers. The number of SME employers rose by 5,500 (1.17%) in 2011 while the number of large enterprise employers declined by 720 (30.8%). This gives some idea of the impact that the economic recovery had on both SMEs and large enterprises in 2011. Although the number of employed persons and paid employees had increased, the growth rate of large enterprise employers declined sharply. However, the age structures of SME employers showed that they were younger than large enterprise employers, and the educational structure distribution was broader (Table 4-1-2).

Table 4-1-2 Characteristics of Employers in 2010 and 2011

Units: thousand persons; %

Item \ Year	2010		2011	
	SMEs	Large Enterprises	SMEs	Large Enterprises
Total No. of Persons	**472.78**	**2.34**	**478.33**	**1.62**
(Share of total)	**99.51**	**0.49**	**99.66**	**0.33**
Age	100.00	100.00	100.00	100.00
15 – 19	0.02	–	0.00	–
20 – 24	0.20	–	0.23	–
25 – 29	2.23	–	1.97	–
30 – 34	6.47	–	6.00	5.38
35 – 39	11.98	4.07	10.66	4.34
40 – 44	17.02	7.28	16.46	5.92
45 – 49	20.32	9.32	19.84	19.30
50 – 54	19.85	19.41	20.06	8.45
55 – 59	13.33	28.70	15.25	22.38
60 – 64	5.58	19.28	6.47	21.66
Over 65	2.99	11.94	3.06	12.56
Sex	100.00	100.00	100.00	100.00
Male	80.90	86.82	80.76	90.86
Female	19.10	13.18	19.24	9.14
Education	100.00	100.00	100.00	100.00
Illiterate	0.06	–	0.06	–
Self-taught	0.04	–	0.01	–
Elementary school	7.94	–	8.76	–
Junior high school	15.39	9.81	14.59	6.38
Senior high school	10.37	7.38	10.13	13.77
Senior vocational school	26.63	–	27.23	–
Junior college	19.31	21.48	19.46	12.72
University	16.35	33.07	15.65	52.65
Master's	3.50	18.91	3.79	4.98
Ph.D.	0.41	9.34	0.32	9.50

Note: See Table 4-1-2.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2010 and 2011.

5. A Decrease in the Number of Self-employed Persons

The self-employed either work alone or as part of a partnership, but they do not have any paid employees. Self-employed persons can thus all be classed as SMEs. The number of self-employed persons in Taiwan peaked in 1991–1992 at around 1,572,000. Since then, it has tended to fall, dropping to 1,323,000 in 2011; this figure represents a decline of around 6,000 compared to 2010. As can be seen from the age structure, the shares of self-employed at both ends of the age structure have both increased, and while the proportion for the 40-59 age group is

the largest one in 2011, the proportion was greater than that in 2010. The evidence shows that the trend in the numbers of those in the 55 and above age groups who are turning to create their own businesses is also increasing (Table 4-1-3).

Table 4-1-3 Characteristics of Self-employed Persons in 2010 and 2011

Units: thousand persons; %

Item \ Year	2010	2011
Total No. of Persons	**1,329**	**1,323**
(Share of total)	**100.00**	**100.00**
Age	100.00	0.07
15 – 19	0.07	0.67
20 – 24	0.66	2.77
25 – 29	2.93	5.91
30 – 34	5.76	8.38
35 – 39	9.25	14.20
40 – 44	14.31	17.10
45 – 49	17.01	17.15
50 – 54	16.96	15.43
55 – 59	15.38	10.30
60 – 64	8.77	9.42
65 or over	8.91	8.89
Sex	100.00	100.00
Male	74.80	74.20
Female	25.20	25.80
Education	100.00	100.00
Illiterate	1.22	1.12
Self-taught	0.25	0.24
Elementary school	25.33	24.25
Junior high school	22.88	22.69
Senior high school	9.86	9.75
Senior vocational school	24.53	25.71
Junior college	9.81	9.73
University	5.23	5.45
Master's	0.85	1.02
Ph.D.	0.05	0.06

Note: See Table 4-1-2.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2010 and 2011.

6. There were Nearly 435,000 Female SME Owners and Self-employed Persons in Taiwan in 2011

There were 92,013 female SME owners in Taiwan in 2011, which accounted for 19.24% of SME employers overall, representing an increase of 1,706 (1.89%) compared to 2010. There were also 341,446 female self-employed persons, which accounted for 25.80% of self-employed persons overall, representing an increase of 6,416 (1.91%) The growth rate of female self-employed persons was higher than that of owners in female SMEs. Overall, the combined total for female SME owners and female self-employed persons in 2011 was 433,459 persons, reflecting an increase of 8,122 (1.91%) persons compared with 2010.

Despite the wholesaling and retailing industry being the first priority for SMEs owners and self-employed persons, female SME owners are highly concentrated in the hotel and restaurant industry, followed by the other service industries and the manufacturing industries. The female self-employed are mainly found in the other service industries and the hotel and restaurant industry, followed by the agriculture, forestry, fisheries and animal husbandry industry. Overall, the choice of female self-employed is quite different from that of female SMEs owners.

7. Temporary and Contract Workers Increased in SMEs

According to the data presented in the 2011 Taiwan Region Manpower and Employment Survey, there has been an increase in the use of full-time workers by enterprises. The number of full-time workers in SMEs rose by 170,000, while the number of full-time workers in large enterprises rose by 58,000. However, the part-time workers in SMEs declined slightly by 17,000, while those in large enterprises that employ part-time manpower rose by 12,000. Overall, the utilization of part-time workers is most common in the service sector, especially in the wholesaling and retailing industry, followed by the hotel and restaurant industry. Clearly, both SMEs and service sector enterprises feel a real need for part-time workers.

8. An Increase in the Share of Foreign Laborers Employed by SMEs

With the recovery from the global financial crisis as reflected by business enterprises' operations and the number of orders received, 2011 saw an increase in both the number of applications to employ foreign laborers and the number of foreign laborers actually working in Taiwan. The number of approvals rose to 250,498 (up 41,898 from 2010), while the number of foreign laborers actually working in Taiwan increased to 219,136 (up 33,336 from 2010). In terms of the size of enterprises that employ foreign laborers, the rise in the number of foreign laborers in 2011 was attributable mainly to SMEs, where the number of foreign laborer approvals rose by 33,680 among SMEs (148,369 in 2011), while the number of foreign laborer approvals by large enterprises rose by 14,218 (107,859 in 2011). Similarly, the number of foreign laborers actually in Taiwan and working for large enterprises increased by 12,232 to 95,427, while the number of foreign laborers in Taiwan and working for SMEs rose by 20,807 to 123,412, reflecting a share of over 56%, which reached the second highest historical record and was consistent with the trend from 2008 on. The result might be due to the adjustment of the domestic allowance allocation policy starting in 2009 which enabled SMEs to hire foreign laborers more easily.

9. A Decrease in the Number of SME Employees Becoming Unemployed

In 2011, the number of unemployed persons in Taiwan fell by approximately 86,000 compared to 2010, and the unemployment rate fell to 4.39%. Despite the first time job-seekers, the number of unemployed persons who had previously been working for an SME fell from 402,000 in 2010 to 327,000 in 2011, while the number of unemployed who had previously been working for a large enterprise declined from 42,000 to 37,000 (Table 4-1-4).

Due to the global financial crisis having slowly ebbed away, the number of unemployed due to the layoffs, or employers going out of business decreased for two years, to 147,000, reflecting a decline of 38.4% compared to 2010 (Figure 4-1-6). The shares for all SMEs, large enterprises and government departments all decreased. However, the dissatisfaction with previous jobs increased significantly, a phenomenon probably related to the recovery from the financial crisis (Table 4-1-5).

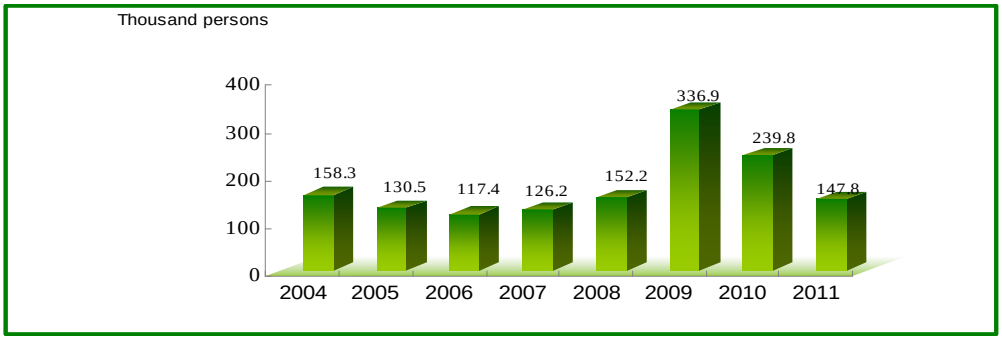
Table 4-1-4 Characteristics of the Unemployed in 2010 and 2011

Unit: thousand persons; %

Item \ Year	2009				2010			
	SMEs	Large Enterprises	Government Employees	First time job-seekers	SMEs	Large Enterprises	Government Employees	First time job-seekers
Total No. of	**401.90**	**41.67**	**28.71**	**104.60**	**327.35**	**37.26**	**26.39**	**100.15**
Share of total	**85.10**	**8.82**	**6.08**	**18.13**	**66.65**	**7.59**	**5.37**	**20.39**
Age	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
15 – 19	1.73	0.20	0.32	7.90	1.67	0.55	0.20	9.80
20 – 24	9.44	9.38	9.41	51.89	10.91	13.36	6.69	50.66
25 – 29	19.81	26.84	25.64	31.94	19.82	28.81	21.64	30.23
30 – 34	16.99	23.49	10.30	5.64	17.39	19.49	11.99	6.49
35 – 39	12.81	13.44	7.78	1.85	12.55	11.62	9.99	1.55
40 – 44	12.23	11.46	10.15	0.24	11.59	10.96	11.75	0.73
45 – 49	12.33	9.00	10.90	0.22	11.45	6.16	15.20	0.13
50 – 54	8.77	3.78	12.15	0.10	8.03	5.45	12.25	0.19
55 – 59	4.81	2.10	11.56	0.21	5.15	3.09	6.87	0.17
60 – 64	1.02	0.30	1.67	0.01	1.38	0.50	3.21	0.03
65 or over	0.07	–	0.12	–	0.05	–	0.21	0.02
Sex	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Male	65.09	57.73	56.69	57.58	63.36	57.37	51.26	54.71
Female	34.91	42.27	43.31	42.42	36.64	42.63	48.74	45.29
Education	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	0.04	0.20	–	0.01	0.03	–	0.02	0.02
Self-taught	0.03	0.01	–	–	0.02	0.03	–	–
Elementary school	6.99	0.69	10.22	0.32	6.20	2.01	7.53	7.53
Junior high school	19.26	4.90	13.50	4.24	16.79	4.64	14.20	14.20
Senior high school	10.05	7.07	4.89	5.07	10.31	6.52	6.25	6.25
Senior vocational	31.22	26.91	19.07	18.78	31.72	24.27	19.88	19.88
Junior college	14.32	23.92	15.67	8.95	13.95	21.56	14.12	14.12
University	16.08	28.62	31.47	53.66	19.06	33.60	32.13	32.13
Master's	1.90	7.47	4.93	8.76	1.90	7.17	5.62	5.62
Ph.D.	0.11	0.21	0.26	0.22	0.02	0.19	0.26	0.26

Notes: See Table 4-1-1.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2010 and 2011.

Figure 4-1-6 No. of Workers Becoming Unemployed Because of Layoffs or Factory Closures, 2004–2011



Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2004–2011.

Table 4-1-5 Reasons Given for Leaving One's Previous Job in 2010 and 2011

Units: thousand persons; %

Item \ Year	2010			2011		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Total no. of persons	**401.90**	**41.67**	**28.71**	**327.35**	**37.26**	**26.39**
Layoffs, or employer went out of business	54.24	45.02	10.61	41.05	30.59	7.70
Dissatisfaction with previous job	30.17	42.37	9.96	41.68	54.43	13.41
Poor state of health	2.27	2.84	1.23	2.58	3.96	0.98
Previous job was seasonal or temporary work	10.18	5.75	72.88	10.50	7.58	70.63
Marriage or pregnancy (women)	0.48	0.35	0.64	0.85	0.32	1.41
Retirement	0.30	0.73	2.78	0.28	1.15	3.34
Needed to devote self to housework	0.95	1.30	0.04	1.18	1.04	0.46
Other	1.41	1.64	1.86	1.89	0.92	2.07

Notes: See Table 4-1-1.
Source: DGBAS, Monthly Bulletin of Manpower Statistics, 2010 and 2011.

10. A Decrease of Around 4,000 in the Number of SME Employees Changing Jobs

In 2011, a total of 532,000 SME employees changed jobs; this figure was about 4,000 lower compared to 2010. The rate of those taking up a position with a large enterprise was the highest among the previous 5 years. Only 22,000 took a job with the government, with the share remaining stable compared to 2010. The combined total for those who took up jobs with large enterprises and those who went to work for the government was around 9.03% and 4.22% of all those SME employees who changed their jobs in 2011, respectively. The figure above suggests that it is not easy for former SME employees to find work with large enterprises or in the public sector (Table 4-1-6).

Table 4-1-6 Choice of New Employer by Former SME Employees, 2005–2011

Units: thousand persons; %

Year	Total	Going to Work for Another SME		Going to Work for a Large Enterprise		Going to Work for a Government Agency	
		No. of Persons	Share of Total	No. of Persons	Share of Total	No. of Persons	Share of Total
2005	438	394	89.95	36	8.22	8	1.83
2006	428	367	85.79	48	11.27	13	2.95
2007	439	390	88.65	38	8.62	12	2.73
2008	474	413	87.13	46	9.70	15	3.16
2009*	518	472	91.14	24	4.69	22	4.17
2010*	536	471	87.80	42	7.82	23	4.38
2011	532	461	86.75	48	9.03	22	4.22

Note: * Data for 2009 are based on the revised definition of SMEs, whereby enterprises in industries other than mining and quarrying, manufacturing and construction that have 100 or fewer employees are classed as SMEs.
Source: DGBAS, Taiwan Region Manpower and Employment Survey, 2005–2011.

11. The Government Has Been Working Actively to Stimulate the Creation of New Jobs

The SMEA and Council of Labor Affairs have implemented start-up courses, start-up assistance and incubation activities to encourage the public to establish new businesses through "strengthening the environment of incubation development", "building an environment conducive to start-up business" and "providing assistance with start-up capital". In addition to

establishing the SME Entrepreneurship and Innovation Service Centers in Northern, Central, Southern and Eastern Taiwan, the aim is to create systematic guidance mechanisms for creativity, innovation and business start-up, and to provide individual consulting and in-depth guidance services for the outstanding start-up projects with significant potential, as well as help to match start-up projects with venture capital providers and provide would-be entrepreneurs and owners of new businesses with an opportunity to undertake specialist training.

In 2011, the Council of Labor Affairs held Introduction to Entrepreneurship Classes that were attended by a total of 8,000 people, Intermediate Entrepreneurship Classes that were successfully completed by 4,020 people, and Advanced Entrepreneurship Classes that were attended by 1,363 people, giving a combined total of 13,344 participants (Table 4-1-7). The Council provided business start-up consulting services to 4,661 people, of which 1,867 succeeded in establishing their own business, creating a total of 5,235 jobs (Table 4-1-8).

Table 4-1-7 Entrepreneurship Classes Organized by the Council of Labor Affairs

Year		Introductory Classes	Intermediate Classes	Advanced Classes	Annual Total
March – Dec. 2007		7,356	1,720	535	9,611
2008		8,243	2,841	2,708	13,792
2009		8,940	5,050	1,822	15,812
2010		8,000	4,601	1,285	13,886
2011	Male	2,743	1,180	402	4,325
	Female	5,218	2,840	961	9,019
	Sub-total	7,961	4,020	1,363	13,344
Total		**40,500**	**18,232**	**7,713**	**66,445**

Source: Council of Labor Affairs, Executive Yuan.

Table 4-1-8 Results Achieved in the Provision of Business Start-up Assistance by the Council of Labor Affairs

Year	No. of Persons Receiving Guidance	No. of Persons Helped to Start Their Own Business	No. of New Jobs Created (including business owners)
March – Dec. 2007	2,024	1,276	2,983
2008	2,693	1,168	2,819
2009	4,016	2,149	6,494
2010	5,916	1,715	4,485
2011	4,661	1,867	5,235
Total	**19,310**	**8,175**	**22,859**

Source: Council of Labor Affairs, Executive Yuan.

II Labor Conditions in SMEs

1. The Highest Average Salary Levels for SME Employees are Found in the Electric Power and Gas Industry

As can be seen from the data presented in Table 4-2-1, most of the SME employees had a lower average salary than in 2010. Both the water supply and pollution prevention and electric power and gas industries saw their average salaries increase by more than NT$10,000 and NT$9,000, respectively. In 2011, the industry in which SME employees had the highest average salary level was the electric power and gas industry, where monthly salaries were close to NT$40,000, followed by the arts, entertainment and leisure industry, with monthly salaries averaging about NT$31,000. However there were industries in which the wage was below the minimum wage

such as the agriculture, forestry, fisheries, and animal husbandry industry and the hotel and restaurant industry, and the phenomenon might be due to the distinct characteristics of each industry (Table 4-2-2).

Table 4-2-1 Average Monthly Salary in 2010 and 2011 – by Industry and Enterprise Size

Unit: NT$ thousands

Item / Industry	2010			2011		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Agriculture, forestry, fisheries and animal husbandry	15.83	25.59	41.26	15.71	20.34	31.24
Mining and quarrying	32.11	—	40.00	29.34	—	63.91
Manufacturing	20.31	27.23	50.07	20.97	28.56	36.87
Electric power and gas	30.51	39.78	63.03	39.55	50.04	39.57
Water supply and pollution prevention	19.19	31.45	25.93	29.25	31.05	24.60
Construction	28.92	42.53	30.20	29.71	41.66	39.59
Wholesaling and retailing	20.06	28.20	22.31	20.76	24.72	23.71
Transportation and warehousing	23.67	35.68	22.75	25.38	33.57	23.22
Hotel and restaurant	17.24	15.59	30.00	17.18	20.05	17.60
Information, communications and broadcasting	26.15	48.38	52.94	24.68	36.42	40.16
Finance and insurance	25.97	30.33	55.82	29.71	33.80	54.19
Real estate	26.20	28.33	37.27	24.40	30.42	34.00
Professional, scientific and technical services	27.15	54.83	41.19	27.25	59.27	37.60
Supporting services	20.48	24.03	29.32	21.85	24.53	26.58
Educational services	23.21	25.01	24.43	22.91	28.61	29.47
Medical, healthcare and social services	24.41	30.89	21.32	26.99	38.65	35.25
Arts, entertainment and leisure services	23.55	28.66	25.08	31.38	30.53	24.30
Other service industries	20.07	25.21	30.31	19.93	28.12	27.55

Note: The data presented in this table are based on the old definition of SMEs.
Source: DGBAS, Taiwan Region Manpower and Employment Survey, 2010 and 2011.

Table 4-2-2 Personnel Costs as a Percentage of Operating Costs and Operating Expenses in 2010

Unit: %

Enterprise Size / Industry	Personnel Costs as a Percentage of Operating Expenses		Personnel Costs as a Percentage of Operating Costs	
	SMEs	Large Enterprises	SMEs	Large Enterprises
Agriculture, forestry, fisheries and animal husbandry	32.01	37.25	4.89	5.74
Mining and quarrying	16.71	32.61	2.84	2.21
Manufacturing	32.88	23.54	3.84	1.51
Electric power and gas	32.00	46.37	8.80	1.43
Water supply and pollution prevention	27.65	55.21	8.39	4.77
Construction	38.39	47.61	5.03	2.45
Wholesaling and retailing	42.97	34.57	8.84	3.24
Transportation and warehousing	35.96	46.51	11.08	4.61
Hotel and restaurant	36.92	37.30	16.07	16.78
Information, communications and broadcasting	46.62	30.98	22.56	9.56
Finance and insurance	29.47	46.33	12.13	1.56
Real estate	35.76	24.33	14.83	2.83
Professional, scientific and technical services	42.16	35.26	19.79	7.79
Supporting services	51.87	42.30	29.26	9.80
Educational services	74.89	47.62	22.87	24.79
Medical, healthcare and social welfare services	46.64	37.86	33.36	3.35
Arts, entertainment and leisure services	47.02	31.40	24.14	14.79
Other service industries	33.83	33.41	18.20	10.65
Total (all industries)	**38.55**	**32.72**	**6.92**	**2.14**

Note: Operating costs include business costs and operating expenses.
Source: Ministry of Finance Tax Data Center, Business income tax data for 2010.

2. Personnel Costs Accounting for SMEs' Operating Expenses Have Increased Significantly in 2010

An enterprise's operating expenses include wages, rental, travel expenses, advertising expenses, water, electricity and gas charges, postal and telecommunications expenses, insurance, entertainment expenses, and training expenses, etc. Operating expenses plus business costs give an enterprise's total operating costs. As the operating cost structure varies from industry to industry, there is also significant variation in the share of operating expenses or operating costs held by personnel costs. In 2010, however, most industries rarely increased salaries, so that personnel costs accounting for SMEs' operating expenses decreased in each industry. In the SME sector, personnel costs accounted for at least 30–40% of operating expenses in all industries. The share of personnel costs in educational services, arts, entertainment and leisure services, finance and insurance increased most significantly in 2010.

3. For Most Industries, 2011 Remained Stable in terms of the Average Number of Hours Worked Per Week

In 2011, in the SME sector, the hotel and restaurant industry had the longest average working hours in Taiwan, at 48.41 hours per week. The other service industries were in second place with 46.68 hours (Table 4-2-3).

Table 4-2-3 Working Hours per Week in 2010 and 2011 – by Industry

Unit: hours per week

Industry \ Item	2010			2011		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Agriculture, forestry, fisheries and animal husbandry	40.01	45.33	40.02	40.03	43.84	39.31
Mining and quarrying	41.65	44.88	40.21	41.95	—	41.44
Manufacturing	42.41	43.68	40.19	42.56	42.97	39.77
Electric power and gas	43.30	41.53	40.35	42.22	41.31	39.63
Water supply and pollution prevention	42.69	42.06	40.36	43.47	42.59	40.50
Construction	39.64	43.61	39.59	40.14	43.23	39.63
Wholesaling and retailing	46.93	43.56	39.64	46.46	42.93	39.38
Transportation and warehousing	46.07	43.54	40.49	45.50	43.25	39.63
Hotel and restaurant	48.44	44.37	42.33	48.41	45.39	42.31
Information, communications and broadcasting	42.86	42.08	40.22	41.88	42.52	42.09
Finance and insurance	42.61	42.73	41.42	41.94	41.87	39.85
Real estate	46.30	45.22	41.12	46.31	44.34	37.26
Professional, scientific and technical services	42.28	42.13	40.19	41.89	42.24	39.24
Supporting services	43.85	47.33	39.36	43.47	47.55	36.85
Educational services	38.23	34.55	35.56	38.39	35.90	36.27
Medical, healthcare and social welfare services	44.74	43.23	42.03	44.12	43.82	41.58
Arts, entertainment and leisure services	45.92	45.68	40.49	45.41	44.00	39.28
Other service industries.	46.51	44.37	41.51	46.68	41.47	40.67

Source: DGBAS, Taiwan Region Manpower and Employment Survey, 2010 and 2011.
Note: The data presented in this table are based on the old definition of SMEs.

The industries with the shortest working hours were the educational services industry (38.39 hours per week) and the agriculture, forestry, fisheries and animal husbandry industry (40.03 hours). The trend remained stable across most industries from 2010 in 2011. Only the electric power and gas industry and communications and broadcasting industry saw a slight decrease in average working hours compared to 2010.

III Manpower Cultivation in SMEs

1. A Substantial Increase in the Number of Enterprises Participating in Individual Training Plans

The gradual improvement in the economy compared to 2010 has led to the Council of Labor Affairs, Executive Yuan providing subsidies for individual enterprises and organizations to arrange training programs for their employees in line with operational needs ("individual training"), while also encouraging enterprises in related industries to join forces with one another to implement employee training on a joint basis ("joint training") with the result that such training has increased significantly. The number of individual training plans reached a historic high in 2010; the number of enterprises taking part, number of classes organized and number of employees undergoing training reached 1,779 firms in 2011, 41,173 classes and 863,296 employees, respectively. However, the number of employees taking part in the individual training plans has decreased slightly compared to that for the previous year. As regards joint training (the "Joint Training Program to Help Business Enterprises Strengthen Their Human Resources"), the number of employees participating in this program has decreased because the joint training plan is difficult to execute for it encourages cooperation between related businesses to hold joint training plans for employees. Thus, the number of trainees in joint training plans has been lower than that in individual training plans for the past three years (Table 4-3-1).

Table 4-3-1 Provision of Assistance to Enhance Manpower Cultivation by Business Enterprises, 2004–2011

Item / Year	Individual Training Plans			Joint Training Plans			
	No. of Firms Receiving Subsidies	No. of Training Classes	No. of Training Participants	No. of Projects	No. of Firms Taking Part	No. of Training Classes	No. of Training Participants
2004	1,288	13,828	213,809	76	588	1,282	42,225
2005	1,471	22,115	394,997	89	1,146	3,062	104,153
2006	1,551	22,486	424,311	87	668	2,814	102,867
2007	1,307	26,953	547,805	102	1,891	2,692	108,389
2008	1,415	38,282	733,638	112	2,088	4,583	131,971
2009	1,240	40,544	864,001	119	1,342	5,163	140,487
2010	1,793	40,902	869,520	126	775	3,617	130,244
2011	1,779	41,173	863,296	101	625	2,688	112,213

Source: Bureau of Employment and Vocational Training, Council of Labor Affairs, Executive Yuan, April 2012.

2. 340,000 SME Employees Participated in Professional Training in 2010

The government has sought to stimulate job creation and encourage workers to participate in professional training. According to data compiled by the Bureau of Employment and Vocational Training, Council of Labor Affairs, since 2007 there has been a steady increase in the number of people undergoing professional training. The number of trainees per annum had risen to a historic high of 4,733,179 in 2010, and the number of employees of large private- and public-sector enterprises with 200 or more employees undergoing professional training had reached more than 4,000,000. However, only 340,000 SME employees participated in professional training. The result showed that SMEs might not only avoid negatively affecting employees' work

performance, but might also worry that the employees will resign after participating in the professional training (Table 4-3-2).

Table 4-3-2 The Number of Employees Participating in Professional Training, 2010

Unit: persons

Item / Year	Total Instances of Participation in Professional Training	Employees of Public or Private Enterprises or Agencies with Less than 200 Employees	Employees of Public or Private Enterprises or Agencies with 200 or More Employees	Other
2010	4,733,179	341,713	4,124,975	226,491

Notes: 1. The "Employees of Public or Private Enterprises/Agencies with 200 or More Employees" category includes training organized by public and private enterprises and agencies.
2. The "Employees of Public or Private Enterprises/Agencies with Less than 200 Employees" category includes training organized by public and private enterprises and agencies, and also training provided by training facilities attached to universities, foundations, public training institutions, etc.
3. The "Other" category includes training provided by government training institutions and by training facilities attached to universities, foundations, public training institutions, etc.
4. The value for 2010 is an estimated value.

Source: Bureau of Employment and Vocational Training, Council of Labor Affairs, Executive Yuan.

Table 4-3-3 Expenditure on Training as a Percentage of Operating Costs and Operating Expenses in 2010

Unit: %

Enterprise Size / Industry	SMEs		Large Enterprises	
	Expenditure on Training as a % of Operating Expenses	Expenditure on Training as a % of Operating Costs	Expenditure on Training as a % of Operating Expenses	Expenditure on Training as a % of Operating Costs
Agriculture, forestry, fisheries and animal husbandry	0.07	0.01	0.03	0.01
Mining and quarrying	0.01	0.00	0.02	0.00
Manufacturing	0.11	0.01	0.18	0.01
Electric power and gas	0.11	0.03	0.23	0.01
Water supply and pollution prevention	0.12	0.04	0.73	0.06
Construction	0.15	0.02	0.21	0.01
Wholesaling and retailing	0.08	0.02	0.18	0.02
Transportation and logistics	0.12	0.04	0.26	0.03
Hotel and restaurant	0.09	0.04	0.22	0.10
Information, communications and broadcasting	0.19	0.09	0.53	0.16
Finance and insurance	0.20	0.08	0.24	0.01
Real estate	0.12	0.05	0.23	0.03
Professional, scientific and technical services	0.25	0.12	0.17	0.04
Supporting services	0.16	0.09	0.24	0.06
Educational services	0.00	0.00	0.33	0.17
Medical, healthcare and social welfare services	0.24	0.17	0.08	0.01
Arts, entertainment and leisure services	0.18	0.09	0.11	0.05
Other service industries	0.08	0.04	0.47	0.15
Total (all industries)	**0.11**	**0.02**	**0.21**	**0.01**

Source: Ministry of Finance Tax Data Center, Business income tax data for 2010.

3. A Slight Fall in Spending on Professional Training as a Percentage of Total Operating Expenses in Most Industries

Despite the improvement in the economic environment in 2010, the share of total operating expenses accounted for by spending on professional training has not increased. In general, among large enterprises, the expenditure on training as a percentage of operating costs and expenses should be higher. However, the ratios in the arts, entertainment and leisure industry, the professional, scientific and technical services industry, and the medical, healthcare and social welfare services

industry were all higher than that of large enterprises of 0.07%. It is obvious that the SMEs still focus on professional training. Moreover, the ratio of expenditure on training in the arts, entertainment and leisure industry represented an increase of 0.11% compared to 2009 (Table 4-3-3).

IV SME Manpower Requirements

1. The Slowdown of the Economy Has Led to Limited Demand Growth for Manpower in 2012

According to the results from the 2012 2nd Manpower Requirements Survey (the Survey was conducted over the period April 23–May 10, 2012 by the Council of Labor Affairs, Executive Yuan, targeting enterprises with 30 or more employees), the industries have had reservations over increasing hiring because of the reemergence of the European debt crisis, the slowdown of the Chinese economy (which affects Taiwan's exports), the expectations regarding inflation, and the thinly-traded stock market (which cools off the domestic demand market).

Table 4-4-1 Anticipated Increase in the Number of Personnel Employed by Business Enterprises Over the Period from May 1, 2012 to July 31, 2012

Units: persons; %

Item / Industry	Net Increase in No. of Employees	Change in Manpower Requirements		Four Categories of Worker with Highest Demand			
		New Positions	Positions Eliminated	Technicians and Assistant Specialists	Basic-level skilled workers and laborers	Craftsmen, Machinery Operators and Assembly Line Workers	Service and Sales Personnel
All industries	49,007	58,024	8,947	11,912	11,045	10,278	7,666
Manufacturing	22,413	28,192	5,779	4,611	9,067	4,055	56
Pollution prevention and remediation	15	15	—	—	5	—	—
Construction	151	1,446	1,295	- 528	-410	985	—
Wholesaling and retailing	3,958	4,580	622	1,982	210	272	1,228
Transportation and warehousing	1,743	1,812	69	410	10	1,185	50
Hotel and restaurant	3,895	4,255	360	-	-38	—	3,927
Information, communications and broadcasting	1,626	1,758	132	1,093	—	30	459
Banking and insurance	3,110	3,212	102	2,625	—	—	100
Real estate	340	340	—	340	—	—	—
Specialist, scientific and technical services	658	812	154	214	—	22	202
Supporting services	8,222	8,536	314	923	2,045	3,614	1,302
Healthcare and social services	1,914	1,914	—	187	—	4	—
Arts, entertainment and leisure services	886	965	79	26	156	—	346
Other service industries	146	187	41	29	—	111	-4

Source: Council of Labor Affairs, Executive Yuan.

It is anticipated that, by the end of July 2012, net manpower demand will have risen by 49,007 jobs compared to the situation at the end of April. The most pronounced increase in demand will be in the manufacturing sector, with a net increase of 22,413 (of which 7,100 will be in the electronic

components manufacturing industry, the electrical equipment manufacturing industry, with a net increase of 2,800, and the computer electronic products and optical products industry, with a net increase of 3,500), followed by the supporting services industry, with a net increase of 8,200, the wholesaling and retailing industry, with an increase of 4,000, the hotel and restaurant industry with an increase of 3,900 (of which 85% will have come from the restaurant industry), and the finance and insurance industry, with a net increase of 3,100. Most of the increased demand will be for technicians and assistant specialists (with a net increase of 11,912), followed by basic-level skilled workers and laborers (13,147), and by craftsmen, machinery operators and assembly line workers (10,278). There is still a large demand for technicians and basic-level labor (Table 4-4-1).

2. Global Employment Trend Still Grows Slowly

According to the Global Employment Trend, a report compiled by the International Labor Organization, the world enters the year 2012 facing a serious jobs challenge and widespread decent work deficits. Hence, to generate sustainable growth while maintaining social cohesion, the world must rise to the urgent challenge of creating 600 million productive jobs over the next decade. Moreover, the baseline projection shows no change in the global unemployment rate between now and 2016, remaining at 6 per cent of the global labor force. Globally, young people are nearly three times as likely as adults to be unemployed. In addition, even those young people who are employed are increasingly likely to find themselves in part-time employment and often on temporary contracts. As a result, young people will be the major victims in the economic crisis as the number and share of unemployed youth is projected to remain essentially unchanged in 2012. The global economy has substantially reduced its capacity to add new jobs, and the employment-to-population ratio has sharply declined during the crisis, from 61.2 per cent in 2007 to 60.2 per cent in 2010. This represents the largest such decline on record (since 1991). Based on current macroeconomic forecasts, the ILO's baseline projection for the employment-to-population ratio is not encouraging, with a flat to slightly declining trend projected to 2016. Outside of Asia, developing regions have lagged behind developed economies in labor productivity growth, raising the risk of a further divergence in living standards and limiting prospects for poverty reduction. On the other hand, investment remains depressed, with growing uncertainty over the global outlook. Investment has developed unequally across the globe and has had particularly adverse effects on job creation. Conversely, emerging economies, on the back of their strong overall performance, have already returned to pre-crisis investment rates and are expected to exceed those rates over the medium term. Consequently, emerging economies will be the major forces creating more jobs in the future.

CHAPTER 5

Changes in the SME Business Environment, and the Strategies SMEs Need to Adopt in Response

In 2012, business owners still need to monitor the changing business environment and respond flexibly to the changes, and governments need to keep a close eye on developments and adjust their policies as appropriate. As far as SMEs are concerned, in 2012 they will not only need to continue focusing on management and rationalizing their operations – so as to improve the efficiency of resource utilization, strengthen their firms' fundamentals, identify opportunities for change and give due attention to branding and innovation – but also, and more importantly, they will need to keep pace with major trends and new developments.

This chapter is divided into three sections. Section I presents an overview of the macroeconomic environment in 2012; Section II examines the state of the Taiwanese economy in 2012; Section III analyzes how SMEs can go about responding to new developments and the changing environment.

I The International Economic Environment in 2012

The upturn in the global economy slowed in 2011, and Taiwan's SMEs demonstrated less vigor than in the previous year. What kinds of changes in the wider economic environment can be expected in 2012, and how should SMEs go about adapting to these changes? This section analyzes a number of key factors, as listed below.

1. A Slackening in the Pace of Global Economic Recovery

In the first half of 2012, with the danger posed by the European debt crisis growing more serious, economic growth in China weakening, the recovery in the U.S. starting to run out of steam, and rising tension in North Africa and the Middle East, the outlook for global economic growth was becoming increasingly conservative, with a risk that growth forecasts could be revised downwards to a considerable extent.

In June 2012, both the U.N. and Global Insight did in fact revise their whole-year global economic growth forecasts downwards, to 2.5% and 2.7%, respectively (Table 5-1-1). Growth in the advanced nations has been weakening due to the impact of fiscal restructuring and curtailed bank lending; the whole-year growth rate for the advanced nations in 2012 is now expected to be less than 1.4%. The emerging economies have experienced a pronounced slowing in the impetus for growth, as a result of weaker overseas demand and slower growth in domestic demand, but are still expected to achieve whole-year growth of over 5.2%. The emerging economies will thus continue to constitute the main engine of growth for the global economy as a whole.

Table 5-1-1 Global and Regional Economic Growth Rates

Unit: %

Forecasting Body / Region	Global Insight (GI)							United Nations		
	2011	2012	Q1	Q2	Q3	Q4	2013	2011	2012	2013
World	3.0	2.7(2.8)	2.7	2.7	2.7	2.9	3.0(3.5)	2.7	2.5(2.6)	3.1(3.2)
Advanced nations	1.5	1.4(1.2)	1.4	1.4	1.2	1.4	1.5(1.9)	1.4	1.2(1.3)	1.8(1.9)
Emerging economies / developing nations	—	—	—	—	—	—	—	5.9*	5.3(5.6)	5.8(5.9)
Emerging economies	6.2	5.2(5.4)	5.0	5.0	5.2	5.5	5.5(5.9)	—	—	—
Developing nations	1.9	3.9(4.2)	3.3	3.8	4.2	4.5	4.4(5.0)	—	—	—
Asia Pacific (ex. Japan)	6.7	6.2(6.3)	5.9	5.9	6.2	6.5	6.4(6.8)	—	—	—

Note: Global Insight figures in parentheses are forecasts released in May 2012; United Nations figures in parentheses are forecasts released in January 2012. * denotes emerging economies / developing nations in Asia.
Source: Global Insight Ltd. (June 15, 2012.), World Overview.
United Nations, (June 7, 2012), World Economic Situation and Prospects 2012 (Update as of mid-2012).

2. A Close Eye Should be Kept on Developments in the European Debt Crisis

Greece succeeded in forming a new cabinet on June 20, after which the new administration sought a relaxation of the bailout terms at the EU summit on June 28 – 29, 2011. On June 25, both Spain and Cyprus asked the EU for relief, and the interest rate on the Italian government bonds sold in June was noticeably higher than in previous months. All of these developments led to increased concern within the global community regarding the possibility that the impact of the European debt crisis would continue to spread.

On June 21, 2011, the IMF warned that the debt crisis had reached a critical stage, and that the Eurozone countries should make a strong demonstration of support for the maintenance of monetary union, while also promoting closer collaboration between banks and between governments, so as to restore market confidence and prevent the crisis from worsening still further.

3. Latent Concerns for the Advanced Economies

On June 7, 2011, the United Nations noted that economic growth was being held back by the impact of de-leveraging in the European and U.S. financial sectors, by retrenchment in government spending, and by persistently high unemployment, and that there was a risk of a vicious circle developing.

On May 22, 2012, the U.S. Congressional Budget Office warned that, with many tax breaks scheduled to be terminated in late 2011, and with the automatic deficit reduction mechanism set to be activated in January 2013, the U.S. was facing a “fiscal cliff” which could plunge the economy into recession in the first half of 2013.

4. An Increased Risk of Slower Growth in the Emerging Economies

The emerging economies of China and India, which have played a major role in driving global economic growth in recent years, are increasingly facing a “growth bottleneck” that constitutes one of the major threats to global economic growth.

Recently, the pace of economic growth in China has slowed, and leading international

institutions have been revising their growth forecasts for China downwards. However, the Chinese government has implemented a new wave of measures to stimulate growth, including subsidy programs to stimulate the purchase of cars and home appliances in rural areas, and the adoption of a loose monetary policy, including a reduction of the base rate and reserve ratio.

5. Uncertainty Regarding the General Trend in Energy Prices

With the worsening of the European debt crisis, the U.S. Dollar is being viewed as a safe haven, leading to an upward revaluation of the Dollar which, together with the increase in U.S. oil reserves and Saudi Arabia's promise to keep the supply of oil at a high level, has caused international oil prices to fall. However, with the failure to reach a consensus in the negotiations between Iran and six leading nations regarding Iran's development of nuclear weapons, and with the increasing instability in Egypt and Syria, there is still considerable uncertainty as to how oil prices will move in the future.

Reuters and the U.S. Energy Information Administration (EIA) consider the likelihood of a dramatic rise in oil prices to be low. Nevertheless, the potential impact of oil price fluctuations on the economy will need to be monitored carefully.

6. Continuing Progress in Regional Economic Integration

The lack of progress in the WTO Doha Round over the past few years has been a major blow to the development of an effective multilateral free trade system on a global scale. Instead, countries have been working actively to negotiate regional trade agreements (RTAs), which have become extremely popular.

The Asia-Pacific region got off to a relatively late start in the development of regional trade groupings, and integration has still not reached the level achieved by NAFTA or the European Union. Nevertheless, over the last few years, as the emerging economies of the Asia-Pacific region have grown in importance, while at the same time the opportunities for industrial expansion, investment and the development of new business opportunities have expanded, countries within the region have been using the "ASEAN Plus" and bilateral FTA frameworks to develop free trade partnerships. Not only has the pace with which agreements are being signed speeded up, the scope of integration and collaboration has also expanded.

In the Americas, the last few years have seen increasingly rapid progress in terms of both sub-regional groupings and bilateral trade agreements. The scope of these arrangements has in some cases expanded beyond the Americas to include countries in the Asia-Pacific and Middle East regions. The U.S. has been playing a very active role in driving the negotiations for the expansion of the Trans Pacific Partnership (TPP), which represents a major new development in terms of trans-regional integration.

The European Union has adopted a "Go East" strategy. In 2006, the EU proposed a "Global Europe: Competing in the World" development strategy. Besides emphasizing the importance of global trade to economic development in the EU, this strategy also encompassed the use of FTAs to further develop international markets. To develop the extensive business opportunities being created as a result of the growing economic power of the East Asian economies, the EU has been working to negotiate FTAs with individual Asia-Pacific nations, with the aim of strengthening economic and

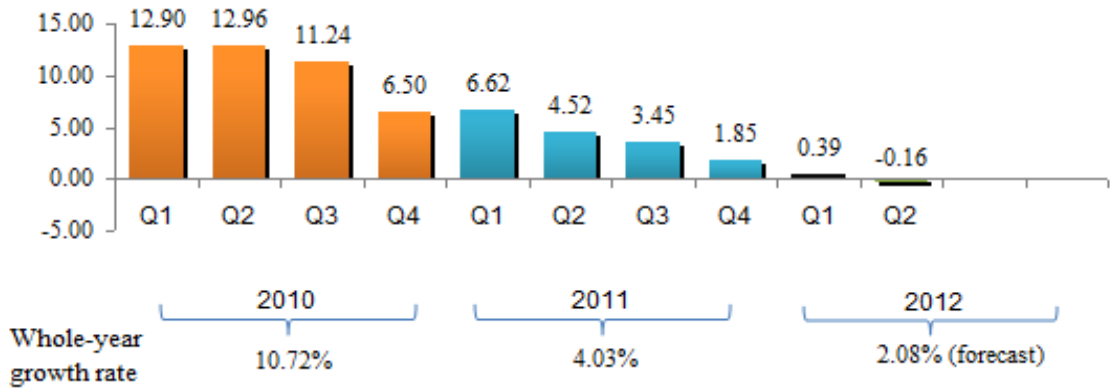
trade collaboration with the Asia Pacific and gaining maximum benefit from the international division of labor.

II The Taiwanese Economy in 2012

1. An Economic Slowdown in the First Half of 2012

A combination of slower growth in the volume of global trade and increasingly intense competition from leading international corporations has constrained Taiwan's export growth. Domestically, while unemployment has fallen, wages have not risen significantly, whereas prices have been rising. The depressed state of the Taiwanese stock market has also had a negative impact on consumer confidence. As a result, consumer spending has grown by only 2.03%. Private-sector investment has been affected by the weakening in export demand; on the other hand, Taiwan's semiconductor manufacturers have been investing heavily in advanced production process technology, which is expected to stimulate an increase in capital expenditure by companies further down the supply chain. Overall, private-sector investment has grown by 0.52%. In whole-year terms, Taiwan is forecast to post an economic growth rate of 3.03% in 2012, with GNP rising to NT$14,580.6 billion (equivalent to US$492.7 billion), representing per capita GNP of US$21,189.

Figure 5-2-1 Taiwan's Economic Growth Rate



Source: DGBAS, Executive Yuan, May 2012.

2. No Significant Growth in Prices

Although international oil prices were high in the first quarter of 2012, the import prices of mineral products, basic metals and chemical materials were lower than in 2011 year-on-year; overall, the wholesale price index (WPI) rose by 1.9%, the import price deflator rose by 4.4%, and the export deflator rose by 1.3%. As regards the consumer price index (CPI), although vegetable prices were very high compared to the same period in 2011 due to the impact of severe weather conditions, growth in the prices of services was relatively mild; as a result, the overall CPI growth rate was only 1.3%.

Looking ahead to the rest of this year, the instability in the Middle East means that the threat of an oil crisis has not gone away. However, for the time being both international oil prices and the prices of agricultural and industrial raw materials have fallen; the whole-year WPI growth rate for

2012 is therefore forecast to be 1.5%. As for the CPI, the fluctuation in the price of oil has led to similar fluctuations in the price of frequently-purchased products and services. On the other hand, the various stabilization measures adopted by the government, along with slower growth in leasing prices, have helped to mitigate CPI growth; the whole-year CPI growth rate forecast for 2012 is 1.8%.

3. An Urgent Need to Boost the Volume of Foreign Trade

With the global economic recovery showing signs of running out of steam in the first quarter of 2011, there was a pronounced fall in demand for electronics, communications, plastics and optical products in overseas markets. As a result, Taiwan's exports of goods fell by 4.0% in US Dollar terms. As regards imports, although rising oil prices boosted import value, export-derived imports of raw materials and capital equipment were depressed, causing the overall value of imports to fall by 5.9%. Exports of goods and services combined fell by 2.7%, while imports of goods and services combined fell by 3.5%; overall, Taiwan ran a trade surplus of US$6.8 billion.

With regard to the outlook for the whole year, the potential for significant export growth is limited because of the combined impact of the global economic slowdown, a weakening in the pace of global trade growth, and the increasingly serious competitive threat to Taiwan's hi-tech manufacturers from leading international corporations. At present, Taiwan is heavily dependent on the ongoing development of new types of smart handheld devices to stimulate demand. Overall, Taiwan is forecast to post export growth of 2.7% and import growth of 3.2%. If trade in services is added in, the forecast growth rates are 3.1% for exports and 2.4% for imports, with a trade surplus of US$35.5 billion.

4. Negative Growth in Industrial Production

Gross industrial production in the first quarter of 2012 was 10.2% down on 2011 year-on-year at current prices, and 2.1% down at fixed prices. Due to the impact of falling output in the electronic component, chemical materials, basic metals and machinery industries, the manufacturing industry production index fell by 5.0% in the first quarter of 2012, resulting in a decline of 2.5% for secondary industry as a whole. The level of activity in the construction industry continued to weaken, giving this industry a negative growth rate of –1.8%. The mining and quarrying industry posted a negative growth rate of –1.3%, mainly due to the continuing fall in sand and gravel production. In the electric power industry, gross electric power generation rose by 3.5%; the growth rate for the combined electric power, gas, water supply and pollution remediation industry was 4.1%.

5. Consumer Spending and Saving

Retail sales rose by 1.58% in the first quarter of 2012, the number of trips abroad made by Taiwanese citizens grew by 10.85%, and expenditure on ICT products increased. However, new passenger car registrations fell by 12.06%, stock market trading was depressed (with a 11.18% fall in the value of transactions involving stock market- and OTC-listed stocks), and the amount of financial wealth fell (with the market value of stock market- and OTC-listed stocks down by NT$1.6 trillion year-on-year in the first quarter of 2012), which offset the growth in consumer spending. Overall, nominal private-sector consumption increased by only 2.4%. With a 5.4%

increase in nominal government spending, the nominal increase in overall national consumption was 3.0%, with national consumption representing 75.4% of GDP. Gross savings as a share of GNP (i.e., the savings rate) fell from 29.8% in Q1 2011 to 26.1% in Q1 2012.

Looking ahead to the remaining months of 2012, it can be anticipated that the continuing fall in unemployment, the decline in the number of firms that are imposing involuntary unpaid leave on their workers (and in the number of employees affected by this), and the steady pace of innovation in consumer electronics products, should all help to stimulate consumer demand. On the other hand, wages have remained flat while prices have been rising, so consumers' effective purchasing power has decreased, while the depressed state of the stock market has left investors feeling poorer; these factors will tend to have a negative impact on consumer confidence. For the year as a whole, nominal consumer spending is forecast to rise by 3.4% in 2012; adding in nominal government expenditure, the overall growth rate in nominal national expenditure is expected to be 3.2%. National expenditure is forecast to account for 72.0% of GDP, while the savings rate will rise slightly, from 29.1% in 2011 to 29.3% in 2012.

6. Tax Revenue

Total national tax revenue in the first quarter of 2012 came to NT$307.6 billion, representing a year-on-year decline of NT$2.4 billion (–0.8%) compared to Q1 2011. Of the main types of taxation, business income tax revenue fell by NT$500 million (–11.0%), while individual income tax revenue rose by NT$6.8 billion (10.6%); business income tax and individual income tax combined accounted for 24.4% of total tax revenue. Business tax (VAT) revenue fell by NT$1.3 billion (–1.5%); it accounted for 28.2% of total tax revenue. Commodity tax revenue rose by NT$2 billion (5.5%); it accounted for 12.6% of total tax revenue. Securities transaction tax revenue fell by NT$3.8 billion (–14.8%); it accounted for 7.1% of total tax revenue. Customs duty fell by NT$500 million (–2.2%); it accounted for 7.0% of total tax revenue. Land tax revenue fell by NT$5.6 billion (–24.3%); it accounted for 5.6% of total tax revenue. The national tax burden (i.e., total tax revenue as a share of GDP) in the first quarter of 2012 was 9.1%, down 0.1 percentage points year-on-year compared to the first quarter of 2011.

7. Money Supply, Interest Rates and Exchange Rates

The M1B money supply rose by 3.4% in the first quarter of 2012; this growth rate was 0.9 percentage points down on the fourth quarter of 2011. The M2 money supply growth rate fell by 0.1 percentage points, from 5.2% in the fourth quarter to 5.1% in the first quarter of 2012. The rate of increase in the outstanding balance of all loans and investments by all monetary institutions in Taiwan as of March 31, 2012 was 5.3%, down from 6.0% on December 31, 2011. The growth rate of loans to the private sector, which represented around 80% of all loans and investments, had fallen from 6.3% to 4.6%, while the growth rate of loans to public-sector firms had fallen to 1.2%, and the growth rate of loans to government agencies had risen to 9.6%. As regards interest rates, the Central Bank raised the discount rate to 1.875% on July 1, 2011, after which there was no further adjustment. The average interest rate in the money markets in the first quarter of 2012 was 0.79%, down 0.02 percentage points compared to the fourth quarter of 2011.

With regard to exchange rates, as of March 31, 2012 the U.S. Dollar – New Taiwan Dollar exchange rate was US$1 : NT$29.5, representing an upward revaluation of 2.6% compared to

December 31, 2011. Against the Japanese Yen, the New Taiwan Dollar rose by 8.7%, while against the Euro it fell by 0.6%.

8. Wages, Productivity and Employment

Average monthly income (including overtime, end-of-year bonus and other extraordinary income) for employed persons in the manufacturing sector in the first quarter of 2012 was US$54,062, representing a year-on-year decline of –0.5%. The manufacturing sector production index fell by –5.0%, while total working hours increased, but by only 0.4%; as a result, labor productivity fell by –5.4%. The employed persons' wage index for the manufacturing sector rose by 1.5% year-on-year in the first quarter of 2012; the unit labor cost index rose by 6.8%.

As regards employment, in the first quarter of 2012 the total number of people in employment in Taiwan was 10.8 million, up 184,000 (1.7%) compared to Q1 2011. The rate of increase was 0.6% in the agricultural sector, 1.8% in the secondary industry sector (1.8% in manufacturing and 1.9% in the construction industry), and 1.8% in the service sector. Employed persons working in agriculture accounted for 5.1% of all employed persons, down 0.06 percentage points year-on-year. Employed persons working in the service sector and in secondary industry accounted for 58.7% and 36.3%, respectively, of all employed persons; both of these figures represented a slight increase compared to the first quarter of 2011. The average number of unemployed persons in the first quarter of 2012 was 474,000, down 39,000 compared to Q1 2011; the unemployment rate averaged 4.20%, down 0.40 percentage points year-on-year.

9. Summary

With the intensification of the European debt crisis, the slowing of economic growth in China, the tepid recovery in the U.S., and the political unrest in the Middle East and North Africa, the overall outlook for global economic growth has deteriorated. In June 2012, both the U.N. and Global Insight revised their global economic growth forecasts for 2012 downwards, indicating that the recovery in the world economy is running out of steam.

Due to the negative impact that the high level of uncertainty regarding the global economic outlook has had on Taiwan's export performance, the financial data have also been unimpressive. However, the decline in industrial production has now slowed, and sales growth is now positive. Although the "traffic light" indicator for the state of the Taiwanese economy remained at "blue" for seven consecutive months starting in November 2011, both leading and coincident indicators are now rising again, and the economy appears to be gradually climbing out of its slump.

Looking ahead to the future, given that the European debt crisis is unlikely to be resolved in the near future, and given the slowdown in the Chinese economy, the potential negative impact on Taiwan's export performance should not be underestimated. As regards domestic demand, it remains to be seen what impact stock market fluctuations and expectations of further price rises will have on consumer spending. In the short term, the fall in international oil prices and in grain prices should help to reduce the upward pressure on prices in Taiwan, and mitigate the negative impact on the economy. The government should be monitoring the changes in the international environment on an ongoing basis, and should continue to implement its Economic Stimulus Plan, with a speeding up of investment in public construction and measures to improve the investment environment, so as

to stimulate growth in domestic demand while also strengthening the economy's fundamentals.

III Striving for Change and Transformation While Taking Account of the Changes in the Wider International Business Environment

Given the lethargic pace of recovery in the global economy as a whole, and the uncertain state of the international economic environment (particularly the many upheavals resulting from the continuing European debt crisis), how can Taiwan's SMEs, and the Taiwanese government, go about seeking transformation while allowing for the changing business environment?

1. Moving Steadily While Overcoming the Obstacles in One's Path, and Maintaining the Attitude that "There is No Such Thing as an Economic Downturn, Only a Lack of Resolution"

As the saying goes, "You never know what the future will bring." The business cycle is a normal phenomenon; what goes up must come down, and vice versa – this cyclical pattern is the reality of business operations. Some people lose money even when the economy is booming; others succeed in making money during a downturn. This is why some entrepreneurs insist that "There is no such thing as an economic downturn, only a lack of resolution." They see setbacks as helping to drive improvement, and failure as being the mother of success. The indomitable spirit shown by basketball player Jeremy Lin in the NBA provides a recent model of what this attitude can achieve in practice.

For ordinary people, economic downturns offer the opportunity to overturn conventional wisdom. In today's world, the key strategy in the search for happiness is to think positively and maintain physical and emotional equilibrium. If you can achieve this, then you will be better able to cope with setbacks, and will be healthier (both physically and mentally) and happier, while enjoying a greater sense of achievement. At this time when the whole world is worrying about the economy and the outlook for the future, it is important to be learn how to fight back against the economic downturn by viewing things from a different angle.

2. Working to Identify Key Sources of Competitiveness

In today's world of economic globalization, when both countries and individual enterprises are facing severe challenges, being able to identify the factors of most importance is the key to enhancing competitiveness.

From the point of view of business enterprises, today's firms need to develop the proactive management capabilities that will enable them to cope with the changes that the future will bring. Senior managers need to recognize that the knowledge they possess is never enough, and that they cannot always rely on past experience as a guide to making decisions in the future; they need to canvas a wide range of opinions in order to be able to make good managerial decisions.

As regards organizational structure, a company's senior management should establish an "enterprise management office," and undertake the design of a "scorecard" with respect to the risks that the firm will be exposed to in the future, while also engaging in the systematic collection of key

data from external sources and working proactively to develop new sources of core competitiveness and innovative new business models for the firm. In this way, the company's senior managers will be able to keep on top of changes and challenges originating from outside the company, and will be able to maintain a sense of ambition tempered by awareness of potential threats and supported by ongoing, continuous reform.

3. Making Use of "Crowd-funding" as a New Driver of Business Start-up

With much of the world still mired in a serious debt crisis and the prospect of a new global downturn looming, in many cases even those firms that are making a profit have cut back on investment, leading to a reduction in job creation and fewer opportunities for successful innovation. Nevertheless, the unfavorable economic climate has not dampened the entrepreneurial vigor of ordinary citizens; one of the most significant of the new sources of funding for business start-ups that has emerged in recent years is "crowd-funding."

In point of fact, the concept of crowd-funding is not particularly new; the long-standing concept of "small donations" can be thought of as a "prototype" of crowd-funding. However, small donations are normally used for charitable purposes, with no consideration being required for the donation, making this very much a "donor-focused" activity. With crowd-funding, the potential range of objectives is much wider, In many cases, those providing funds through crowd-funding are taking a "gamble"; as the mechanism is recipient-focused, the funding recipient needs to find ways to get people interested in taking this "gamble."

The popularity of crowd-funding is closely related to the growth of social media, the development of reliable online payment mechanisms, and improvements in online security. Crowd-funding provides a transparent profit-sharing mechanism; in addition, entrepreneurs who make use of crowd-funding can avoid the constraints and barriers imposed by traditional publishing and mass-market business models. Through crowd-funding, entrepreneurs can build direct links with the niche market they wish to target, thereby helping them to build up their innovation and production capabilities. In an era of uncertainty, crowd-funding has the potential to become an important new breeding ground for innovation and growth.

4. Brand-building is Something Anyone Can Do!

There is no reason why large enterprises should have a monopoly over branding. SMEs need their own brand in order to differentiate themselves from rivals and make overseas buyers and consumers aware of their existence. The term "branding strategy" is used to refer to a whole range of activities aimed to at strengthening brand competitiveness, including analysis of the external environment. Branding strategy must be integrated effectively with sales and service capabilities in order to build a successful brand. There are four key aspects to brand management: Talent cultivation, having good products, target market identification, and clear product positioning.

Taiwan's strengths in R&D and manufacturing are recognized the world over. These strengths, combined with Taiwan's highly-developed industry clusters, its effective protection of intellectual property rights, and the large number of patents held by Taiwanese firms, create significant potential for the development of strong brands by Taiwanese enterprises.

The most appropriate strategy for brand development by Taiwanese SMEs would probably involve focusing initially on individual niche markets, and making effective use of joint branding and collaboration. Successful examples of this type of joint marketing include the Taiwan Outstanding Products Display Center, the Taiwan Products Displays at major international trade shows and exhibitions, and the displays of high-quality Taiwanese agricultural produce in high-end supermarkets, etc.

5. Making Effective Use of the Cloud to Develop New Business Opportunities

With new types of Internet-capable devices – such as smartphones and tablet PCs – being introduced all the time, "cloud computing" has become a major focus of attention. As the related technologies and services have matured, governments and business enterprises throughout the world are moving actively into cloud computing, seeking to get their foot in the door in the emerging cloud computing sector.

The reason why cloud computing has been attracting so much interest is that it can provide business enterprises with a fully-fledged IT platform at relatively low cost. For SMEs, which usually have only limited financial resources and a small headcount, cloud computing offers the opportunity to benefit from a comprehensive range of information services without the need to spend excessively large sums of money on IT system maintenance; they can then utilize their limited manpower in innovation and R&D instead.

To respond to the growing potential of cloud computing, in July 2000 Taiwan's Trade-Van, which handles import/export customs clearance IT system establishment and maintenance, joined forces with a number of other countries (including Singapore and Hong Kong) to set up the Pan-Asian e-Commerce Alliance (PAA), which helps Taiwanese firms involved in foreign trade to coordinate the handling of customs clearance documents, trade-related information, certificates of origin, etc. Besides an ongoing e-enablement program, in 2010 Trade-Van launched a new transaction platform that integrates cloud-based IT systems for customs clearance, logistics, supply chain management, money flow, information security, etc., making it possible to provide more, and more convenient, services for SMEs.

Another cloud-based service from Trade-Van, the International Logistics Service Platform, enabled business enterprises to benefit from export document automation, transparent cargo tracking, graphical monitoring of abnormality management, and e-freight functions, thereby enjoying improvements in operational efficiency and being able to take advantage of new opportunities in global logistics without having to spend huge sums on IT systems; only a small service fee is charged for these services.

For medium-sized and small enterprises, cloud computing is no longer out of reach. Those SMEs that are able to make effective use of online resources have the potential to evolve into trans-national enterprises and develop a much wider range of business opportunities.

6. The Growth of Green Consumption and Environmental Marketing

With consumers beginning to recognize the links between consumption and environmental protection, the more perceptive business enterprises are starting to develop the new business opportunities being created as a result, and are seeking to introduce environmentally-friendly products, services and marketing methods that will appeal to environmentally-minded consumers.

In recent years, the hi-tech manufacturing sector, which in the past was often viewed as having a serious negative impact on the global environment, has begun to reorient itself towards green design, green procurement, green manufacturing and green marketing and services; in addition, many hi-tech companies have established foundations to contribute directly to energy conservation and environmental protection.

The motivation for both green purchasing and environmentally-friendly design is to appeal to consumers. When seeking to burnish their environmental credentials, business enterprises also need to think carefully about product and service functions, characteristics and convenience of use.

7. New Business Opportunities Related to Climate Change

The dangers accompanying climate change and steadily worsening global warming are gradually increasing, and the impact of climate change has become one of the key factors affecting global economic activity; it has led to numerous social problems related to industrial development, employment, the food supply, etc., throughout the world. In the advanced nations, both national governments and business enterprises have become actively involved in climate change-related research and have been working to mitigate the negative impact of climate change on human life and on the business environment.

Extreme climatic conditions have become the new normality, and business enterprises the world over are becoming more aware of the increasingly severe impact of climate change. However, while climate change can cause harm to the global economy and to individual industries, it is also creating new business opportunities. These include, for example, providing assistance with energy conservation and carbon reduction, and helping to prevent damage and loss caused by severe weather conditions. Those Taiwanese firms with their finger on the pulse of global developments will be seeking to turn crisis into opportunity by identifying opportunities to transform the industries to which they belong and responding to the changes that climate change brings, taking concrete action to help protect the planet.

The economic opportunities that derive from climate change exist on two levels: firstly, the “green” business opportunities related to energy conservation and carbon reduction, and secondly, the substantial business opportunities that are emerging in the climate protection industry.

To summarize, the transformation of economic activity as a result of climate change is spreading rapidly across the globe. Both governments and business enterprises in many different countries are working to develop the industries and business areas that are emerging as a result of this transformation, including the “green economy” of energy conservation and carbon reduction, and the climate protection industry, which seeks to combat the harm caused by changing weather conditions. The question of how to help firms and citizens to cope with the potential impact of climate change has become one of today’s most pressing issues, but at the same time it is also a

source of new business opportunities. Taiwanese business enterprises should seek to take advantage of these new opportunities, by leveraging the strengths of the industries to which they belong and working together to help the global community achieve sustainable development.

8. Responding to the Trend towards Regional Economic Integration and Developing Emerging Markets

As a result of the global financial crisis that began in 2008, the European debt crisis of 2011, and the growth of the global "South" at the expense of the "North," the center of gravity in global trade patterns has gradually begun to shift away from the developed nations of Europe, North America and Japan towards the emerging markets. In addition, the last few years have seen a number of new regional trade agreements come into effect, further speeding up the process of regional economic integration.

When seeking to develop emerging markets, Taiwanese firms need to pay close attention to the policies adopted by the governments of the countries in question, e.g., whether or not free trade zones or export processing zones are being established, and what incentive measures have been introduced to stimulate foreign investment, etc. Emerging markets are often able to leverage the benefits of regional economic integration to develop their foreign trade; if Taiwanese firms can succeed in securing first-mover advantage in these markets, they should be able to achieve a significant expansion in the size of the markets open to them.

However, while emerging markets may appear to offer more or less unlimited business opportunities, the level of risk in such markets is also very high. Almost all emerging markets within the Asia region are at risk from inflation, and there are also widespread problems with government corruption, administrative inefficiency, worsening disparity of income between rich and poor, high unemployment, high crime rates and other social problems. These obstacles to growth also have a major impact on the development of foreign trade. A further point is that most emerging markets suffer from unsatisfactory infrastructure and energy shortages. Before moving into an emerging market, business enterprises need to evaluate the risks carefully and formulate strategies for minimizing them, in order to successfully develop the business opportunities that these "dangerous paradises" offer.

9. Leveraging the Potential of Social Networking

Today, the overwhelming trend on the Internet is towards social networking, with the impact of Facebook being particularly significant. Social networking is already exerting a major influence on online gaming, with the growth of Facebook App games and iPhone App games. Almost all of the new games released for Xbox 360, Wii and PS3 are designed in such a way as to facilitate linkage with Facebook, with game companies seeking to secure more "friends" who are also potential consumers of their products. Business enterprises are learning how to integrate social networking and online communities into their operations in such a way as to leverage the power of social networking effectively to gain exposure for their brands, thereby enabling them to successfully develop a wider range of consumer-oriented market segments that are characterized by high levels of personalization.

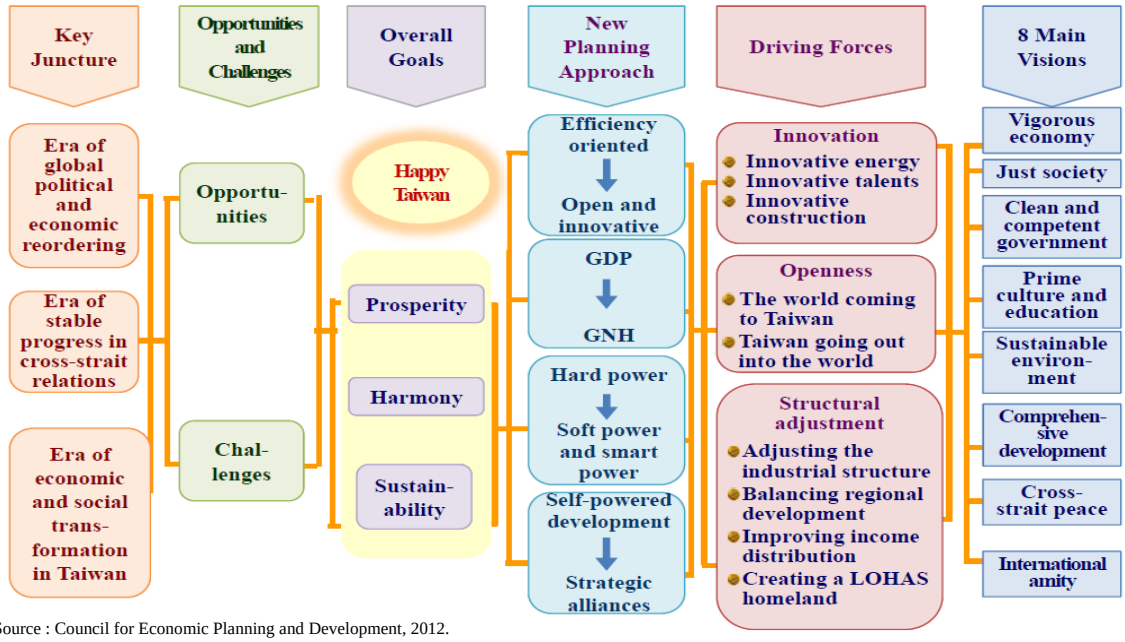
IV The Government Strategies in Response to the Business Environment

With the danger posed by the European debt crisis growing more serious, economic growth in China weakening, the recovery in the U.S. starting to run out of steam, and rising tension in North Africa and the Middle East, the outlook for global economic growth was becoming increasingly conservative, and Taiwan's SMEs demonstrated less vigor than in the previous year. The government has been working on the following policies actively to provide the corresponding strategies.

1. Golden Decade National Vision

The overall goals of the Golden Decade are Happy Taiwan attaining prosperity, harmony and sustainability, with 8 main visions (Figure 5-4-1).

Figure 5-4-1 Framework of the Golden Decade



Source : Council for Economic Planning and Development, 2012.

(1) New planning approach

1. Moving on from an "efficiency oriented" to an "openness and innovation oriented" growth propulsion model

Creating the growth path for the Golden Decade by raising economic growth potential through innovation, openness and structural adjustment, using the tax revenue created thereby to improve income distribution, and developing green technologies for giving due balance of emphasis to environmental sustainability.

2. Moving focus of concern from GDP to GNH in the policy-making model

Placing stress on subjective feelings of gross national happiness (GNH), encompassing humanistic concern for family values, environmental quality, living quality, social justice, etc., with the aim of

raising the people's overall sense of happiness.

3. Including soft and smart power as well as hard power in the model for expanding national power

Strengthening design innovation, brand experience, comfortable living, laws and institutions, mutual care, humanistic literacy, LOHAS, and other sources of soft and smart power, to ensure that Taiwan's comparative advantage does not come only from hardware development and other hard power.

4. Changing the economic and trade expansion model from self-powered development to strategic alliances

Adopting a "grasping technologies in one hand and markets in the other" mode of strategic alliance, combining foreign resources with home advantages, and using ECFA, FTAs and other regional alliances to grasp new business opportunities globally.

(2) Key driving forces

Drawing on innovation, openness and structural adjustment as the driving forces of the Golden Decade National Vision Plan.

1. Innovation: Speeding up S&T innovation, and deeply cultivating prime culture and education.

2. Openness: Facing global competition and securing global markets and resources.

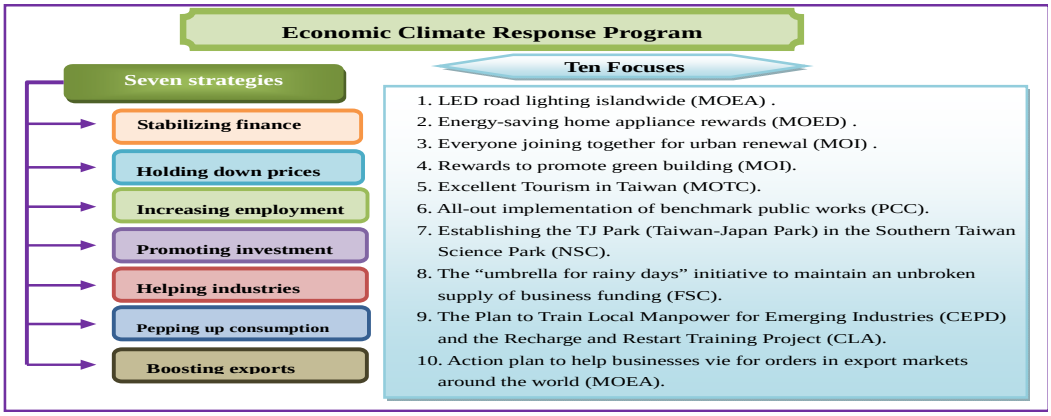
3. Structural adjustment: Creating a vigorous economy, and ensuring fairness and justice.

2. Economic Climate Response Program

To address the changing situation of the European debt crisis in the external realm and issues arising from transition and adjustment of the industrial structure in the internal realm, the Executive Yuan has approved the establishment of a Task Force on Economic Climate Response Strategy (Figure 5-4-2).. The task force was charged with bringing together all related Cabinet agencies for proposal and discussion of response strategies, to be compiled by the Council for Economic Planning and Development (CEPD) into the Economic Climate Response Program.

Taiwan's economy rests on very sound foundations, and the seven strategies and ten focuses mapped out in this program will enable the government to actively address and respond to crises arising from changes in the international environment.

Figure 5-4-2 Economic Climate Response Program



Source: Council for Economic Planning and Development, 2012.

3 MOEA inaugurates export promotion project-- the 2012 Dragon Year Export Project

To perk up exports as fast as possible, the Ministry of Economic Affairs (MOEA) has launched the 2012 Dragon Year Export Project, under which it will invest NT$3.16 billion in assisting diverse market expansion strategies in industries with good market characteristics and potential. The funds will be used for providing small and medium-sized enterprises (SMEs) with financing, marketing and image-building support, to help them pursue global deployment. The 2012 Dragon Year Export Project has comprised six programs in SME assistance: "Expansion of Financing Support," "Inviting of Buyers to Taiwan," "Organizing of Overseas Trade Show Missions," "Marketing Through the Use of Internet Technology," "Strengthening of Taiwan's International Image for Industrial Quality," and "Pursuit of International Bids." The project is designed for the short-term stimulation of exports, and that in the long term the nation needs to strive to become a more open economy and strengthen its export competitiveness by speeding up the process of upgrading and transforming its industries. Besides providing companies with NT$3 billion in new preferential export financing, the project boosts the amount of preferential export insurance and spending on credit investigation that the Export-Import Bank of the Republic of China offers companies from NT$50 million to NT$150 million. It also expands the scope of application for preferential treatment to help companies grasp business opportunities. In addition, the MOEA will strengthen its efforts to organize business matchmaking meetings with specific markets such as the European Union, African and oil-producing countries, Muslim countries and other emerging markets as so to help Taiwanese companies establish contact buyers and pinpoint business opportunities worldwide.

4. "Three Industries, Four Reformations"

In order to foster growth in Taiwan's three economic pillars – the sectors of manufacturing, service and traditional ventures, the MOEA has launched a nationwide program "Three Industries, Four Reformations" which will focus on developing a service-oriented manufacturing industry, an

internationalized, high-tech service industry and a uniqueness-oriented traditional industry. The objective is to assist enterprises in conducting research and development, enhance output value and streamline industrial structures. Additionally, the reformation efforts will also boost employment levels and help equalize the nation’s income distribution.

Part Two

Special Topics on SMEs

CHAPTER 6

The Transformation and Upgrading of SME Clusters in Response to Regional Economic Integration

The last few years have seen a pronounced trend towards the formation of multilateral and bilateral free trade agreements (FTAs) and comprehensive economic partnership agreements (CEPAs) within the Asia region. According to statistics compiled by the World Trade Organization (WTO), whereas in the period up until 1990 only 16 FTAs had come into effect, in the 1990s a further 51 FTAs were added to this total, and since 2000 another 120 have been signed. The number of FTAs in effect in the Asia and Oceania region has risen by 24 since 2005; these 24 new FTAs account for approximately 60% of all FTAs that have ever been signed in the region. The emerging economies of Asia are actively seeking to use FTAs to strengthen their national competitiveness. This trend is symbolized by the coming into effect in 2010 of a large-scale “ASEAN Plus One” FTA linking the member nations of the Association of Southeast Asian Nations (ASEAN) with China.

Taiwan cannot afford to isolate itself from this trend. Since 2008, there has been a pronounced increase in the intensity of “cross-strait” trade negotiations between Taiwan and China, including the six rounds of “Chiang-Chen Meetings,” which have helped to bring about collaborative agreements in a number of areas, as well as collaboration on the formulation of industry standards, etc. The fifth “Chiang-Chen Meeting” saw the signing of the Economic Cooperation Framework Agreement (ECFA), marking the beginnings of a mechanism for free trade between Taiwan and China. Future negotiations will address the issues of tariff reductions in various sectors, and the question of non-tariff barriers. On September 22, 2011 Taiwan signed a Bilateral Investment Agreement (BIA) with Japan, covering the three key areas of investment promotion, investment protection and investment liberalization. It is anticipated that the signing of this BIA will encourage more Japanese firms to establish a presence in Taiwan, and to collaborate with Taiwanese enterprises on developing the China market. Also, the Trans-Pacific Strategic Economic Partnership Agreement (TPP) was a major focus of discussion at the Asia-Pacific Economic Cooperation (APEC) meetings held in Japan in November 2011. All of these trade-related talks, negotiations and agreements can help Taiwan to gradually secure fuller participation in the process of regional economic integration in East Asia. At the same time, the continued opening up of Taiwan’s markets to other economies will inevitably have an impact on Taiwan’s small and medium enterprises (SMEs). In particular, following the establishment of a mechanism for “cross-strait” free trade between Taiwan and China, all industry sectors will be affected by tariff reductions and the reduction or elimination of non-tariff barriers. While these changes will help to reduce the cost of exportation for Taiwanese firms, they are also likely to result in a further acceleration of the trend for Taiwan’s larger enterprises to relocate production to China and then sell China-made goods back into the Taiwan market, and a further increase in the

dumping of low-priced Chinese goods in Taiwan. All of this constitutes a serious threat to Taiwan's SMEs.

Given the changes in the business environment outlined above, Taiwan's SMEs will need to be ready to overcome challenges and grasp new opportunities. The evolution of Taiwan's SMEs has been characterized by the formation of regional industry clusters. One of the most effective strategies that Taiwan can adopt to deal with the new challenges that are now facing it is to continue to make effective use of industry clusters to promote collaboration between SMEs and help Taiwan's SMEs build competitive advantage by differentiating themselves from their competitors (whether in terms of markets targeted, or technology development), while encouraging regional industry clusters to upgrade and transform themselves.

I The Upgrading and Transformation of Industry Clusters, and Inter-firm Collaboration

1. The Effects of Industry Clusters, and their Significance for SMEs

In recent years, the industry cluster concept has come to play an important role in the process of industrial development policy formulation for governments throughout the world, as industry clusters are viewed as having the potential to make a major contribution towards the enhancement of national competitiveness. Evidence of the effectiveness of industry clusters can be found all over the world. The term "industry cluster" is used to refer to the concentration, within close geographical proximity to one another, of firms in a given industry sector, along with related suppliers, service providers, research institutes, etc. The relationship between the firms making up a given industry cluster is one of "co-opetition" – a mixture of cooperation and competition. Industry clusters constitute an important driving force for boosting exports and attracting foreign investment (Porter, 1998). The industry cluster concept integrates two of the key factors in Porter's "Diamond Model": inter-firm competition, and geographical concentration. Wang et al. (2003) suggest that industry clusters affect SMEs in three key respects: the provision of complementary resources, the strengthening of drivers of competition, and speeded-up reaction to technological and market changes.

Watanabe (2006) points out that the vast majority of SMEs exist in particular areas with a large concentration of both large companies and SMEs; they do not exist in geographical isolation. Based on his analysis of SME development in various countries, Watanabe identifies a number of positive benefits that industry clusters can provide for SMEs. These include reduced R&D and manufacturing costs, stimulus for competition and market development, the development of stable transactional relationships based on a mutually beneficial division of labor, and the building of collaboration based on trust, etc. Firstly, as regards cost savings, the presence within an industry cluster of various types of production equipment vendors, component suppliers, trading companies, material suppliers, research institutes, legal and accounting firms, etc., all located in close proximity to one another, makes it possible for enterprises to achieve savings on manufacturing costs, transportation costs, and the cost of obtaining information, etc., when developing new products or seeking to access information needed for business purposes; this benefit can be

particularly important for SMEs, which are often short of funds. Secondly, with regard to the provision of stimulus for competition and market development, the presence within the industry cluster of SMEs with a wide range of specialist capabilities forces SMEs to work constantly to deepen their own technological capabilities, and encourages them to develop the varied sources of demand that exist within the cluster. Regarding the development of stable transactional relationships based on a complementary division of labor, because of the extensive subcontracting that occurs among SMEs located in an industry cluster, as soon as one firm obtains an order from outside the cluster, it is likely to outsource part of the work required to complete that order to another firm which possesses specialist expertise in that area. The need to cope with high-unit-price, high-complexity market demand thus encourages the formation of a long-term, mutually-beneficial division of labor within the cluster, which in turn helps to ensure the stable, continued development of the firms making up the cost. Finally, as regards the building of trust, over time, the existence of long-standing collaborative relationships based on a division of labor within the cluster helps to gradually build trust between firms, and discourages behavior that violates business ethics. The growth or decline of industry clusters can thus have a major impact on SME operations.

2. The Growth and Decline of Industry Clusters

Porter (1998) noted that even the strongest and most vigorous industry cluster cannot hope to maintain its competitiveness indefinitely. In his “Diamond Model,” Porter divides the factors that may cause an industry cluster to shrink or decline into internal factors and external factors. Internal factors are rigidities affecting the internal operating mechanisms of the industry cluster, which can constrain productivity and restrict innovation, causing the cluster to begin to atrophy from the inside. These internal rigidities include: (1) Imposition of excessive restrictions or lack of flexibility in the systems whereby the cluster is run; (2) Oligopolistic or monopolistic behavior by enterprises that acts as an obstacle to competition, and weakens the cluster’s “co-opetition” relationships; (3) Lack of flexibility and inability to implement reform on the part of universities, research institutes etc. located in the cluster; (4) Lack of an entrepreneurial drive on the part of the firms located in the cluster. Fujita (2003) notes that, as an industry cluster grows larger, land prices and labor costs in the area will tend to rise, and traffic congestion will become an increasingly serious problem. This may cause larger enterprises to relocate their operations outside the cluster, and bring about a gradual weakening of the cluster in terms of its external economies of scale, know-how and innovation, etc.

Besides slowing the pace of improvement and innovation, the emergence of internal rigidities in an industry cluster also tends to saddle firms located in the cluster with rapidly increasing operating costs that render the cluster incapable of transforming and upgrading itself. At the same time, even if a healthy co-opetition relationship does exist in a particular area, and even if the outsourcing of production, the relocation of production facilities or other globalization strategies are being used effectively to achieve equilibrium in terms of operating costs, if the problem of internal rigidities cannot be solved, then eventually the industry cluster is bound to experience reduced productivity and a loss of innovative drive; unable to compete, it will find itself being replaced by other clusters in other regions.

Although the external factors that affect industry clusters may be derived from a variety of sources, the most important is probably the rapid pace of change in the technology environment. Falling behind in technological terms can cause an industry cluster to lose competitive advantage. If the cluster cannot obtain new technology rapidly from a local research institute, or develop new technology within the cluster, then it will experience a loss of competitive advantage relative to other clusters. A further point is that changes in customers' needs can cause local production to become divorced from the needs of the wider external environment, affecting both the productivity and level of innovation of the cluster. While firms can attempt to make effective use of globalization strategies to bring themselves back into line with the requirements of the external environment, or use patent acquisition or other methods to avoid falling too far behind in terms of technology, nevertheless, over the long term, if an industry cluster cannot succeed in maintaining a reasonable level of capability in new technology fields, or is unable to keep pace with the evolution of new forms of demand, then that cluster will inevitably be faced with gradual decline.

3. The Promotion of Industry Cluster Upgrading and Transformation, and Models for Inter-firm Collaboration

If a country's economy is oriented towards internationalization, then it should be possible for that country's business enterprises to obtain standardized technology resources via global logistics, but the process of accumulating differentiated, cutting-edge technology resources will need to be kept within the home country, or within the home region. The implication is that existing industry clusters need to engage in continuous, ongoing transformation and upgrading to avoid becoming left behind or marginalized.

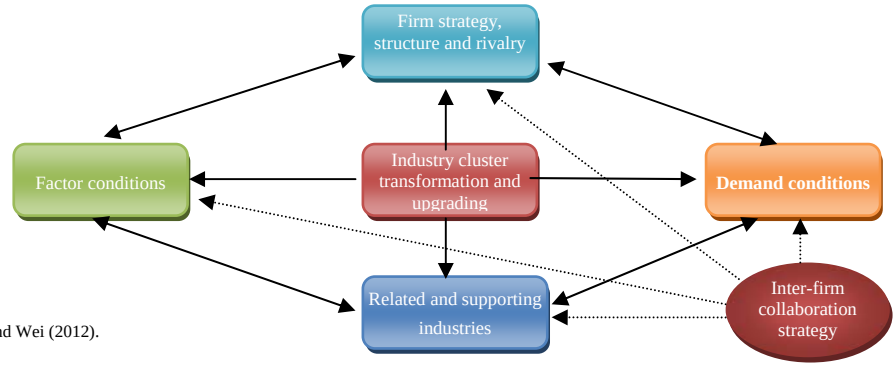
Florida (1998) notes that the "learning region" has an important role to play in stimulating innovation and economic growth. The learning region can be thought of as a collecting device or storage place for knowledge and innovation, able to provide the basic environment and infrastructure needed to create knowledge. Learning regions have characteristics different from those of conventional areas of large-volume mass production; they require the accumulation of considerable knowledge creation and R&D capabilities. If industry clusters are to succeed in achieving long-term, sustainable development, they need to be able to transform themselves into "learning clusters." Kanai (1999) conducted a survey of the business activities of firms located in an industry cluster in the Sapporo region of Hokkaido, Japan, and found that entrepreneur-led learning platform activities involving firms located within an industry cluster helped to stimulate the formation of a larger number of innovation teams, thereby enhancing the overall innovation results of the cluster as a whole. Wei and Tung (2011) suggested that the ability of knowledge platforms located within industry clusters to stimulate learning and the transmission of knowledge could help to promote innovation and competition among firms operating in that region, thereby contributing to the technological upgrading and transformation of regional industries. These results are in conformity with the "field" concept proposed in Itami (1999).

Porter (1998) notes that informal enterprise networks, industry alliances, industry associations, and other inter-firm collaborative organizations can play an important role in helping industry clusters to upgrade themselves. They can provide neutral, unbiased support for the formulation of

common standards, help with joint market development efforts, organize trade shows and trade missions, and arrange for local research institutes to provide training opportunities or technology-related "train the trainers" programs, etc. Inter-firm collaborative organizations of this type can achieve important results in any type of activity that has the potential to create benefits for all the firms in the cluster. Porter views the existence of inter-firm collaborative organizations as being particularly important for those industry clusters that consist primarily of SMEs. One example that Porter gives is the Dutch flower-growing industry cluster, where the Flower Council of Holland and International Flower Bulb Center play an important role in promoting joint marketing and in the commercialization of research results, thereby helping to strengthen the competitiveness of the Dutch flower-growing cluster as a whole. Wu, Wu and Tu (2008) found that, in Taiwan, specialist trading companies played a role similar to that of industry associations by organizing missions involving multiple firms to attend trade fairs and develop overseas markets together. The sharing of experience through lateral exchange between the members of industry associations can help members to cultivate their international marketing capabilities, thereby enhancing the international competitiveness of SME-dominated industry clusters.

As shown in Fig. 6-1-1, the impact that inter-enterprise collaboration strategy models have on industry cluster transformation and upgrading relate to all four aspects of the Diamond Model. The most significant effect is the improvement in factor conditions; this includes the enhancement of manpower quality, improvement in the quality of research carried out by local universities, the establishment of specialist infrastructure, and the provisions of specialist information related to the industry in question, etc. As regards related and supporting industries, the inter-firm collaboration model can help to encourage external suppliers, service providers, and manufacturers of complementary products, to locate themselves within the cluster, thereby strengthening the cluster's external links and enhancing the cluster's "metabolism" in terms of its ability to absorb new technologies and new knowledge. With regard to firm strategy, structure and rivalry, firms can make use of the inter-firm collaboration model to develop a clearer understanding of major trends in industrial technology development, thereby helping them to revise their own product development strategy. Regarding demand conditions, collaboration between inter-firm collaborative organizations and external research institutions on the drawing up of new quality standards can help the firms making up a cluster to develop high-end segments of the market.

Figure 6-1-1 The Relationship between Industry Cluster Upgrading and Transformation and Inter-firm Collaboration Strategy



Source: Wu and Wei (2012).

II Case Studies of SME Collaboration

One significant trend in the development of SME clusters in Taiwan over the past few years has been the formation of a large number of inter-firm collaborative organizations in Central Taiwan. The inter-firm collaboration strategy models adopted by these organizations to help promote industry cluster upgrading and transformation can serve as valuable case studies.

1. Case Studies of Inter-firm Collaboration Contributing to the Upgrading and Transformation of Taiwan's Bicycle Industry Cluster

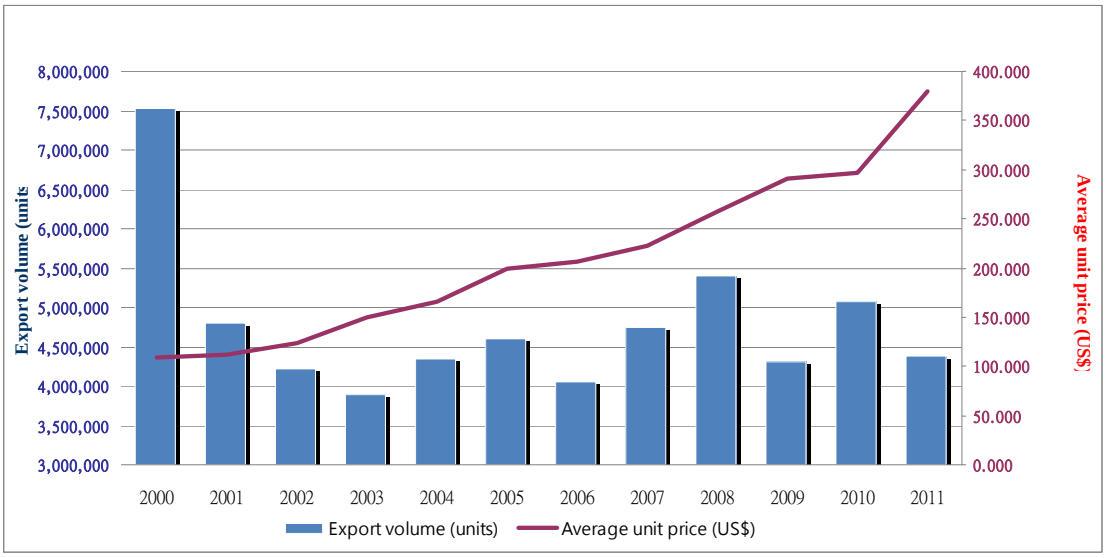
(1) The Current State of Development of Taiwan's Bicycle Industry Cluster

The energy crisis of the 1970s and the dramatic increase in demand for bicycles in the 1980s helped Taiwan's bicycle industry to achieve rapid export growth, enabling Taiwan to establish itself as the world's leading bicycle producer nation. Between 1978 and 1986, Taiwan's bicycle exports grew steadily; in 1980, Taiwan overtook Japan to become the world's largest bicycle exporter nation, a status it maintained for 16 years in a row. By 1986, Taiwan's annual bicycle exports had risen to 10,239,473 units, representing nearly 40-fold growth compared to 1971; the average unit price of bicycles that Taiwan exported in 1986 was US$40.83. Taiwan's annual bicycle export value had risen to over US$1 billion by 1991, and to more than US$1.06 billion by 1995, the highest level ever.

Starting in 2000, there was a rapid increase in both the volume and value of China's annual bicycle exports. As a result, in the global market as a whole demand outstripped supply, leaving Taiwan's bicycle makers faced with a business environment characterized by vicious, cut-price competition. As can be seen from Fig. 6-2-1, over the period 2000–2003 there was a dramatic fall in Taiwan's annual bicycle exports, which declined from 7.53 million units in 2000 to 4.8 million units in 2001, and then bottomed out at just 3.88 million units in 2003 (representing a 49% decline compared to 2000). Over this same period the average unit price rose from US$109 to US$150. Nevertheless, the huge quantities of competitively-priced bicycles being exported by China were threatening Taiwan's bicycle industry with the prospect of a vicious circle of price-undercutting.

In 2003, Taiwan's bicycle manufacturers formed the "A-Team" industry alliance, which began to explore potential new strategies for developing high-value-added products, with the aim of helping the bicycle industry cluster in Central Taiwan to upgrade and transform itself. As shown in Fig. 6-2-1, having bottomed out in 2003, Taiwan's bicycle exports gradually began to rise again, climbing to 4.35 million units in 2004, 4.6 million units in 2005, and 5.4 million units in 2008 (by which time annual exports had grown by 40% compared to 2003). Over this same period, the average unit price was rising too, from US$150 in 2003 to US$253 in 2008, up 68% from 2003. Although annual export volume fell in 2009 due to the impact of the global financial crisis, it recovered in 2010, and the average unit price continued to rise.

Figure 6-2-1 Taiwan's Annual Bicycle Export Volume and Export Value, 2000 - 2011



Note: Data were calculated by adding the totals for Taiwan HS codes 87120010109 (Folding Bicycles) and 87120010902 (Other Bicycles).
Source: Bureau of Foreign Trade, MOEA, Import/Export Statistics Database; Taiwan Bicycle Exporters Association.

According to data compiled by the Cycling & Health Tech Industry R&D Center (CHC), as of 2009, there were approximately 658 bicycle-related companies operating in Taiwan, of which 522 (79% of the total) were located in Central Taiwan. There is thus a heavy concentration of Taiwanese bicycle component manufacturers in Central Taiwan, with most of these firms being SMEs functioning as suppliers to vendors of completed bicycles. Most of Taiwan's leading completed bicycle vendors – including Giant and Merida – are located in the new Taichung City (formed by the administrative merger of the old Taichung City and Taichung County) or Changhua County in Central Taiwan, combining with their SME-sized component suppliers to form a comprehensive bicycle industry cluster.

(2) The "A-Team"

In 2003, in response to the worsening business environment, Giant Manufacturing Co., Ltd. convinced rival bicycle manufacturer Merida Industry Co., Ltd. and 11 bicycle parts suppliers to join forces with Giant in the formation of the "A-Team" industry alliance. It was anticipated that close collaboration between bicycle vendors and component manufacturers would help to promote component innovation and upgrading, thereby leading to improved component quality and facilitating the introduction of new products featuring innovative design that would help Taiwanese bicycle makers to target the high-value-added segment of the market and differentiate themselves from Chinese bicycle makers. The A-Team secured the support of the Industrial Development Bureau, MOEA. In addition, working in collaboration, the Corporate Synergy Development Center (CSD), Kuozui Motors Ltd. (which manufactures Toyota cars under license in Taiwan), and Elite Sewing Machine Manufacturing Co., Ltd. helped the A-Team to adopt the Toyota Production System (TPS), which helped to reduce inventory levels and enhance production efficiency. Giant, the CSD and Kuozui Motors dispatched a guidance team to help component manufacturers implement training, etc. As of April 2012, the A-Team had 21 regular members and 7 sponsoring

members.

The impact that the A-Team has had in terms of contributing to the upgrading and transformation of the Central Taiwan bicycle industry cluster can be analyzed in terms of the four aspects of Porter's Diamond Model. Firstly, as regards factor conditions, following the establishment of the A-Team, Kuozui Motors Ltd., Elite Sewing Machine Manufacturing and the CSD worked together to provide guidance, helping A-Team member companies to adopt the "3T" production management systems (TPS, TQM and TPM), and providing regular training programs and visits to model factories for A-Team members; these activities have come to constitute an important platform for learning and exchange for the alliance's member firms. Having acquired "3T" know-how, the A-Team's first-tier suppliers have been able to pass on their knowledge to second- and third-tier suppliers. In addition, after undergoing training, Giant and Merida have gradually succeeded in cultivating their own "train the trainers" instructors, who are able to provide guidance and training for their first-tier suppliers, thereby contributing to the diffusion of know-how among SMEs. It can thus be seen that, besides facilitating collaboration with external actors (including other companies and academic institutions) and providing a mechanism for the sharing of knowledge between member companies, the A-Team is also helping to bring about the diffusion of knowledge and experience to peripheral SMEs, thereby contributing to the enhancement of the overall manpower quality of the Central Region bicycle industry cluster as a whole.

As regards demand conditions, the A-Team is currently responding to the rise in environmental consciousness by promoting a carbon footprint initiative. The A-Team is collaborating with the Cycling & Health Tech Industry R&D Center (CHC) and with National Cheng Kung University to provide guidance for A-Team member companies on how to go about obtaining a Green Mark, which can help to burnish their image as good corporate citizens. In addition, the A-Team has formed its own "Cycling Team" to help popularize leisure cycling in Taiwan, which in turn should boost domestic demand for high-end bicycle products. The A-Team's success in promoting the development and sale of high-value-added products has led a number of foreign component suppliers to join the A-Team as "Sponsoring Members," thereby contributing to the exchange of technology and know-how between domestic and overseas component manufacturers.

Finally, as regards firm strategy, structure and rivalry, the A-Team provides a learning platform that gives A-Team member companies access to a wider range of information, thereby helping them to strengthen their operational capabilities and gradually refine their R&D strategy to focus more on high-value-added products and components. The internal and external competition mechanisms that the A-Team has created have become a major driving force that encourages member companies to upgrade and improve themselves, while also having a learning effect on non-member firms, and in so doing helping the Central Taiwan bicycle industry cluster as a whole to upgrade and transform itself.

(3) The Taiwan Bicycle Component Industry R&D Alliance

With funding support from the Department of Industrial Technology (MOEA)'s "Traditional Industries Value-added Innovation and Technology Support Plan," the Metal Industries Research & Development Center has brought together companies located in Taichung City's Tachia District (formerly Tachia Township, Taichung County), which lies at the heart of Taiwan's bicycle industry cluster, as well as component suppliers located in the neighboring Waipu District and the central districts of Taichung City, to form the Taiwan Bicycle Component Industry R&D Alliance. The Alliance members include six bicycle component manufacturers: Vigor, WellMag Technology, Hsu Sheng, Maxway, Jiun Yih, and Endex. The Metal Industries Research & Development Center is providing new technology to help the Alliance members develop a wider range of lightweight, high-value, high-quality bicycle components, including pedals with a lightweight pedal axle, high-end aluminum alloy machine-welded bicycle frames and front forks, and titanium alloy frames with superior welding quality, etc. The aim is to use technology upgrading to enhance market competitiveness.

2. Case Studies of Inter-firm Collaboration Contributing to the Upgrading and Transformation of the Central Taiwan Machine Tool Industry Cluster

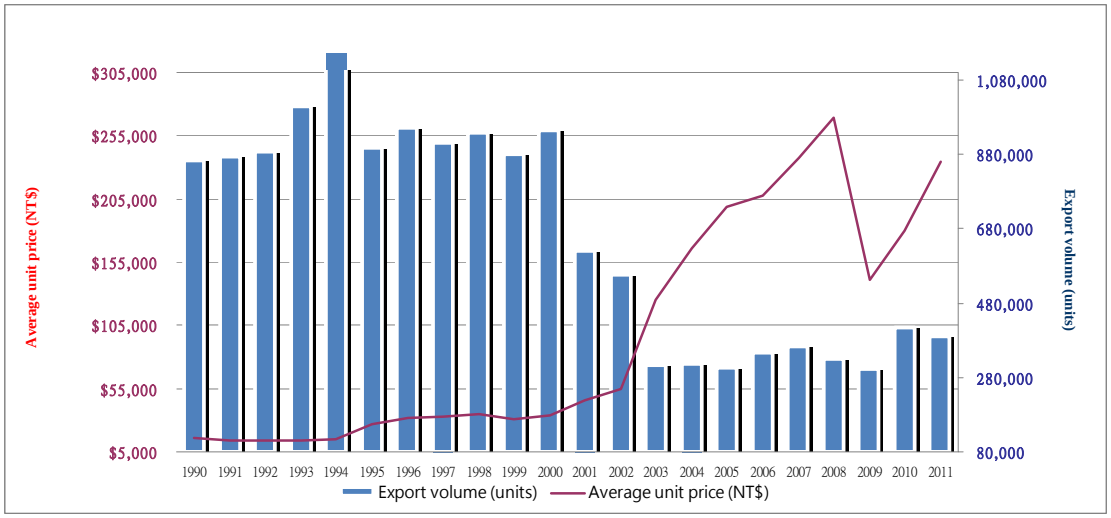
(1) The Current State of Development of Taiwan's Machine Tool Industry Cluster

Taiwan's machine tool component manufacturers are heavily concentrated in Central Taiwan. The world-famous Central Taiwan precision machinery cluster takes the form of a "center-satellite" structure, with SME "satellite firms" supplying components to the big machine tool vendors. In all, the cluster employs over 300,000 people, with combined annual production value of NT$900 billion, making it probably the most productive precision machinery industry cluster in the world for its size. As of 2010, there were over 300 machine tool manufacturers located in Taichung City and Taichung County (which have since been amalgamated to form a new, enlarged Taichung City) and in Changhua County; adding in "satellite firms" (i.e. component suppliers), the total size of the cluster rises to around 1,000 firms. 80% of these enterprises have 50 or fewer employees, and nearly 90% have capitalization of less than NT$60 million. The Central Taiwan machine tool industry cluster thus consists largely of SMEs (Chuang, 2010).

The core element in the Central Taiwan machine tool industry cluster is a limited number of machine tool vendors and specialist module manufacturers whose presence has stimulated the emergence of large numbers of "peripheral" SME-sized component manufacturers; the overall model is one of the existence of multiple core firms that has driven the growth of large numbers of satellite firms. This pattern is responsible for the cluster's key characteristics, including the emphasis on customization, the flexible mutual support that firms provide for one another, the specialist division of labor and the ability to supply customers promptly. A further characteristic of the cluster is that the vast majority of the firms making up the cluster are located within one hour's drive of one another; this facilitates the operation of the specialist division of labor and technology deepening, which in turn helps to reduce manufacturing costs, and enhances flexibility and speed. As a result, when machine assembly firms receive orders from overseas customers, they can meet

customers' needs rapidly and efficiently without having to incur excessively high costs. In recent years, the Central Taiwan machine tool industry cluster has become steadily more competitive in international terms, leading even more firms to locate themselves in the cluster, which now enjoys a reputation as one of Taiwan's most vigorous and successful industry clusters.

Figure 6-2-2 Export Volume and Export Value of Taiwan's Machine Tool Industry, 1990 – 2011



Notes: The data were calculated by adding together the figures for the following Taiwan HS code product categories: numerically controlled lathes (2912001); other lathes (2912002); drilling machines (2912012); milling machines (2912022); sawing machines (2912024); grinding machines (2912042); machining centers (2912051); other numerically controlled machine tools (2912090); other cutting machine tools (2912190); pressing machines (2919010); hydraulic presses (2919025); and other metal forming machines (2919090).
Source: Bureau of Foreign Trade, MOEA, R.O.C. Import/Export Statistical Database (TRADE database).

As can be seen from Fig. 6-2-2, the year 2002 marked a watershed in the development of export markets by Taiwan's machine tool manufacturers. During the period 1990–2002, the annual exports of Taiwan's machine tool industry averaged between 800,000 and 1,000,000 units, reaching a peak of 1,152,032 units in 1994. However, average unit price rose only very slowly, remaining within the range of NT$15,000–NT$50,000. At this stage, the level of technology possessed by Taiwan's machine tool manufacturers was relatively low, effectively restricting their exports to low-unit-price machines and forcing them to compete on price; overall production value was much less impressive than the raw production volume statistics would suggest. From 2000 onwards, export volume fell steadily, declining from 945,163 units in 2000 to 312,986 units in 2003 (a fall of 66.8%). However, the unit price of the machines that the industry was exporting began to rise rapidly, climbing from NT$54,801 in 2002 to NT$269,481 in 2008.

(2) The Taiwanese Machine Tool Industry "M-Team Alliance"

Although the Taiwanese machine tool industry enjoys a significant level of international competitiveness in terms of its market development and technology capabilities, there are still many causes for concern. In comparison with the leading Japanese and German machine tool manufacturers, there is room for improvement with respect to the industry's ability to provide tailor-made products, processing precision, production quality, machines' operational reliability, etc. In the last few years, Chinese machine tool manufacturers have begun to purchase standard

components from specialist Taiwanese component manufacturers, enabling them to achieve rapid assembly of low-priced machine tool products which now represent a competitive threat to Taiwanese machine tool makers. In addition, some Chinese component suppliers have succeeded in overcoming the technical obstacles that had held them back before; as a result, the Chinese machine tool industry is increasingly becoming self-sufficient in terms of component suppliers, so it is not only Taiwanese machine tool vendors but also Taiwanese machine tool component manufacturers that are under threat. In the early 2000s, when the global economy was in a healthy state and market demand in China was growing rapidly, Taiwan's machine tool firms were unable to raise their output fast enough to keep pace with demand; this situation is largely attributable to excessively long lead times in the Taiwanese machine tool supply chain. A further problem was the intense competition within the industry, which meant that individual Taiwanese machine tool vendors preferred to go it alone when developing export markets, being reluctant to collaborate with other Taiwanese firms.

Faced with this situation, Taiwan's leading machine tool vendors and specialist module suppliers began to think about how they could enhance the level of value-added in their products. In 2006, Victor Taichung and Yeong Chin Machinery brought together 21 specialist module and component suppliers to form the "M-Team" alliance, with the aim of helping alliance members to enhance the quality of their products and technology, so as to be able to weather the impact of any future economic downturn. The M-Team was established to make effective use of the collaborative relationships between machine tool vendors and component suppliers to form a close-knit network that would be able to respond rapidly to changes in market demand, enhance the benefits secured from value chain activities, and build competitive advantage for the industry as a whole. To be eligible to participate, firms had to be willing to keep their operations in Taiwan (rather than relocating manufacturing overseas), and component suppliers were expected to give priority to supplying machine tool vendors that were fellow members of the M-Team.

3. Case Studies of Inter-firm Collaboration Contributing to the Upgrading and Transformation of Taiwan's Hand Tool Industry Cluster

(1) The Current State of Development of Taiwan's Hand Tool Industry Cluster

Hand tools function as an extension of the human hand; they range from consumer-type hand tools used for home maintenance and repair, through to specialist, high-spec, high-precision hand tools used in industrial manufacturing and facilities maintenance operations. The range of products that make up the hand tool market is thus extremely broad and diverse. As of 2008, there were approximately 636 hand tool manufacturers in Taiwan, of which 80.97% were located in Central Taiwan, in Taichung or Changhua. Around 98% of these hand tool firms had 100 or fewer employees. The Taiwanese high tool industry is thus heavily concentrated in Central Taiwan, and constitutes an SME cluster. The hand tool manufacturing process begins with the selection and purchasing of materials, and then continues with a series of operations that may include forging, heat treatment and grinding, as well as back-end processes such as polishing, electroplating and assembly. Through the manufacturing process, there is a need for close collaboration and support

between “center” companies and “satellite” component suppliers.

Taiwan’s hand tool industry is largely oriented towards exportation; it is a classic example of an export-oriented contract manufacturing industry. In all, there are around 320 Taiwanese hand tool brands, the competition between which tends to be based on price. During the period 1998–2002, Taiwan had the highest hand tool export value of any of the 21 top hand tool producer nations, and was known as the “hand tool kingdom.” However, in recent years, Taiwanese hand tool makers have faced growing competition from emerging markets, and particularly from China, which has been able to exploit its cost advantage to become a major competitive threat in the mid-range and low-end hand tool segments. In 2003, China overtook Taiwan to become the world’s largest hand tool producer nation.

According to Taiwan R.O.C. import/export statistics, as of 2008 the most important product categories for the Taiwanese hand tool industry included machinery repair tools, DIY tools and agricultural, forestry and gardening tools. Annual exports had exceeded NT$50 billion every year since 2003, rising to NT$55.89 billion in 2008; however, Taiwan had been pushed back into third place in the global hand tool export rankings by Germany. In 2009, the volume of overseas orders fell dramatically due to the impact of the global financial crisis; as a result, the industry’s annual export value in 2009 was just NT$42.96 billion, only slightly higher than the NT$42.67 billion posted in 2002. In 2010, exports recovered to some extent, rising to NT$53.9 billion, but this was still below the pre-crisis level.

(2) The “T-Team” Hand Tool Industry Alliance

2008 saw the formal establishment of the T-Team alliance by the Taiwanese hand tool industry. The main objective behind the formation of this new alliance was to find ways to maintain the competitiveness of the Taiwanese hand tool industry in global markets. The idea is that the relationship between the core manufacturers and supporting suppliers that make up the alliance should not be confined to component purchasing; instead, the supporting firms will be viewed as an extension of the core manufacturers’ production lines, with both parties working together to achieve synchronization and rationalization of production, management and R&D, thereby facilitating an ongoing enhancement of product quality, reduction of production costs, and shorter delivery times, and in doing so creating maximum value both for customers and for themselves.

Following its establishment in 2008, initially the T-Team focused on making effective use of the resources available within the hand tool industry cluster, sharing know-how and technology, and working to help the companies that make up the King Tony Tools center-satellite system to upgrade their supply chain management capabilities, so that supporting firms are transformed from enterprises that undertake just a single process into module supplies with some degree of system integration capability.

As regards the impact of the T-Team on the Central Taiwan hand tool industry cluster, this is most apparent in the effects on factor conditions; the formation of the T-Team was particularly effective in enhancing satellite firms’ production management capabilities (it did not prove possible to expand the initiative to cover the strengthening of R&D capabilities). The T-Team alliance ceased operation in 2010 due to the impact of the global financial crisis, which led to a

dramatic falling off in the volume of orders received by hand tool makers in Taiwan. Key factors behind the T-Team's demise included the failure of the alliance to secure the involvement of one of the larger, better-known hand tool vendors, the failure to bring about the anticipated establishment of the Taiwan Tool Elite League (TTEL), and the lack of "bellwether" firms that could have helped to strengthen cohesion among T-Team member companies. Any attempt to revive the T-Team or establish a similar alliance in the future will require a greater degree of participation by member firms and increased depth of collaboration; some mechanism for excluding firms that fail to make a contribution to the alliance will also be needed, along with an alliance strategy based on mutual trust and mutual support.

(3) The Metal Hand Tool Manufacturing Industry R&D Alliance

Faced with competition from low-priced tools manufactured in China and elsewhere, Taiwan's hand tool industry needs to move away from the production of low-end products and products that are already in the mature stage of the product life-cycle, and instead focus on designing innovative, high-precision, multi-function products that also conform to the trend towards ergonomic design. By enhancing product quality and value-added, Taiwanese hand tool makers can differentiate themselves from rivals whose main selling point is low cost, thereby helping to maintain the international competitiveness of Taiwanese hand tool products. With funding support from the Department of Industrial Technology (MOEA) "Traditional Industries Value-added Innovation and Technology Support Plan," the Metal Industries Research & Development Center has brought together hand tool manufacturers and universities to form the Metal Hand Tool Manufacturing Industry R&D Alliance, to collaborate on the development of high-precision digital tool sets that will help the Taiwanese hand tool industry to meet the needs of the international high-precision equipment maintenance market, while also enhancing the brand image of Taiwanese hand tool manufacturers in line with the government's "Branding Taiwan" initiative.

4. Case Studies of Inter-firm Collaboration Contributing to the Upgrading and Transformation of Taiwan's Water Supply Fittings Industry Cluster

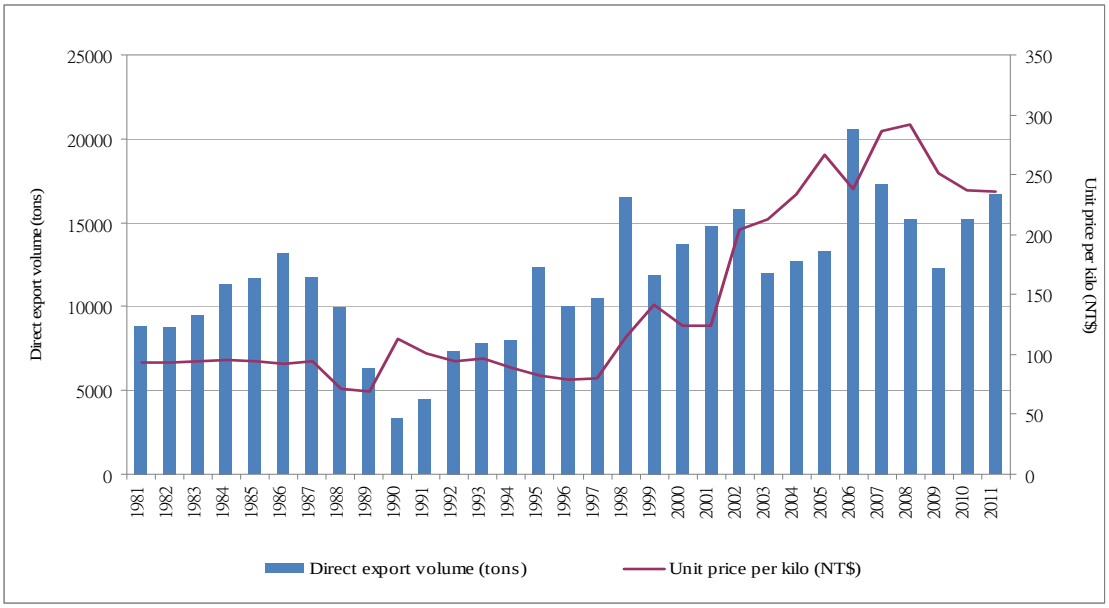
(1) The Current State of Development of Taiwan's Water Supply Fittings Industry Cluster

The water supply fittings industry manufactures products that include control valves, hydrants, pumps, etc. According to the 2006 Industry, Commerce and Service Census compiled by the Directorate-General of Budget, Accounting and Statistics (DGBAS), Executive Yuan, Taiwan has 1,185 firms engaged in the manufacturing of water supply fittings, employing a combined total of 17,904 people, or an average of approximately 15 employees per firm. The water supply fittings industry is thus an industry dominated by SME-sized firms, with the main industry cluster located in Changhua County.

Changhua County's water supply fittings manufacturers mostly started off as small, family-run workshops. Over a period of several decades, these firms have built up considerable experience in the manufacturing of water supply fittings; they have succeeded in leveraging the benefits of clustering to lower costs and to build competitive advantage based on the ability to supply high-quality products with short lead times. The firms that make up the Changhua County

cluster manufacture a comprehensive range of different types of water supply fittings products, making it possible for firms to support one another through an efficient division of labor.

Figure 6-2-3 Export Volume and Export Value of Taiwan's General Bronze or Brass Control Valves Manufacturing Industry



Source: Department of Statistics, Ministry of Economic Affairs, Industrial Products Grouping Database.

According to the Industrial Product Grouping Database compiled by the Department of Statistics, MOEA, in 1990 Taiwan's exports of "General bronze or brass control valves" (2933) fell to 3,373 tons, the lowest level for many years, then rose to a historic high of 20,586 tons in 2006. Exports of this product category fell to 12,324 tons in 2009 as a result of the global financial crisis, but then rose again to 16,686 tons in 2011. The unit price of exports has risen slowly but steadily, climbing from NT$92.96 in 1981 to NT$236.38 in 2011 (Fig. 6-2-3). Whereas in the 1990s the Taiwanese water supply fittings industry experienced a decline in export volume due to the upward revaluation of the NT Dollar and the relocation of production to China by many firms, subsequently, thanks to the introduction of automated production equipment and more advanced manufacturing technology, both export volume and export value have tended to rise, reflecting an ongoing process of upgrading and transformation in the industry.

(2) The Plumbing Association of Taiwan

In the 1970s, the manufacturing of faucets (taps) and other brass water supply fittings was already highly developed in the Ting-fan district of Lukang Township, Changhua County, which at that time was known as Taiwan's "faucet kingdom." However, by the 1980s the water supply fittings industry was being affected by rising wages and increasing environmental consciousness within Taiwan, and by increasingly fierce competition from low-priced Chinese and Southeast Asian products overseas. As a result, many Taiwanese water supply fittings manufacturers relocated production to low-wage countries. Today, only around 600 manufacturers remain in Taiwan;

however, the Lukang area has retained its status as the home of Taiwan's largest water supply fittings industry cluster. Local firms, government agencies and universities came to the conclusion that a new platform was needed that could help to integrate local metallurgical technology and production resources to promote the upgrading and transformation of the industry; as a result, the Plumbing Association of Taiwan came into being in September 2008. According to the 2012 Taiwan Water Supply Hardware Yearbook, the Association currently has around 95 members, including water supply fixtures manufacturers, bathroom fittings manufacturers, trading companies, and international certification bodies such as NSF International.

(3) The "Taiwan Aqua Professionals" alliance

Currently, the Taiwan Aqua Professionals alliance has 13 member companies. There is sufficient differentiation between these firms to create a comprehensive horizontal division of labor and facilitate collaborative market development. The "T.A.P." brand that the alliance has established has already secured orders from leading U.S. kitchen equipment vendors, and the existence of this brand has helped to make foreign buyers more aware of the Taiwanese water supply fittings industry and its products, such as automatic sensor-operated faucets, etc.

III The Experience of Other Nations in Promoting Industry Cluster Development

1. Industry Cluster Development in Ota Ward, Tokyo

Tokyo's Ota Ward (now Ota City) is home to one of Japan's best-known SME industry clusters. Following the end of the Second World War, there was a rapid upsurge in demand for household machinery components, with the Korean War providing a further boost to demand. The 1950s saw dramatic growth in the volume of orders received by manufacturing enterprises located in Ota Ward, encouraging even more manufacturing firms to locate themselves there, and leading to the formation of a fully-fledged industry cluster. However, in the 1960s the larger manufacturers began to relocate production to other parts of the country, leaving behind the SME-sized contract manufacturers. The relocation of the larger manufacturers forced the SMEs to become less reliant on these large corporations for business; they began to adopt a more proactive stance towards securing new orders for themselves. The reduction in orders caused by the first oil shock in 1973 provided further impetus to reduce dependency on the larger manufacturers. A new business model emerged, in which individual SMEs worked actively to raise their technology level, and did business with a multiplicity of different customers.

The number of factories located in Ota Ward peaked in December 1983 at 9,190. By the end of 2008, it had fallen to 4,362 factories, less than half the 1983 figure, while the total number of people employed in the cluster had fallen by two-thirds. The factors behind the continued decline in the number of employees include the tendency for Ota-based companies to establish overseas production locations, as well as the unwillingness of the younger generation to take over the running of their parents' firms. Nevertheless, Ota Ward has continued to benefit from its proximity to Tokyo's Haneda Airport, and from support provided by the local government authorities. The last few years have seen a renewed increase in the number of young people starting work at firms

located in Ota Ward, and in the number of start-ups locating themselves in the Ward. SMEs in the machinery and metal-working sectors are starting to exploit the extensive network of personal contacts that can be accessed within Ota Ward by creating a division of labor based on mutual support, in response to the increasingly diverse range of orders being received. In addition, many SMEs in Ota Ward have been working to strengthen their ability to provide customized products, in order to meet the special needs of universities and research institutes; these firms see diversification as being a viable strategy.

In March 2009, Ota Ward formulated the "Ota Mirai Plan," which embodies a new vision for keeping the Ota Ward industry cluster alive and viable. The Plan includes five key elements: (1) Implementing a factory location strategy that will help to maintain and strengthen the manufacturing industry cluster. (2) Strengthening the provision of management consulting to facilitate communication and discussion regarding order placement and order receipt, thereby helping firms to enhance their overall operational capabilities. (3) Providing support for overseas market development, focusing in particular on the Asian market. (4) Providing support to help firms located in Ota Ward develop new markets such as environmental protection, healthcare, and aviation. (5) Cultivating a new generation of business owners and managers by stepping up the provision of support in this area. In line with the Ota Mirai Plan, in 2009 the Japanese government began to provide funding support for the establishment of new factories (and expansion of existing factories) in Ota Ward, with the aim of strengthening the cluster's competitiveness; the government has also expanded the range of firms eligible for subsidies to help them develop new products and new technologies. Prior to that, in 2000, Ota Ward had begun implementation of a new industrial / residential district development plan; with the provision of convenient information services by both the Ota Ward Office and Tokyo Metropolitan Government, and with the relative ease with which networks for inter-firm collaboration could be built given the presence of a pre-existing industry cluster within the area, many enterprises were encouraged to relocate their main factories to the new industrial / residential district.

The Ota City Industrial Promotion Organization is a public interest corporation established to support the continued expansion of Ota Ward's hi-tech industry cluster and help firms in the Ward respond effectively to the transformation of the region's industrial structure. The Organization's Directors include government officials from the Ota Ward Office, local industry leaders, university professors, certified public accountants, etc. The Organization provides consulting services and a venue for discussion and exchange for those enterprises that are interested in developing new business opportunities, while also helping to improve welfare provision for workers. As regards business matching activities, the Organization provides supporting services for various exhibitions and business fairs. For example, the Organization has organized a "Processing Technology Exhibition and Business Fair, at which Ota Ward-based enterprises possessing advanced, high-precision processing technology in the fields of metal machinery process, mold and die making, heat treatment, etc., have had the opportunity to present their outstanding technology to potential customers. In addition, to facilitate the development of new markets, the Organization also helps local firms to attend trade shows, both in Japan and overseas, on a joint basis, so as to leverage economies of scale in securing new orders. In terms of managerial and technology support, the Organization arranges competitions to identify first-rate new start-ups and entrepreneurs, and

also gives firms opportunities to showcase their new products and new technologies. The Organization has put in place a wide range of support programs, including PR and advertising funding support for firms seeking to expand their distribution channels, business start-up consulting, etc. As regards talent cultivation, the Organization helps to match SMEs with talented young people, and has also set up a recruitment website. The Organization has also established an Ota Ward Young People's Club, which provides children in the fourth grade to junior high school age range with opportunities to experience the excitement and interest of manufacturing, and arranges visits to factories, thereby helping to cultivate Ota Ward's future manufacturing talent. Besides the measures outlined above, the Organization also provides opportunities for industry-university collaboration and exchange, including the sponsoring of conferences at which university professors give talks on the latest technologies, potentially paving the way for the commercialization of these new technologies.

2. France's Experience in Promoting "Pôles de Compétitivité" ("Competitive Clusters")

Faced with declining industries and a widespread trend for French companies to relocate production overseas, in 2000 the French government began to formulate a strategy that was intended to bring about an across-the-board enhancement of France's industrial competitiveness. Subsequently, following recommendations made by the Comité Interministériel Aménagement et Compétitivité des Territoires (CIACT), in September 2004 the French government launched the "Pôles de Compétitivité" ("Competitive Clusters") policy initiative, whereby the 22 Metropolitan Regional governments were asked to draw up plans for developing their regions' more competitive industry clusters, for submission to CIACT. As of July 2007, a total of 74 industry cluster development plans had received approval from CIACT.

"System@tic Paris-Réon" is one of the industry clusters in the Ile-de-France region whose inclusion in the "Pôles de Compétitivité" scheme has been approved by CIACT. The main focus of development for this cluster will be on the transportation, telecommunications and defense industry sectors, with the aim of strengthening France's status as a world leader in complex electronic systems, particularly electronic navigation, monitoring and control systems for use in commerce, finance, healthcare, security, energy and transportation. The cluster includes many leading integrated system design, computing and system maintenance firms, including Alcatel, EADS, France Télécom, Motorola, Renault, and Sagem.

The agency established to guide the cluster's operations is called System@tic. Its main functions include: (1) Coordinating the leadership functions of local industrial development agencies to ensure ongoing promotion of technology R&D activity in the Paris region. (2) Supporting the growth of SME start-ups and technology-intensive SMEs, and encouraging them to develop global markets. (3) Making the whole world aware of what Paris has to offer, so as to encourage business enterprises to locate their R&D centers in Paris. Currently, System@tic has more than 500 member organizations, including just over 100 large enterprises, more than 300 SMEs, and 80 research institutes and universities; between them, these organizations employ approximately 102,000 people. System@tic has been working actively to encourage participation

by SMEs, with the aim of ensuring stable, sustainable development for the cluster. To be eligible to join, an SME must have its corporate headquarters located in the Ile-de-France region, and the technology used by the SME must fall within the specified scope. System@tic thus involves the proactive use of industry cluster development policy to encourage SMEs with strong technological capabilities to locate themselves, and remain in, the Ile-de-France region.

Over the period 2005–2010, central and local government authorities and private-sector firms and organizations invested a total of 11 billion Euros in 245 R&D projects in the System@tic cluster, of which 89 projects were related to electronic systems design and development tools, 49 to national defense, 53 to communications, 33 to vehicular transportation, and 21 to open-source software. System@tic member firms note that the System@tic platform not only helps firms with outstanding technological capabilities to obtain funding more easily, but it also creates enhanced opportunities for exchange and collaboration between SMEs and large enterprises, thereby permitting the maximization of innovation- and R&D-related synergy between cluster members.

3. Germany's Experience with Implementation of the "Spitzencluster-Wettbewerb" ("Leading-Edge Cluster Competition") Initiative

In August 2006, the German Federal Government coordinated the integration of the resources of all of Germany's major government agencies to formulate a new "High-tech Strategy for Germany." This was the first time that Germany had ever drawn up a comprehensive, national-level R&D and innovation strategy; the aim of the strategy was to make Germany a world leader in research by 2020. The "Spitzencluster-Wettbewerb" ("Leading-Edge Cluster Competition") initiative, directed by Germany's "Bundesministerium für Bildung und Forschung" (BMBF) (Federal Ministry of Education and Research), constitutes the single most important component element of the Strategy. The first stage of the "Spitzencluster-Wettbewerb" project was implemented between 2006 and 2009; implementation of the second stage began in 2010. To be designated as a "leading-edge cluster," a region must conform to the following three requirements: (1) Solid foundations must already be in place, along with the capabilities needed for successful cluster development. (2) It must possess innovation capability, specialist capabilities and competitiveness, and must have a strategy for achieving a further enhancement of these strengths. (3) The area must already possess significant real capabilities, and there must be reasonable grounds for predicting that the commercialization of its research results will bring significant financial benefits both to individual investors and the economy as a whole. The "Biotechnologie-Cluster Rhein-Neckar" (Bio-RN) is a typical "Leading-Edge Cluster."

In 1996, when the German Federal Government began implementation of the "Bio Region" plan, the Rhein-Neckar region (also known as "Region Rhein-Neckar," "Metropolregion Rhein-Neckar," and "Rhein-Neckar-Dreieck") was selected as one of three regions in Germany where a major effort would be made to develop the biotech industry. In September 2008, this region was designated the "Bio-RN Cluster" under the "Spitzencluster-Wettbewerb" scheme, and BioRN Cluster Management GmbH was established to serve as the operational support body for the cluster; BioRN Cluster Management GmbH formally commenced operations in March 2009.

The project for the development of the Bio-RN cluster includes two key strategies: (1) Focusing on private-sector enterprises as the core element in the cluster's activities; and (2) Not imposing size requirements when deciding which firms should receive subsidy support. The key objective behind the Bio-RN Cluster development plan is to integrate research results more closely with economic benefits in terms of investment, new product commercialization and job creation in the region, in order maximize funding source creation. If priority in the allocation of subsidies had been given to universities and research institutes, then a high percentage of the funding might have ended up being used for basic research that does not make a meaningful contribution towards stimulating regional economic development. It was therefore important that the plan should contribute to the creation of an environment in which maximum use is made of new product commercialization by private-sector firms, with universities playing a supporting role in helping firms to solve fundamental technical problems. As regards the size of enterprises to which financial subsidies are provided, given that SMEs tend to display more frequent innovation, today, countries throughout the European Union are giving priority to SMEs rather than large enterprises when it comes to subsidy provision. However, the Bio-RN Cluster plan takes the view that large enterprises have their own unique strengths, in terms of their ability to commercialize products and bring them to market rapidly; the plan therefore provides the same level of subsidy – 50% of overall project funding requirements – for both large enterprises and SMEs.

The member organizations of BioRN Cluster Management GmbH include 77 biotech-related SMEs, 3 large enterprises, and 6 universities and research institutes. All of these organizations are located within a 30km radius of BioRN Cluster Management GmbH's headquarters; it is anticipated that this close geographical proximity will contribute to more intensive contact and exchange between local businesspeople, academics and researchers. The staff of BioRN Cluster Management GmbH's administrative secretariat consist mainly of project managers and advertising/PR specialists; these personnel work actively to promote technology transfer, support patent applications, arrange clinical trials, assist in the search for partners for collaborative R&D projects (for example by matching cluster member firms with enterprises from outside the cluster), and provide laboratory and office services, etc. The secretariat is also actively involved in recruiting outstanding bio-tech talent from other regions, with the aim of cultivating R&D project management talent for the cluster. BioRN Cluster Management GmbH works closely with other local organizations, including the Bio-RN Association, Heidelberg Technology Park, the Rhine-Neckar Chamber of Commerce, and the Rhine-Neckar Metropolitan Region, on industrial cluster planning activities, thereby ensuring effective coordination of the utilization of Federal Government and regional government resources. As far as the anticipated results are concerned, BioRN Cluster Management GmbH aims to secure approximately 40 million Euros worth of BMBF subsidies within five years, while at the same time stimulating around 40 million Euros of private-sector investment, and supporting implementation of 36 R&D projects that will make a meaningful contribution to regional economic development.

IV Strategies for SME Cluster Upgrading and Transformation

Based on the analysis of domestic and overseas case studies presented above, it is suggested that the following strategies could be adopted when seeking to use an inter-firm collaboration model to promote industry cluster upgrading and transformation.

1. Taking Core Enterprises and Key Individuals as the Axis around Which a Foundation of Mutual Trust can be built

During the early stages of getting a multiplicity of SMEs to collaborate with one another, because the firms are still "getting to know each other," there is a need to build cohesion. It is vital to have core enterprises playing a guiding role, while also leveraging government resources and guidance agencies to provide support as needed. The core enterprises must possess technological capabilities that are above average for the industry, and must be operating on a reasonably large scale (or enjoying a high level of growth), in order to be able to exert a positive influence over other firms in the cluster and promote inter-firm collaboration and exchange. A further requirement when promoting activities related to inter-firm collaboration is the involvement of key figures who can play a leading role in the project, helping to plan out a strategy for the long-term development of the inter-firm collaboration model and coordinating the activities of the various firms, smoothing out any difficulties that may be created by inter-firm rivalry. The participation of these individuals is a vital prerequisite for laying the foundations of mutual trust and effective cooperation, which in turn will make it possible for the cluster to innovate and grow as a whole.

2. Establishing a Division of Labor Based on Mutual Benefit to Build Competitive Advantage Based on Production Efficiency and Flexibility

SMEs participating in inter-firm collaboration ventures need to re-examine their own core business strategy and core capabilities, and be proactive about letting other member firms know what their particular areas of technical expertise are, what resources they have available to share with others, and any areas where they are currently lacking. In this way, it should be possible to enhance the level of inter-firm understanding, and build a division of labor between firms based on mutual benefit and synergy. If the SMEs participating in an inter-firm collaboration initiative adopt an opportunistic, excessively cautious mindset and are reluctant to reveal information about themselves to others, then the attempt at inter-firm collaboration will become a pointless waste of time and money. It is also important for the alliance secretariat or industry development association that is playing the coordinating role for the inter-firm collaboration network to analyze the operational data of the participating firms, so that maximum benefit can be gained from individual firms' technological expertise and experience, with firms within the network providing technical support for one another, thereby helping the network as a whole to build competitive advantage in terms of its production efficiency and the flexibility of its operations, while at the same time being able to secure orders for high-complexity, high-value-added products.

3. Building an Environment of Healthy Competition, and Encouraging Firms to Learn from One Another in Terms of R&D, Production and Marketing

Inter-firm collaboration projects should incorporate clear mechanisms for member firm entry and exit. The aim should be to build a consensus among participating firms regarding the need for hard work and effort, and discouraging opportunistic behavior, thereby creating an environment in which firms can interact with and collaborate with one another with confidence and peace of mind. As regards efforts undertaken in Taiwan to promote the development of particular industries, many inter-firm collaboration bodies stipulate that members must have production or R&D facilities located in Taiwan, that they must hold relevant product quality certification, that they must be willing to work to develop a genuinely Taiwanese brand, and that they must be willing to learn from (and teach) others. Behavior that will usually leave members liable to expulsion includes stealing orders from other member firms, engaging in product piracy, refusing to take responsibility for the quality of their own products, and having no production or R&D facilities located in Taiwan, etc. In addition, inter-firm collaboration bodies should try to hold frequent learning-type activities at which member firms can become more familiar with one another and share knowledge and know-how. Activities of this sort can also help to create an atmosphere of "transparent, healthy competition," based around the idea that "You're good, but I can be even better," and encourage firms to learn from one another when it comes to R&D, production and marketing.

4. Developing Local Technical Specialization that is Difficult to Transfer or Imitate

In terms of technical capabilities, that which differentiates individual SMEs from their competitors is usually the firm's highly-skilled technical specialists. This technical expertise is usually closely linked to the regional cluster in question; it is not something that has been imported from another region or from overseas, but is rather the fruit of the accumulation of experience through trial and error during the process of handling a wide range of different types of order over the years. For example, it may be that only firms in a given locality possess particular casting or forging skills, etc. An SME-oriented inter-firm collaboration strategy needs to consider how best to integrate the technical resources that the region in question has built up over time, and how to prevent firms with outstanding technical capabilities from going out of business or relocating production overseas. Keeping this kind of specialized technical know-how in Taiwan is vital if Taiwan's industry clusters are to be able to maintain their differentiation-based competitive advantage.

5. Enhancing the Benefits of Inter-firm Collaboration for Industry as a Whole, and Promoting the Ongoing Upgrading and Transformation of Industry Clusters

Over the last few years, government agencies in Taiwan have been working actively to implement guidance and subsidiary programs related to industry clusters. Examples include the Small and Medium Enterprise Administration's SME Clusters Innovative Integrated Service Project, the

Industrial Development Bureau's Local Industry Cluster Development Plan and Inter-System Collaborative Business Management Plan, the Department of Industrial Technology's Traditional Industry Value-added, Innovative Technology Development Support Plan, and the Bureau of Foreign Trade's Branding Taiwan initiative for helping industry clusters to develop shared brands. In all of these policy measures, the aim is to use the benefits obtained from various types of inter-firm collaboration models to stimulate local industrial development. The government's view is that the results achieved by inter-firm collaboration bodies should not be confined to the group's member firms; they should be diffused to neighboring SMEs, universities, research institutes and local government authorities, so as to create a knowledge spillover effect. As far as government policy initiatives are concerned, in the future the "four aspects" of Porter's Diamond Model could be used to enhance the impact that inter-firm collaboration has on the transformation and upgrading of industry clusters.

Firstly, as regards factor conditions, the government should provide incentives to encourage inter-firm collaboration bodies to work together with universities and research institutes on the joint holding of technology-related conferences and the organizing of management courses, with representatives of local SMEs being invited to take part to share their experience, thereby helping to strengthen the capabilities of local talent while also achieving a regional knowledge diffusion effect. Secondly, with regard to demand conditions, more could be done in terms of providing consulting, guidance and subsidy support to help inter-firm collaboration bodies formulate standard specifications, so as to enhance industries' ability to develop latent market demand.

With regard to related and supporting industries, steps should be taken to encourage linkage and collaboration between inter-firm collaboration groupings within the same region, thereby helping to strengthen the region's overall industrial competitiveness and encourage firms from outside the area that possess key technologies to establish a presence within the region, which in turn will help the industry cluster in question to keep renewing its knowledge and know-how. As regards firm strategy, structure and rivalry, assistance should be provided to help inter-firm collaborative bodies publicize and showcase their achievements, so as to encourage other firms within the area to adopt a learning-based competitive approach, stimulate the establishment of more inter-firm collaborative bodies, and enhance the atmosphere of healthy internal competition within the industry cluster.

CHAPTER 7

"Green" Business Opportunities for SMEs in an Era of Regional Economic Integration

In recent years, faced with the impact of increasingly frequent and severe storms, floods, droughts, earthquakes and other natural disasters, many of them related to climate change, countries throughout the world have begun to think more seriously about how they can strike the right balance between economic growth and environmental protection. At the same time, energy shortages have brought home to the world's citizens the need to husband resources. The global consensus regarding the need to save energy and reduce carbon dioxide emissions has stimulated the growth of "green industries." The range of products covered by these new industries is extremely broad; it includes everything from ordinary household goods to high-tech products, as well as packaging materials and textiles. Many countries are hoping that the development of green industries will help to stimulate the growth of the economy as a whole, while also fostering the growth of emerging industries of immense potential.

The measures being taken by governments to achieve energy conservation and carbon reduction have now expanded beyond the initial focus on drawing up international conventions, etc., to include requirements related to "green" production by business enterprises and "green" purchasing by consumers. Besides the various international agreements that have been signed, the regional economic groupings that have become increasingly important over the last few years have also been working actively to implement green regulation. For example, at the APEC Economic Leaders Meeting held in Hawaii in November 2011, the representatives of 21 economies agreed to undertake a serious effort to promote green trade, involving a substantial reduction in the tariff rates applying to green products; a list of green products – including solar panels, wind power turbines, air filters, etc. – would be drawn up in 2012, with the aim of reducing tariff rates on these products to under 5% by the end of 2015. It was also agreed that APEC economies would set themselves the target of reducing energy intensity by 45% by 2035, and would take steps to help business enterprises and ordinary citizens obtain important environmental technology at lower cost, thereby making a significant contribution towards global sustainable development.

Responding to the global trend towards green product development, leading international corporations have begun to insist that the manufacturers that make up their global supply chains undertake "inventory-taking" of their greenhouse gas emissions and the carbon footprint of their products, and make the information that they obtain publicly available. From the point of view of Taiwan's SMEs, which have for many years played an important role in the supply chains of major international corporations, in light of the trend towards regional economic integration, it is clearly very important to keep pace with this new trend, and to identify any new business opportunities that it may present.

Given that green industry development has its origin in the various international environmental protection agreements that countries have signed, which have been followed by a spreading of environmental awareness as a result of which people throughout the world have gradually forged a consensus regarding the importance of energy conservation and carbon reduction, thereby making the emergence of green industries possible, this chapter will begin with an overview of the major international agreements and regulations, as well as the green policy initiatives adopted by the governments of major nations, before going on to examine the trends in green industry development, and to analyze the development of green industries in Taiwan and the various government subsidiary programs that have been introduced to support them. The final section of the chapter presents a number of policy recommendations.

I Important International "Green" Regulations and New "Green" Policies Adopted by Other Nations

The major international environmental and energy-related regulations and standards include the Montreal Protocol, the United Nations Framework Convention on Climate Change, the Kyoto Protocol, the Basel Convention, etc. The Montreal Protocol was mainly intended to protect the ozone layer through the phasing out of production of substances responsible for ozone depletion. The purpose of the United Nations Framework Convention on Climate Change (UNFCCC) was to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, while the Kyoto Protocol was formulated as a supplementary protocol to the UNFCCC which set greenhouse gas reduction targets and a timetable for these reductions, with the aim of preventing dramatic climate change that could pose a serious danger to humanity. The aim of the Basel Convention, which was drawn up by the U.N., is to regulate the trans-national transportation of hazardous waste which could otherwise cause serious environmental pollution.

The impact of these major international environmental and energy-related agreements on industry has been felt most directly by the environmental industries, and has been reflected first and foremost in endogenous change within the industrial value chain. As environmental industries are usually oriented towards the domestic market of the country where they are located, national industrial policy and industrial development strategy can play an important role in guiding the way "green" industries develop. The following section begins by outlining the "Green New Deal" and the background to this concept, before going on to discuss the main "Green New Deal" policies that have been implemented by other nations around the world, with the aim of gaining a clearer understanding of how the green industries are likely to develop in the future.

1. The Content of the "Green New Deal"

The "Green New Deal" concept originated in a speech given by U.N. Secretary General Ban Ki-moon in Poznan, Poland on December 11, 2008, on the occasion of the COP14 and CMP4 meetings, in which he urged countries to work together to develop a "Green New Deal" that would see investment being guided into areas related to the combating of climate change and to the promotion of "green" economic growth and employment creation, so as to preserve the natural

ecological systems that underpin the global economy, and help overcome the dual threat of climate change and economic recession. In February 2009, the United Nations Environment Programme (UNEP) published the *Global Green New Deal (GGND)* report, which set three key goals for stimulating global economic recovery, creating "green" jobs, and meeting the U.N.'s Millennium Development Goals (MDGs) (Lu, 2010).

According to the UNEP's *Global Green New Deal (GGND)* report, the three key objectives of the "Green New Deal" are as follows:

1. Revive the world economy, create employment opportunities and protect vulnerable groups.
2. Reduce carbon dependency, ecosystem degradation and water scarcity.
3. Further the Millennium Development Goal of ending extreme world poverty by 2025.

The Green New Deal covers three categories of policy measures:

1. The green industry-related aspects of the US$3 million in additional spending which governments were planning to implement to stimulate global economic recovery.
2. Implementation of domestic reforms to stimulate successful domestic investment in the green economy.
3. Reforming international policy frameworks and international collaboration methods, while promoting and supporting national-level plans.

In addition, the U.N. expects the principle of "common but differentiated responsibilities" to be upheld with regard to developed countries, emerging economies, countries with economies in transition, and least developed countries. The U.N. takes the view that a fair and just Global Green New Deal should consider including developed countries' additional support to other countries, especially least developed countries, in the areas of finance, trade, technology and capacity building, in the interests of effectiveness as well as fairness. With regard to national stimulus packages and policies, emerging economies, countries with economies in transition, and least developed countries, all have their own particular circumstances to deal with. Their priorities may therefore be different from those of developed countries when it comes to large-scale public spending programmes and policy measures. The policy measures proposed by the UNEP are therefore not prescriptions with universal applicability; they need to be adjusted according to the actual circumstances existing in individual countries.

2. New Green Deal Policy Measures Initiated by Other Nations

(1) The U.S.A.

Lu (2010) notes that, during his election campaign, President Obama promised to implement a "New Energy for America" policy initiative, which would include long-term planning to combat global warming, and reduce America's reliance on imported oil, etc. It was anticipated that this initiative would lead to clean energy development plans worth more than US$150 billion within ten years, and would help to create 5 million new jobs. In order to achieve the "New Energy for America" long-term goals, on February 17, 2009 President Obama signed into law the *American Recovery and Reinvestment Act*, which used fiscal expenditure, tax reductions, etc. to support environmental protection and energy measures worth around US$60 billion (Table 7-1-1).

Table 7-1-1 Major U.S. Stimulus Policies Related to Environmental Protection and Energy

Policy Tool	Measure	Size
Expenditure	Strengthening "Smart Grid" infrastructure	US$11 billion
	Subsidies to state governments for energy efficiency improvement and energy conservation plans	US$6.3 billion
	Loan guarantees for renewable energy (wind power and solar energy) projects	US$6 billion
	Subsidies to help low-income households insulate their homes better	US$5 billion
	Improving the energy efficiency of the Federal Government	US$4.5 billion
	Developing new technologies for using hydrocarbons (clean coal technology, CCS technology, etc.)	US$3.4 billion
	Subsidies for U.S.-made next-generation batteries	US$2 billion
Tax Breaks	Extending tax breaks for renewable energy businesses	US$13.1 billion
	Expanding the scope of tax breaks for household investment in energy saving (up to a maximum of US$1,500 per household)	US$2 billion
	Tax breaks for the purchase of hybrid cars, etc.	US$2 billion

Source: Lu Hui-min (2010).

According to estimates compiled by the U.S. government, as of the end of 2010 the *American Recovery and Reinvestment Act* had, directly or indirectly, created 459,000 jobs (305,000 direct and 153,000 indirect). 46% of the new jobs were created in 2009, with 41% in 2010. In other words, this new energy related policy has created over 200,000 jobs in just the first year of implementation.

(2) The European Union

According to data compiled by the Department of Overall Planning, Council for Economic Planning and Development (2010), the Climate-Energy Legislative Package and the Strategic Energy Technology Plan (SET Plan): Investing in the Development of Low Carbon Technologies can be viewed as constituting the EU's "New Green Deal." These policy measures are leading the EU towards a new green growth model based on a low-carbon economy.

The Climate-Energy Legislative Package, which was approved in April 2009, aims to bring EU greenhouse gas emissions down to a level 20% below the 1990 level by 2020, while increasing renewable energy's share of overall energy consumption to 20% and improving energy efficiency to 20%. The SET Plan, which was launched in October 2009, was intended to provide an additional 50 billion Euros in investment over the ten-year period from 2010 to 2020 to speed up the development and adoption of cost-effective low-carbon technology. The SET Plan incorporates three main elements. The European Industrial Initiatives involves sustainable development of seven industries, with total funding of over 53 billion Euros. The seven industries in question are: Photovoltaics and CSP (16 billion Euros), carbon capture and storage (13 billion Euros), biomass energy (9 billion Euros), nuclear energy (particularly Generation-IV reactors) (7 billion Euros), wind power (6 billion Euros), Smart Grid development (2 billion Euros), and fuel cell and hydrogen energy (0.47 billion Euros). Energy Efficiency – Smart Cities Initiatives involves the allocation of 11 billion Euros of funding to encourage individual cities and regions to try to reduce greenhouse gas emissions by the impressive level of 40%. The European Energy Research Alliance (EERA) project will involve the allocation of 5 billion Euros in funding support to enhance collaboration on energy research between EU member states, encouraging EU member states to work together on research plan formulation and implementation, to reduce the time needed for

commercialization of research results, and to use the European University Association to recruit first-class energy R&D talent.

The "EU 2020" vision which was announced in late March 2010 re-emphasized the three energy conservation and carbon reduction targets set by the Climate-Energy Legislative Package, and encouraged EU member states to use these targets as the basis for drawing up national targets and plans.

(3) Japan

As reported in Lu (2010), on April 20, 2009 Japan's Ministry of the Environment announced a new "Innovation for Green Economy and Society" policy, which constitutes the Japanese version of the "Green New Deal." This policy has set the following targets for achievement by 2020: (1) Promoting the widespread adoption of energy-saving home appliances, next-generation vehicles and energy-saving homes; (2) Developing the world's most efficient, managerially-effective environmental industries; (3) Making effective use of individual regions' natural resources and human talent; (4) Implementing "Compact Cities" to help keep Japan beautiful; (5) Promoting recycling and reuse of resources, reduction of carbon dioxide emissions, and effective utilization of renewable energy, so as to preserve resources and energy supplies. It is anticipated that, through the setting of these targets, the annual market value of the environmental industry market in Japan can be increased from 7 trillion Yen in 2006 to 12 trillion Yen in 2020, while raising the number of people working in this industry from 1.4 million in 2006 to 2.8 million in 2020.

Japan has identified a number of "Environmental Model Cities" in the Asia-Pacific region. Japan's Ministry of the Environment, NPOs and other non-governmental organizations, the Japan International Cooperation Agency (JICA), Japanese and overseas enterprises, research institutes, universities etc. will be collaborating with other Asian nations on the development of the environmental industries, thereby helping to achieve the widespread diffusion of Japanese environmental technology, while also providing stimulus for economic growth in Japan. To ensure the smooth implementation of these measures, Japan has joined forces with universities, research institutes, industry and government agencies in various parts of Asia to organize conferences and provide relevant information, while strengthening the incentives for Japanese enterprises, universities and research institutes to develop technologies for combating environmental pollution, etc.

(4) South Korea

As noted in Luo (2011) and a report by the Industrial Development Bureau, MOEA (2009), on August 15, 2008, during the celebrations held to mark the 60th anniversary of the founding of the Republic of Korea, South Korean President Lee Myung-bak announced that "low-carbon, green growth" would be South Korea's new national vision. He also stated that South Korea would be moving away from growth dependent on hydrocarbons that emphasized volume of production towards a new emphasis on quality through the utilization of new and renewable energy sources. 2008 saw the establishment of a Presidential Committee on Green Growth (PCGG). During the PCGG's fourth meeting, on July 6, 2009, it was announced that South Korea would be implementing a Five-year Plan for Green Growth, with the aim of putting South Korea among the world's top seven "green superpowers" by 2020.

The Five-year Plan for Green Growth includes three overall objectives – mitigation of climate change and improvement of energy independence, creation of new growth engines, and improvement in the quality of life and enhancement of international standing – and ten policy directions. Under this Plan, South Korea will invest an amount equivalent to 2% of GDP every year for the next five years, for a total of around 107 trillion Won. The goal is to make South Korea a "Top 7 Green Nation" by 2020, and a member of the Top 5 by 2050. South Korea is also aiming to cut its greenhouse gas emissions by 30% by 2020, boost its utilization of new energy sources by 6.08%, secure a global market share of 10% for its green technology, and boost the "green product" exports of South Korea's major industries by 22%. On January 13, 2010, the South Korean government promulgated a *Framework Act on Low Carbon, Green Growth*, which requires the government to draw up a five-year plan (each looking ahead 20 years into the future) every five years.

In its Strategy for the Development and Commercialization of Outstanding Green Technology, the PCGG has identified 27 core technologies, which will serve as the basis for both short-term and long-term planning of government investment in this area. Currently, the South Korean government has designated 10 key green technologies for which R&D subsidies will be provided: rechargeable batteries, LEDs, green ICT, photovoltaics, green vehicles, smart grid technology, advanced nuclear power technology, fuel cells, carbon capture and storage (CSS), and water resource treatment technology. In addition, to boost investment, the South Korean government has created new "green government bonds" and deposit accounts, the interest on which is not liable to tax, and has established a 500 billion Won "green foundation" to facilitate smooth access to funding for green projects.

As a result of this top-down promotion by the government, South Korean enterprises have begun to step up their investment in green technologies, and to adjust the structure of their operations accordingly. During the period 2008 – 2010, 30 leading Korean business groups invested a combined total of 15.1 trillion Won in green business areas, with an annual rate of increase in the scale of investment of 74.5%. It was anticipated that the period 2011 – 2013 would see a further 22.4 trillion Won of investment, potentially creating up to 960,000 jobs in "green" industries.

Since 2008, the number of renewable energy-related firms in South Korea has risen by 220%, the number of people working in such firms has grown by 360%, sales have risen by 650%, renewable energy-related exports have risen by 590%, and private-sector investment in this area has increased 5-fold. As regards the "greening" of traditional industries, South Korea's Ministry of Knowledge Economy has identified 11 key industries where special efforts will be made to achieve competitiveness in green terms: iron and steel, the automotive industry, semiconductors, the petrochemical industry, shipbuilding and marine transport, display manufacturing, textiles, machinery manufacturing, and the digital home appliance industry; these industries will also be restructured, and efforts made to make the industries' overall value chains more environmentally friendly.

In addition, in light of the fact that existing green technology tends to bear a significant level of financial risk, and a considerable period of time tends to elapse before investment in such technology

can be recouped, in 2010 South Korea began to implement a “Green Certificate” program, integrating a wide range of related business areas and technologies to combat the lack of confidence that investors often feel in green technology. This program includes provision for special loans and preferential interest rates, as well as preferential treatment with respect to participation in public R&D projects, government purchasing, market development activities, etc., as well as preferential access to low-wage labor from young men performing alternative national service.

(5) China

According to a report compiled by consulting firm CEC in 2011, examples of the “Green New Deal” in China include a provision in the “Green Energy – Building a Resource-conserving, Environmentally-friendly Society” section of Chapter Six of China’s Twelfth Five-year Plan stipulating that China must become more aware of the threat posed by steadily worsening environmental constraints, and must work to establish a green, low-carbon development model. The specific measures referred to include active efforts to combat global climate change, strengthened resource conservation and management, aggressive development of recycling, providing greater protection for the environment, promoting environmental awareness and efforts to undo damage that has already been caused to the environment, and enhanced irrigation and disaster prevention infrastructure building, etc.

According to estimates compiled by the Chinese Academy for Environmental Planning, around 3.1 trillion Yuan of investment in environmental protection will be needed during the period of implementation of the Twelfth Five-year Plan, more than twice as much as was invested during the execution of the Eleventh Five-year Plan. Investment in key environmental areas – including urban waste treatment, sewage treatment, denoxification and desulfurization – during the Twelfth Five-year Plan will total around 1.2 trillion Yuan, which will raise the annual production value of the environmental industries by 1.32 trillion Yuan; the stimulus from government policy and related investment will thus provide a major boost for China’s environmental industries.

Analysis compiled by the All China Federation of Industry and Commerce indicates that, by 2015, the annual production value of China’s energy conservation and environmental protection sector will have risen to around 5.3 trillion Yuan, roughly equivalent to 10% of China’s GDP for that year, and representing an annual growth rate of 20%, while the annual production value of leading energy conservation and environmental protection companies will have been growing at a CAGR of 30%, resulting in the emergence of several large energy conservation and environmental protection companies with annual production value in excess of 10 billion Yuan. China’s Ministry of Environmental Protection has forecast that China’s environmental industries will be able to maintain an annual growth rate in the range of 15 – 20% over the next few years, putting China amongst the ranks of the leading global players in this sector.

As regards the development of new energy sources, China anticipates that, over the period 2011 – 2020, the increase in both domestic and foreign investment due to market opening will boost investment in new energy by a total of around 5 trillion Yuan, thereby putting China’s new energy industries on a firm footing. The main forms of new energy and renewable energy addressed by the Twelfth Five-year Plan include advanced nuclear power technologies, wind power, solar power, biomass energy, geothermal energy, non-conventional natural gas, etc. China is

formulating clear strategies for the development and commercialization of new technologies in areas related to the development of new energy sources, including clean coal technology, smart grid technology, distributed power sources, new sources of power for vehicles, etc. China plans to have 1 million electric vehicles on the road by 2015, by which time the annual output of China's electric vehicle battery industry will have risen to approximately 10 billion watt-hours. By 2020, non-hydrocarbon energy will account for around 15% of China's total primary energy consumption, and carbon dioxide emissions per unit of GDP will have fallen by 40 – 45% compared to 2005.

3. Green New Deal Investment Trends

Lin (2010) notes that, since the concept of the "Green New Deal" was first raised by the UNEP, the U.S., the E.U., Japan and a number of other countries have responded enthusiastically, working actively to expand their investment in green technology and to develop the green economy. According to the latest (January 2010) data compiled by Professor Edward B. Barbier, the author of the UNEP report *A Global Green New Deal*, as of June 2009 the total amount of government investment on plans intended to help revive the global economy came to US$3,016.3 billion, of which 15.4% (US$463.3 billion, roughly equivalent to 0.7% of global GDP) comprised government expenditure in areas related to the green economy (Table 7-1-2).

Table 7-1-2 "Green Investment" Forming Part of Spending Undertaken to Revitalize the Global Economy (As of June 2009)

Units: US$ billions; %

Country	Economic Revitalization Expenditure (A)	Green Investment (B)	Low-carbon Investment	GDP (PPP at 2007 prices) (C)	Green Investment as a Share of Total Economic Revitalization Expenditure (D) = (B) / (A)	Green Investment as a Share of GDP (E) = (B) / (C)
Australia	43.8	9.3	9.3	773	21.2	1.2
Canada	31.8	2.8	2.5	1,271	8.3	0.2
China	647.5	216.4	175.1	7,099	33.4	3.0
France	33.7	7.1	7.1	2,075	21.2	0.3
Germany	104.8	13.8	13.8	2,807	13.2	0.5
Japan	639.9	36.0	36.0	4,272	5.6	0.8
South Korea	38.1	36.3	14.7	1,206	95.2	3.0
U.K.	34.9	3.7	3.7	2,130	10.6	0.2
U.S.A.	787.0	94.1	78.5	13,780	12.0	0.7
E.U.	38.8	22.8	22.8	14,430	58.7	0.2
G20	2,702.2	454.7	366.3	63,145.8	16.8	0.7
Global Total	3,016.3	463.3	373.9	65,610	15.4	0.7

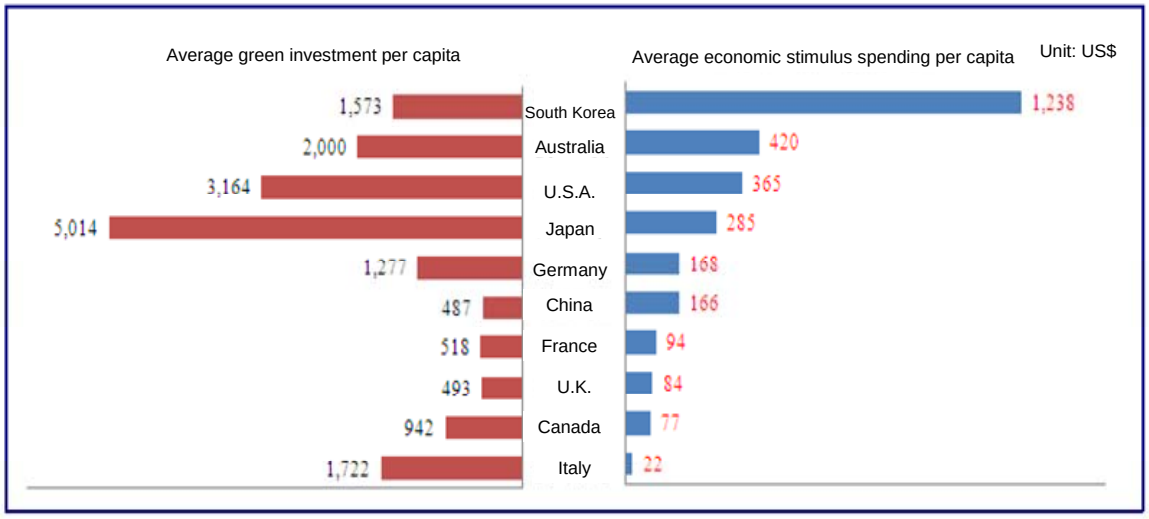
Source: Lin, Hui-hsun (2010).

For the Group of 20 (G20) nations, the share of total economic stimulus spending accounted for by "green investment" is 16.8% (US$454.7 billion, representing 0.7% of G20 GDP). The highest level of "green investment" is that reported by China, at US$216.4 billion (3% of China's

GDP), followed by the U.S. with US$94.1 billion (0.7% of GDP), South Korea with US$36.3 billion (3% of GDP), and Japan with US$36 billion (0.8% of GDP); the figure for the E.U. is just US$22.8 billion (0.2% of GDP).

One point worth noting is that green investment accounts for 95.2% of South Korea's overall economic stimulus spending, equivalent to average green investment per person of US$1,238 (Fig. 7-1-1), which is a significantly higher figure than those for any other other nation, reflecting how committed South Korea is to its vision of developing the green economy and transforming itself into a "green nation." The main areas addressed by South Korea's green investment including low-carbon planning (including the development of low-carbon rail transport and mass transit systems, high fuel efficiency vehicles and clean fuels, energy conservation, and green building construction, etc., together amounting to around 1.2% of GDP), water resource management, recycling, and environmental protection, etc.

Figure 7-1-1 Average Economic Stimulus Spending Per Capita and Average Green Investment Per Capita in the G20 Nations (as of August 2009)



Source: Lin, Hui-hsun (2010).

As regards the structure of green investment, out of the total of US$454.7 billion in green investment carried out by the G20 member nations, US$366.3 billion (80.6% of the total) has taken the form of low-carbon investment, including investment in renewable energy, carbon capture and storage (CSS), improving energy efficiency, public transportation systems, and improving the efficiency of the electricity distribution network. This suggests that there is a general consensus that green investment can help to guide the transformation of the industrial paradigm and further the shift towards low-carbon development.

Subsequently, the UNEP compiled a further report on the "Global Green New Deal": *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, which was published in February 2011.

As cited in Lin (2011), this report noted that, in terms of boosting GDP and creating jobs, the short-term impact of green investment is not particularly impressive, but the long-term effects are more significant, and that if one takes into account the beneficial effects on the environment and on

society as a whole, the advantages of green investment are even more pronounced (Table 7-1-3). The report suggested that, if green investment equivalent to 2% of GDP could be maintained every year starting in 2011, then by 2050 there would be a significant increase in calories of food consumed per person worldwide, and in global forested area, while water and landfill needs would have fallen, and the share of the planet's carrying capacity taken up by humanity's ecological footprint would have fallen significantly. In addition, the level of demand for primary energy would fall, and there would be a pronounced rise in the share of primary energy needs met using renewable energy.

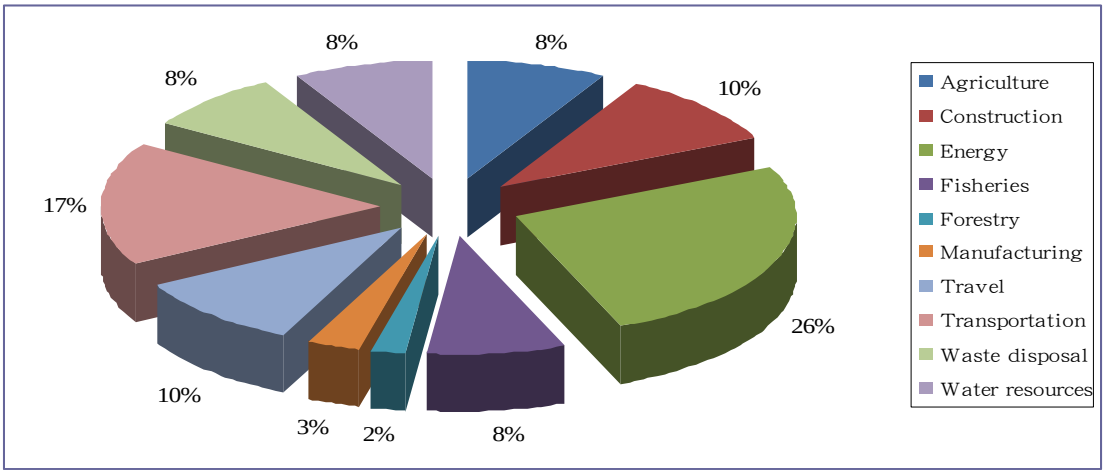
Table 7-1-3 Comparison of Green Investment and BAU (assuming that green investment amounts to 2% of global GDP)

Item	2011	2015			2020		
		BAU	Green Investment	Growth Rate (%)	BAU	Green Investment	Growth Rate (%)
GDP (US$ billion)	69,334	79,306	78,690	-0.8	92,583	92,244	-0.4
Per capita GDP (US$)	9,992	10,959	10,874	-0.8	12,205	12,156	-0.4
Employment (million persons)	3,187	3,419	3,441	0.6	3,722	3,701	-0.6
Calories per person	2,787	2,857	2,865	0.3	2,946	2,955	0.3
Forested area (billion hectares)	3.9	3.9	4.0	1.4	3.9	4.0	3.3
Water needs (thousand cubic meters per annum)	4,864	5,275	5,081	-3.7	5,792	5,375	-7.2
Landfill waste disposal (billion tons)	8	8	8	-4.9	9	8	-15.1
Ratio of human eco-footprint to Earth's carrying capacity	1.5	1.6	1.5	-7.5	1.7	1.4	-12.5
Primary energy needs (million tons of oil equivalent per annum)	12,549	13,674	13,245	-3.1	15,086	13,709	-9.1
Share of total primary energy needs met using renewable energy (%)	13	13	15	—	13	17	—
Item	2011	2030			2050		
		BAU	Green Investment	Growth Rate (%)	BAU	Green Investment	Growth Rate (%)
GDP (US$ billion)	69,334	119,307	122,582	2.7	172,049	199,141	15.7
Per capita GDP (US$)	9,992	14,577	14,926	2.4	19,476	22,193	13.9
Employment (million persons)	3,187	4,204	4,143	-1.5	4,836	4,864	0.6
Calories per person	2,787	3,050	3,093	1.4	3,273	3,382	3.4
Forested area (billion hectares)	3.9	3.8	4.1	8.1	3.7	4.5	21.2
Water needs (thousand cubic meters per annum)	4,864	6,784	5,889	-13.2	8,434	6,611	-21.6
Landfill waste disposal (billion tons)	8	10	6	-38.3	12	2	-87.2
Ratio of human eco-footprint to Earth's carrying capacity	1.5	1.8	1.4	-21.5	2.2	1.2	-47.9
Primary energy needs (million tons of oil equivalent per annum)	12,549	17,755	14,269	-19.6	21,687	13,051	-39.8
Share of total primary energy needs met using renewable energy (%)	13	12	19	—	12	27	—

Note: Data were converted to US Dollars at 2010 exchange rates; BAU denotes "business as usual".
Source: Lin, Chi-hung (2011).

As green investment can contribute to the growth of the global green economy, the UNEP advocates ensuring that investment equivalent to 2% of global GDP be directed towards ten key green sectors – agriculture, green construction, energy, fisheries, agriculture, green manufacturing, travel, transportation, waste disposal, and water resources – so as to help drive the reorientation of the global economy as a whole towards low-carbon, highly resource-efficient green growth. UNEP also recommends that green investment should be concentrated in sectors with high energy intensity, including the energy supply industry (which the UNEP recommends should receive 26% of all green investment), the transportation sector (17%), the construction industry (10%), and the travel industry (10%) (Fig. 7-1-2), thereby enhancing energy efficiency and reducing the extent of dependence on hydrocarbons.

Figure 7-1-2 Allocation of Green Investment



Source: Lin, Chi-hung (2011).

II Green Industry Development – Current Status and Key Trends

This section begins by defining the concept of "green industry" and delimiting its scope, before going on to outline current international trends in green industry development.

1. Definition and Scope

The concept of "green industry" is potentially very wide in scope. In 2007, the International Green Industry Union defined "green industry" as follows: if, because of environmental concerns, an industry strives to conserve on the use of resources and reduce pollution in its production processes through the adoption of technology-enabled green production mechanisms, then such an industry can be described as a "green industry." In other words, any firm that is working to improve the efficiency of energy use in its technology, production equipment, products or services, or to reduce the amount of pollution that its products cause, so as to minimize the burden placed on the environment, and any firm that is striving to act in an environmentally-friendly manner in other ways, can be thought of as belonging to "green industry" (Yu, 2009; Chang and Ch'en, 2009).

Given this definition, the scope covered by "green industry" can potentially include general environmental industries, recycling industries, the clean energy and renewable energy sector, the energy conservation and carbon reduction sector, traditional industries that utilize renewable energy and clean production techniques, the water resource management industry, the land restoration industry, industries engaged in the manufacturing of green products and materials, related certification bodies, green-oriented service industries, and financial service providers engaged in the provision of "green" mutual funds, etc. Basically, any industry that uses its technology and production equipment to help achieve the three key green goals of "recycling, pollution reduction, and energy conservation," can be classed as belonging to green industry (Yu, 2009).

Viewed in terms of products, when deciding whether or not a given product should be classed as a "green product," the WTO takes as its starting point the question of whether or not the product is environmentally-friendly. Green products should be products that contribute to environmental protection; liberalizing trade in environmental products can create a higher quality of life and cleaner environment for people in all countries. At its first meeting in 1995, the OECD's Informal Working Group on the Environment Industry put forward a preliminary definition of the concept "environmental goods and services": "The environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimize pollution and resource use." On the basis of this definition, the OECD divides environmental goods into three broad classes: (1) Pollution management; (2) Cleaner technologies and products; (3) Resource management. The pollution management class is further divided into six sub-categories: air pollution control; waste water management; solid waste management; soil and water remediation / clean-up; noise / vibration abatement; and monitoring, analysis and assessment. The cleaner technologies and products class is divided into cleaner technologies and cleaner products; the resource management class is divided into 10 individual categories: indoor air pollution control; water supply; recycled materials; renewable energy plant; heat/energy saving and management; sustainable agriculture and fisheries; sustainable forestry; natural risk management; eco-tourism; and "other" (Sun, Ch'en and Chu, 2011).

In addition, from the point of view of green trade, the OECD considers green industry to include all goods, services, resources and rights that contributed to sustainable environmental and ecological development. In terms of usage, green industry involves products and services related to environmental protection and restoration, such as pollution prevention equipment and services, waste water treatment, waste recycling and restoration, carbon storage technology, etc. In a broader sense, green industry can include traditional products and services that have a reduced impact on the environment and on eco-systems in each stage in the product life cycle from production through consumption to disposal and recycling (Wen and Luo, 2011).

With reference to the above, this chapter adopts a definition of "green industry" in the narrow sense as including the environmental industries, the recycling industry, and the renewable and clean energy industry, and a definition of "green industry" in the broader sense as including all products,

services, resources and rights relating to energy conservation and carbon reduction.

2. Major Trends in Green Industry Development

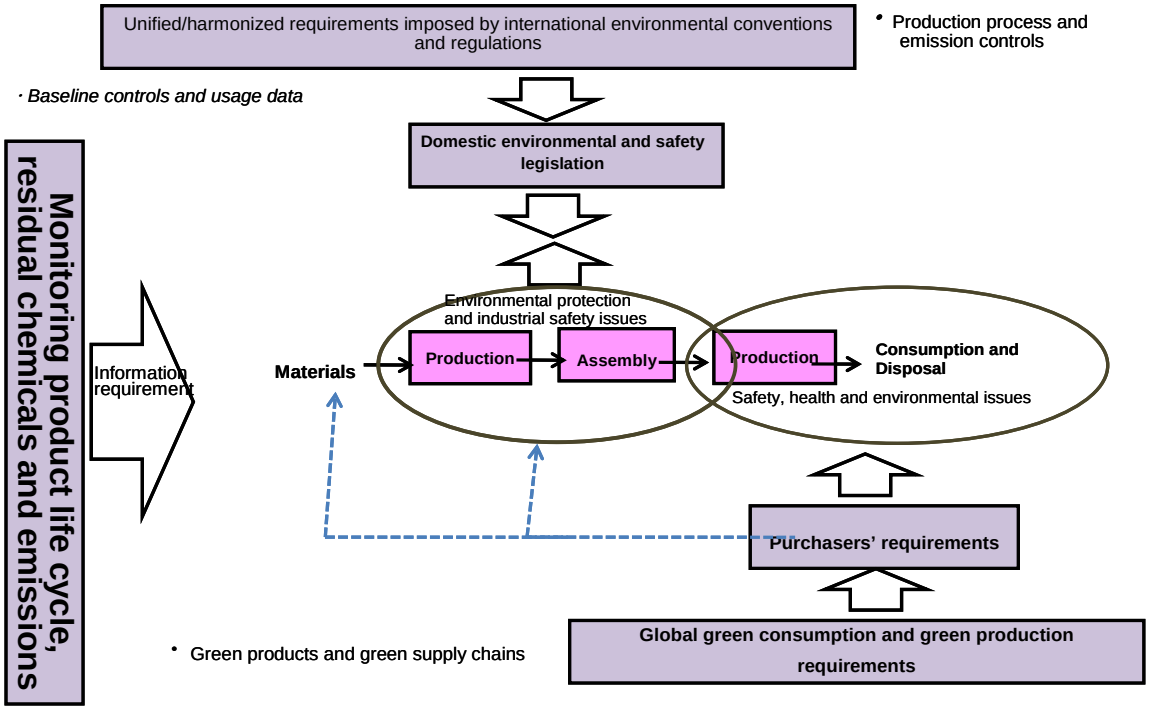
Initially, the concept of "green industry" was associated mainly with clean production and the environmental industries. Over time, the scope of the green industry concept expanded to include the renewable energy industry, and all products and services connected with energy conservation and carbon reduction. In other words, green industry includes raw materials requirements before production begins, the use of particular technologies, equipment and services, and the use of clean energy, to reduce the negative impact on the global environment during the production process, as well as other value chain activities such as product recycling and repurposing. The scope of efforts to protect the environment has also expanded, from the initial focus on minimizing damage to the ozone layer, to include greenhouse gas controls, restrictions on the transportation of hazardous substances, etc. It can thus be seen that, besides the major benefits that green industry provides in terms of protecting the planet, the various "greening of industry" activities that have been derived from this sector also constitute an important driver of global economic growth.

Given the wide range of activities covered by the term "green industry," for the purposes of the following discussion of green industry development trends, green industry is divided according to purpose into environmental industries oriented towards energy conservation and carbon reduction, and the renewable energy sector oriented towards the sustainable use of resources.

(1) Environmental Industries

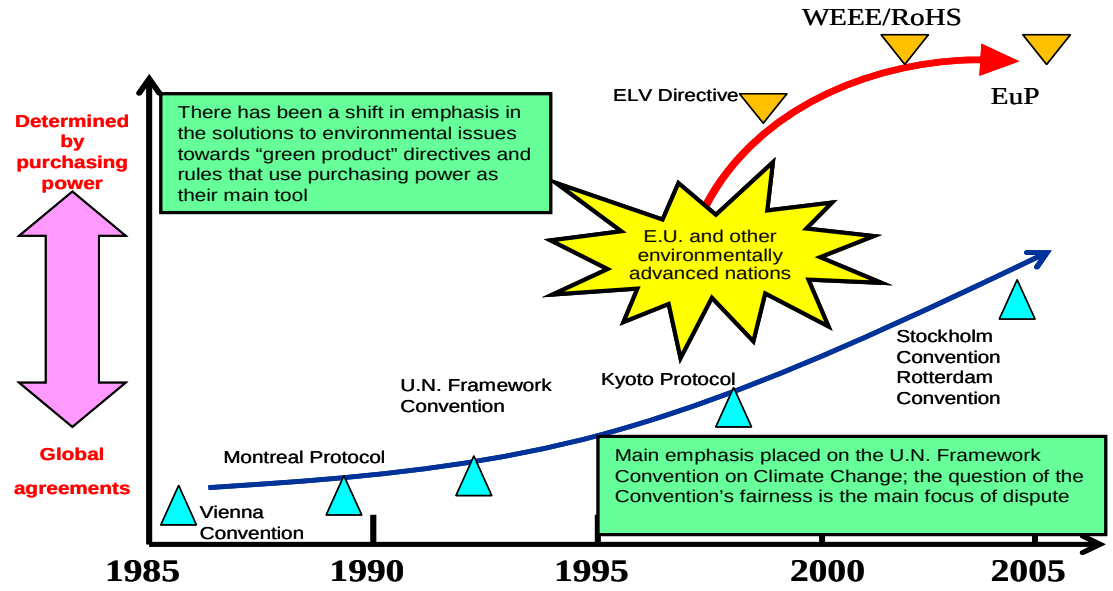
The development of the environmental industries can be traced back to the requirements imposed by various international agreements and conventions, which encouraged countries throughout the world to adopt a more environmentally-sound approach to development. These international agreements led to various environmental directives and marks, with the setting of criteria that products must conform to before being granted entry to particular markets. Today, with the growth of environmental consciousness, the trend towards green thinking has gradually spread to consumers. With consumers switching over to "green consumption" that emphasizes energy conservation, carbon reduction and environmental protection, business enterprises that in the past might have conformed to environmental regulations only reluctantly, in order to secure market access, are now becoming more proactive in this regard, using the enthusiastic fulfillment of their environmental responsibilities as a means of strengthening their corporate image and boosting sales; in some cases, firms adopt "green procurement" policies, encouraging suppliers to join with them in helping to protect the environment. The impact of environmental issues on business development is shown schematically in Fig. 7-2-1. Put simply, the main driving force behind the development of the environmental industries is no longer the regulations imposed by international treaties; increasingly, it is the purchasing power of consumers that is driving this development (Fig. 7-2-2).

Figure 7-2-1 e Impact of Environmental Protection Issues on Business Development



Source: Commerce Development Research Institute (CDRI) and Department of Commerce, MOEA (2010), Commercial Services Industry Yearbook – 2010.

Figure 7-2-2 solution of Solutions to Global Environmental Issues



Source: Yang, Chih-hsing (2012), Analysis of International "Green" Issues Affecting Firms and Products.

(2) The Renewable Energy Sector

Viewed in terms of the three "green indicators" of "recycling, pollution reduction, and energy conservation," besides the environmental industries referred to above, "green industry" can also be considered to include the renewable energy industry, which has the characteristics of being low-polluting and energy-saving. According to UNEP's definition, "renewable energy" is natural energy that, in theory at least, cannot be exhausted, and the use of which does not create pollutants. Solar power, wind power, geothermal energy, hydropower, tidal power, biomass energy etc. are all energy sources that involve conversion of the natural energy of the Earth, where the energy extracted can be replaced within a short space of time (normally within the space of a few years, compared to over 100 million years in the case of hydrocarbons).

Hydrocarbon energy sources such as petroleum, coal and natural gas which have been extensively used up until the present will eventually run out. Given the global trend towards environmental sustainability, renewable energy can be expected to play an increasingly important role in the supply of energy in the near future. This is why countries all over the world are stepping up the development of clean energy sources (including renewable energy, hydrogen energy and nuclear power).

Despite the fact that many countries are already working actively to develop new energy sources and improve the efficiency of energy use, currently, hydrocarbon energy sources are still much less expensive to use than renewable energy. In its 2011 report *World Energy Outlook*, the International Energy Agency (IEA) noted that hydrocarbons would still account for 75% of global energy consumption in 2035, representing a decline of just six percentage points from the 2010 figure of 81%.

However, given that oil prices are heavily dependent on the demand for fuel in the transport sector and on upstream production cost, the price of oil can be expected to rise to over US$210 per barrel (in 2010 prices) by 2035. With China and the E.U. planning to provide subsidies for renewable energy development that will total US$180 billion (five times the current level) by 2035 (these subsidy policies are likely to raise non-hydroelectric renewable energy's share of total electric power generation from 3% in 2009 to 15% in 2035), the share of overall energy consumption accounted for by renewable energy can be expected to become steadily more significant.

III The Current State of Development of Taiwan's Green Industry

As noted above, in the broad sense the term "green industry" can encompass anything related to energy conservation and carbon reduction; furthermore, international organizations and individual national governments are constantly working to improve and update their definitions and classifications of "green industry" and the statistical methods they employ. As a result, there is as yet no unified global standard as to what constitutes green industry (Wen et al., 2011). The Industrial Development Bureau's FY2010 *Environmental Industry Promotion Plan* notes that, while Taiwan's Directorate-General of Budget, Accounting and Statistics (DGBAS),

Environmental Protection Administration (EPA) and Industrial Development Bureau have all formulated definitions of "environmental industry," the DGBAS industry classification does not provide a separate categorization for certain types of environmental industry, while the types of firms classed by the EPA as "special environmental protection service industry" firms are mainly those enterprises for which the EPA serves as regulatory authority; the Industrial Development Bureau divides the environmental industry into three major categories – "environmental equipment and materials manufacturing industry," "recycled products manufacturing industry" and "environmental technical services industry" – and 15 sub-categories. The analysis of the current state of development of Taiwan's green industry presented in this chapter is therefore based on a definition of green industry that takes into account the trend towards a gradual evolution from "environmental industry" to "green industry" that is noted in the Industrial Development Bureau's FY2010 *Environmental Industry Promotion Plan*, as well as the focus in the Bureau's sustainable development planning on international development, the greening of industry and the development of green industries, in addition to bringing Taiwan into line with major international trends and achieving clear classification to facilitate accurate calculation of production value (Table 7-3-1).

Table 7-3-1 Environmental Industry – Definition and Scope

Category	Sub-category	Definition
Environmental Services Industry	Environmental testing services	All firms engaged in the provision of physical, chemical or biological testing services with respect to air, water or soil quality or other aspects of environmental quality.
	Waste water treatment	All firms engaged in the treatment of waste water, including the management of sewage systems and waste water treatment facilities, the cleanup and removal of household waste, the cleaning of ditches, waste pits and septic tanks, the cleaning of portable toilets, the dilution, sieving, filtration, sedimentation etc. of waste water, the cleaning of swimming pools and industrial waste water facilities, and the maintenance and cleaning of sewers and waste water pipes, etc.
	Waste cleanup and processing	All firms engaged in the cleanup, transportation and processing of hazardous or non-hazardous waste.
	Environmental engineering and related technical consulting services	All firms engaged in environmental engineering design and manufacturing, the operation of environmental engineering facilities on behalf of others, environmental engineering technology development, evaluation and training, and related technical consulting services.
	Disease vector control	All firms engaged in the prevention of disease vectors (such as insects, mites and rats) and other pests, and in the provision of disinfection services.
	Recycling	All firms engaged in the sorting, processing and repurposing of recycled materials, including the manufacturing of recycled plastic pellets, vehicle- and ship-breaking, car shredding, waste tire recycling, disassembly of waste home appliances (including PCs), recycling of waste light bulbs and light tubes, and repurposing of waste paper, scrap metal, waste wood, waste glass, coal ash, etc.
	Pollution remediation	All firms engaged in pollution remediation, including the cleanup of polluted soil, underground water and surface water, oil-spill cleanup, and reducing the threat from toxic substances (such as asbestos, lead-based paints, etc.).
	The energy service company (ESCO) industry	All firms engaged in helping users of electric power and fuel to reduce greenhouse gas emissions and reduce operating costs, as well as firms engaged in related energy source development, energy trading, energy efficiency enhancement and greenhouse gas reduction activities, etc.

Category	Sub-category	Definition
	Environmental certification services	All firms engaged in the provision of certification services relating to ISO environmental management, green product management (WEEE and RoHS), greenhouse gas reduction, etc.
	Environmental management technical services	All firms engaged in the provision of environmental management (ISO 14000) guidance to help business enterprises obtain ISO certification.
Environmental Equipment Industry	Environmental protection equipment and instruments manufacturing industry	All firms engaged in the manufacturing, maintenance, repair and distribution of environmental protection equipment and related components, including noise prevention equipment, air pollution prevention equipment, waste water processing equipment, greenhouse gas reduction equipment, etc.
	Environmental protection materials manufacturing industry	All firms engaged in the manufacturing of materials, agents etc. used in environmental protection facilities, sewers, etc. for the purposes of pollution prevention or reducing the negative impact on the environment.
Environmental Resources Industry	Water supply industry	All firms engaged in the collection, purification and distribution of water for commercial or residential use, and in the development of new types of water resources, including the development, collection, desalinization, purification and delivery (via pipeline or vehicle) of seawater, river water, lake water, rainwater, underground water, etc.
	Recycled products manufacturing industry	All firms engaged in the repurposing of waste and recycled material.
	Renewable energy applications	Development of inexhaustible renewable energy sources, including solar power, biomass energy, geothermal energy, ocean energy, wind power, methane waste-to-energy, hydropower (excluding pumped storage), and other sustainable energy sources designated as such by the central government regulatory authorities.

Source: Industrial Development Bureau, MOEA (2010), Environmental Industry Promotion Plan close-out report.

This chapter makes use of original business income tax collection data from the Tax Data Center to estimate the number of enterprises in Taiwan's green industry (using the narrow definition of green industry), their annual sales revenue, their domestic sales and their export sales, covering the period 2008 – 2011. The data are broken down by enterprise size using the definitions of large enterprises and SMEs given in the *SME Determination Standard*. However, as the *R.O.C. Standard Industry Classification for Tax Purposes* (Version 6) does not coincide precisely with the definition of environmental industry stipulated by the Industrial Development Bureau, there are some discrepancies in the data. The following sections present an overview of the current state of development of green industry in Taiwan.

(1) Number of Enterprises

Using the narrow definition of "green industry," the number of green industry enterprises in Taiwan stood at 27,166 firms in 2008, 27,350 in 2009, 27,626 in 2010, and 28,739 in 2011; there was no significant change in the number of enterprises over this period. In all four of the years studied, SMEs accounted for over 95% of all green industry firms (Table 7-3-2).

The environmental services industry accounted for by far the largest share of green industry enterprises, with approximately 27,000 firms; the environmental resources industry and environmental equipment industry had only around 300 – 400 firms apiece (Table 7-3-3). Within the

environmental services industry, the environmental engineering and related technical consulting services sub-industry accounts for the largest share of firms, at approximately 19,000. However, the vast majority of these enterprises are civil engineering firms (including all firms, other than those belonging to sub-categories 421 and 422, that are engaged in civil engineering construction, renovation or repair, including the construction of water channels, dams, harbor facilities, airport facilities, industrial districts, refineries, electric power and telecommunications pylons, outdoor entertainment and leisure facilities, etc., as well as those engaged in landfill, river conservancy, harbor dredging, etc.; they also include firms undertaking land demarcation engineering for highway extension and other public construction projects).

Table 7-3-2 The Current Status of Taiwan's Green Industry (Narrowly Defined)

Units: firms / NT$ million

Year	2008	2009	2010	2011
No. of firms				
SMEs	26,041	26,300	26,552	27,644
Large enterprises	1,125	1,050	1,074	1,095
All firms	27,166	27,350	27,626	28,739
Annual sales revenue				
SMEs	394,552	357,968	390,861	389,865
Large enterprises	599,713	657,559	728,012	733,302
All firms	994,266	1,015,527	1,118,873	1,123,167
Domestic sales				
SMEs	368,585	339,019	359,929	366,045
Large enterprises	575,936	525,155	550,253	538,761
All firms	944,520	864,173	910,182	904,806
Export sales				
SMEs	25,968	18,949	30,932	23,820
Large enterprises	23,778	132,404	177,759	194,541
All firms	49,745	151,353	208,691	218,361

Source: Wang, Su-wan and Tsai, Chin-hung (2012).

As can be seen from the data presented above, Taiwan's green industry (narrowly defined) conforms to the model presented above, with government policy and regulations constituting the main drivers of growth. The need for business enterprises to conform to various types of rules and regulations has created demand for related testing, ESCO and verification services, etc. At the same time, the trend for large enterprises to bring pollution remediation in-house as part of their own operations has led to a fall in the number of pollution remediation firms operating in Taiwan.

Table 7-3-3 Taiwan's Green Industry (Narrowly Defined)

Units: firms / NT$ million

Category	Sub-category	Firm Size	No. of Firms	Annual Sales	Domestic Sales	Export Sales
Environmental Services Industry	Environmental testing services	SMEs	93	479	401	77
		Large enterprises	11	22,616	21,686	930
		All firms	104	23,095	22,087	1,008
	Waste water treatment	SMEs	602	5,072	4,896	176
		Large enterprises	29	8,736	8,411	325
		All firms	631	13,808	13,307	501
	Waste cleanup and processing	SMEs	4,670	36,559	35,904	655
		Large enterprises	176	70,583	61,487	9,096
		All firms	4,846	107,142	97,391	9,751
	Recycling	SMEs	1,145	7,711	7,161	550
		Large enterprises	45	13,608	12,707	901
		All firms	1,190	21,319	19,868	1,451
	Pollution remediation	SMEs	48	608	608	0
		Large enterprises	7	3,446	3,204	242
		All firms	55	4,054	3,812	242
	Environmental engineering and related technical consulting services	SMEs	18,817	299,750	297,782	1,967
		Large enterprises	687	524,727	375,482	149,246
		All firms	19,504	824,477	673,264	151,213
	Disease vector control	SMEs	325	1,182	1,181	1
		Large enterprises	1	241	241	1
		All firms	326	1,423	1,421	2
	ESCO and environmental management technical services	SMEs	1,155	6,389	5,936	452
		Large enterprises	34	12,061	10,088	1,973
		All firms	1,189	18,449	16,024	2,425
	Environmental certification services	SMEs	167	1,004	963	41
		Large enterprises	3	777	768	9
		All firms	170	1,781	1,731	49
	Sub-total (SMEs)		27,022	351,609	354,832	3,920
	Sub-total (large enterprises)		993	648,764	494,074	162,721
	Sub-total (all firms)		28,015	1,000,373	848,906	166,642
Environmental Equipment Industry	Environmental protection equipment and instruments manufacturing industry	SMEs	248	7,900	5,872	2,027
		Large enterprises	15	15,601	6,375	9,226
		All firms	263	23,501	12,247	11,253
	Environmental protection materials manufacturing industry	SMEs	-	-	-	-
		Large enterprises	-	-	-	-
		All firms	-	-	-	-
	Sub-total (SMEs)		248	7,900	5,872	2,027
	Sub-total (large enterprises)		15	15,601	6,375	9,226
	Sub-total (all firms)		263	23,501	12,247	11,253
Environmental Resources Industry	Water supply industry	SMEs	217	3,185	3,170	15
		Large enterprises	65	31,223	31,214	9
		All firms	282	34,408	34,385	24

Category	Sub-category	Firm Size	No. of Firms	Annual Sales	Domestic Sales	Export Sales
	Recycled products manufacturing industry	SMEs	-	-	-	-
		Large enterprises	-	-	-	-
		All firms	-	-	-	-
	Renewable energy applications	SMEs	157	20,028	2,170	17,857
		Large enterprises	22	29,683	7,098	22,584
		All firms	179	49,710	9,268	40,442
	Sub-total (SMEs)		374	23,213	5,341	17,873
	Sub-total (large enterprises)		87	60,906	38,312	22,593
	Sub-total (all firms)		461	84,119	43,653	40,466
Total (SMEs)			27,644	389,865	366,045	23,820
Total (large enterprises)			1,095	733,302	538,761	194,541
Total (all enterprises)			28,739	1,123,167	904,806	218,361
SMEs as share of all firms			96.19%			

Note: There is no taxation industry class corresponding to environmental materials manufacturing; recycled product manufacturing is included within the recycling sub-industry.
Source: Wang, Su-wan and Tsai, Chin-hung (2012).

(2) Annual Sales Revenue

Using the narrow definition of green industry, the annual sales revenue of Taiwan's green industry rose from NT$994,266 million in 2008 to NT$1,123,167 million in 2011, an increase of 12.96%. The environmental services industry accounted for by far the largest shares of these totals, with annual sales of NT$905,631 million in 2008, NT$935,443 million in 2009, NT$1,000,373 million in 2010, and NT$1,015,548 million in 2011. SMEs accounted for around 36% of these environmental services totals, at NT$362,118 million in 2008, NT$332,507 million in 2009, NT$351,609 million in 2010, and NT$358,752 million in 2011. SMEs' share of annual sales for green industry (narrowly defined) as a whole was 39.68% in 2008, 35.25% in 2009, 34.93% in 2010, and 34.71% in 2011.

The individual sub-industry with the highest annual sales revenue was environmental engineering and related technical consulting services, with annual sales of NT$824,477 million in 2011, of which SMEs accounted for NT$299,750 million (36.36%). If one allows for the fact that the environmental and related technical consulting services sub-industry in reality consists mainly of civil engineering firms, whose status as an integral part of green industry is questionable, then the sub-industry with the highest annual sales revenue is actually waste cleanup and processing, with has annual sales of approximately NT$100 billion, with SMEs accounting for NT$40 billion of this. The next largest sub-industry is renewable energy applications, falling under the environmental resources industry category, which has annual sales in the region of NT$40 – 50 billion (with photovoltaic cell manufacturing accounting for the largest share of this figure).

Sub-industries where there was a significant increase in the annual sales posted by SMEs within that sub-industry over the period 2008 – 2011 included: the recycling sub-industry, where SME sales rose from NT$4,116 million in 2008 to NT$7,711 million in 2011; the ESCO and environmental management technical services sub-industry, whose combined SME sales rose from NT$3,854 million in 2008 to NT$6,389 million in 2011; the environmental certification services sub-industry, whose SME sales rose from NT$283 million in 2008 to NT$1,004 million in 2011;

and the environmental protection equipment and instruments manufacturing sub-industry, whose SME sales rose from NT$6,124 million in 2008 to NT$7,900 million in 2011.

One point worth noting is that, although SMEs in the environmental protection equipment and instruments manufacturing industry have achieved some degree of sales growth, the sales growth posted by large enterprises in this industry has been much faster, with a nearly four-fold increase from NT$4,160 million in 2008 to NT$15,601 million in 2011. The rapid fall in the number of firms in the pollution remediation industry has been accompanied by a decline in sales revenue, from NT$17,298 million in 2008 to NT$4,054 million in 2011; the decrease has been even more pronounced for SMEs in this industry, whose annual sales have fallen from NT$3,342 million in 2008 to just 608 million in 2011.

(3) Domestic Sales Revenue

There has been a gradual fall in the total annual domestic sales of Taiwan's green industry (narrowly defined), from NT$944,520 million in 2008 to NT$904,806 million in 2011. This is attributable mainly to the decline in domestic sales in the environmental services industry, which posted domestic sales of NT$892,124 million in 2008, NT$814,528 million in 2009, NT$850,613 million in 2010, and NT$848,906 million in 2011; the sub-totals for SMEs within this industry were NT$357,562 million, NT$328,955 million, NT$348,182 million and NT$354,832 million respectively. With the fall in the domestic sales of large enterprises in this industry, SMEs' share of the industry's overall domestic sales has risen gradually, climbing to 41.80% by 2011. For green industry as a whole, SMEs' share of total domestic sales was 39.02% in 2008, 39.23% in 2009, 39.54% in 2010, and 40.46% in 2011.

As with total annual sales, the sub-industry with the highest domestic sales has been the environmental engineering and related technical consulting services industry, which posted domestic sales of NT$732,731 million in 2008, NT$681,190 million in 2009, NT$689,787 million in 2010, and NT$673,264 million in 2011. The sub-totals for SMEs in this industry were: NT$303,795 million in 2008 (representing 41.46% of the total for enterprises of all sizes in this industry), NT$279,617 million in 2009 (41.05%), NT$292,607 million in 2010 (42.42%), and NT$297,782 million in 2011 (44.23%).

As regards the pattern of change in domestic sales, the industries that saw a significant increase in SME sales during the 2008 – 2011 timeframe included: the recycling industry, where SME domestic sales rose from NT$3,786 million to NT$7,161 million; the ESCO and environmental management technical services industry, where they rose from NT$3,493 million to NT$5,936 million; the environmental certification services industry, where they rose from NT$270 million to NT$963 million; and the environmental protection equipment and instruments manufacturing industry, where they rose from NT$4,675 million to NT$5,872 million.

The main reason for the decline in domestic sales over this period was the fall in the domestic sales of large enterprises within the environmental engineering and related technical consulting services industry, which fell by NT$53,454 million (12.46%) over the period 2008 – 2011.

(4) Export Sales

Using the narrow definition of green industry, the export sales of Taiwan's green industry rose

significantly over the period 2008 – 2011, from NT$49,745 million in 2008 to NT$218,361 million in 2011. This was mainly attributable to growth in export sales in the environmental services industry, which posted exports of NT$13,507 million in 2008, NT$120,915 million in 2009, NT$149,761 million in 2010, and NT$166,642 million in 2011; SMEs in the environmental services industry posted export sales of NT$4,556 million in 2008, NT$3,552 million in 2009, NT$3,427 million in 2010, and NT$3,920 million in 2011. As a result of the substantial increase in large enterprises' export sales, the share of total environmental services industry export sales held by SMEs fell dramatically, from 33.73% in 2008 to 2.94% in 2009, 2.29% in 2010, and 2.35% in 2011. SMEs' share of the export sales of green industry (narrowly defined) as a whole stood at 52.20% in 2008, 12.52% in 2009, 14.82% in 2010, and 10.91% in 2011.

The industry with the highest export sales was, once again, the environmental services industry. The annual export sales totals for this industry were: NT$4,150 million in 2008, NT$113,435 million in 2009, NT$137,660 million in 2010, and NT$151,213 million in 2011. The sub-totals for SMEs within the environmental services industry were NT$2,095 million (50.48% of the total), NT$1,439 million (1.27%), NT$1,356 million (0.98%), and NT$1,967 million (1.30%) respectively. Further analysis reveals that the increase in export sales on the part of large enterprises within the environmental engineering and related technical consulting services industry was derived mainly from a dramatic increase in exports of natural gas pipeline and related construction, exports of which had been zero in 2008, but which rose to NT$110,136 million in 2009, NT$133,921 million in 2010, and NT$144,988 million in 2011.

As regards changes in export performance, industries whose SMEs achieved a significant increase in export sales over the period 2008 – 2011 included: the environmental testing services industry, where SME exports rose from NT$5 million to NT$77 million; the recycling industry, where they rose from NT$330 million to NT$550 million; the ESCO and environmental management technical services industry, where they rose from NT$360 million to NT$452 million; the environmental certification services industry, where they rose from NT$13 million to NT$41 million; the environmental protection equipment and instruments manufacturing industry, where they rose from NT$1,449 million to NT$2,027 million; and the renewable energy applications industry, where they rose from NT$33,926 million in 2008 to NT$49,524 million in 2010, but then fell back again to NT$40,442 million in 2011.

It is worth noting that, besides the dramatic increase in export sales posted by the environmental engineering and related technical consulting services industry as a result of superior sales performance in the natural gas pipeline and related construction segment, high export growth was also posted by the environmental testing services, waste cleanup and processing, environmental protection equipment and instruments manufacturing, and renewable energy applications industries.

As can be seen from Tables 7-3-2 and 7-3-3, Taiwan's green industry (narrowly defined) consists largely of SMEs, and is mainly oriented towards the domestic market. The relatively small size of Taiwan's domestic market has been reflected in low sales growth for green industry, and particularly for SMEs. In some segments of Taiwan's green industry, large enterprises have actually experienced negative growth in domestic sales. As regards export performance, if one

leaves aside the dramatic increase in exports of natural gas pipelines and related construction, for green industry as a whole there has been no significant growth in export sales. Overall, Taiwan's green industry (using the narrow definition) is still very much in the market development stage of its industry life-cycle; more effort is needed to develop the industry's full potential.

IV Government Guidance Measures

Responding to the global trend towards carbon reduction, the Taiwanese government announced that 2010 would be "Energy Conservation and Carbon Reduction Year," and established the Executive Yuan Steering Committee on Energy Conservation and Carbon Reduction to coordinate the various energy conservation and carbon reduction plans currently being implemented by government agencies at the central and local government levels, and to oversee the formulation by relevant agencies of a General Plan for National Energy Conservation and Carbon Reduction that lays down overall national energy conservation and carbon reduction goals, with the aim of speeding up the implementation of energy conservation and carbon reduction measures by individual government agencies through the setting of annual targets, and using government policy to guide the development of a low-carbon economy and an energy-saving, low-carbon society. The content of the General Plan for National Energy Conservation and Carbon Reduction is outlined below.

1. The General Plan for National Energy Conservation and Carbon Reduction

The Executive Yuan Steering Committee on Energy Conservation and Carbon Reduction is serving as the senior coordinating body for implementation of the General Plan for National Energy Conservation and Carbon Reduction by the executive arm. The Executive Yuan Vice Premier serves as Convenor of the Steering Committee, with the Cabinet Secretary-General and two Ministers without Portfolio serving as Deputy Convenors. The heads of 14 ministries and other government agencies – including the Ministry of the Interior, the Ministry of Foreign Affairs, the Ministry of Transportation and Communications, the Ministry of Education, the Environmental Protection Administration, the Ministry of Finance, and the agencies with responsibility for science and technology and for agriculture – serve as Members of the Steering Committee. The Ministry of Economic Affairs (MOEA) acts as secretariat for the Steering Committee, and coordinates its planning work.

The key objectives of the General Plan for National Energy Conservation and Carbon Reduction are as follows:

(1) Energy Conservation Targets

Taiwan will be seeking to raise its energy efficiency by at least 2% every year over the next eight years, so that energy intensity in 2015 will be at least 20% below the 2005 level. By making effective use of technological breakthroughs and ancillary measures, Taiwan will reduce its energy intensity by at least 50% by 2025.

(2) Carbon Reduction Targets

Taiwan will be aiming to bring its carbon dioxide emissions down to the 2005 level by 2020, and

down to the 2000 level by 2025.

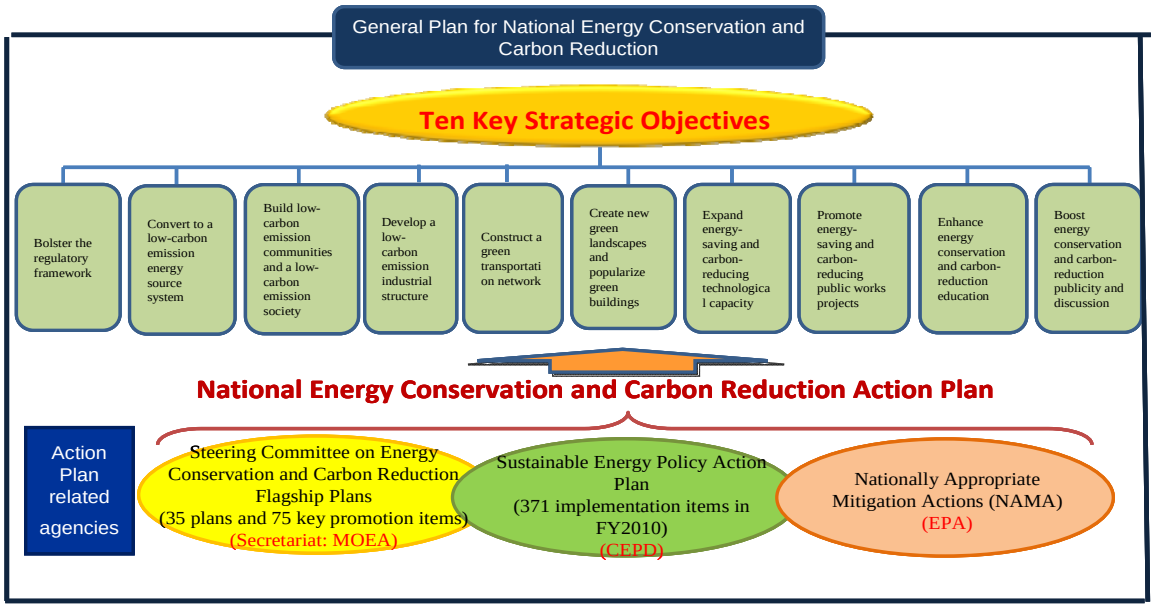
2. The General Plan for National Energy Conservation and Carbon Reduction Framework and Policy Content

The General Plan for National Energy Conservation and Carbon Reduction incorporates elements from the Sustainable Energy Policy Action Plan (371 items for implementation in 2010). In addition, the Executive Yuan Steering Committee on Energy Conservation and Carbon Reduction has added a number of new flagship projects and key promotion items, including, for the future, Nationally Appropriate Mitigation Actions (NAMA). After collating the various annual implementation measures required for each individual plan, a draft "National Energy Conservation and Carbon Reduction Action Plan" has been formulated. A total of 35 flagship projects and 75 key promotion items have been designated for the General Plan's 10 strategic objectives; the overall framework is as shown in Fig. 7-4-1.

3. The General Plan for National Energy Conservation and Carbon Reduction – Implementation Performance

According to the FY2011 National Energy Conservation and Carbon Reduction Action Plan Implementation Review, compiled by the Council for Economic Planning and Development (CEPD), Taiwan's energy intensity in 2011 was 4.90% lower than in 2010, and its carbon dioxide emission intensity was 1.44% lower. Overall, the achievement rate with respect to the targets for 2011 was 95.6%, a respectable performance. The annual implementation results for the Plan's ten key objectives are summarized in Table 7-4-1.

Figure 7-4-1 General Plan for National Energy Conservation and Carbon Reduction Framework



Source: Secretariat, Executive Yuan Steering Committee on Energy Conservation and Carbon Reduction (2010).

Table 7-4-1 2011 National Energy Conservation and Carbon Reduction Action Plan – Implementation Results

Ten Key Strategies	Important Implementation Results
Bolster the regulatory framework	• Completion of the draft Sustainable Energy Basic Law and Energy Development Strategy by the Bureau of Energy, MOEA • Continued implementation of legislative preparations for the Greenhouse Gas Reduction Law, Energy Tax and related ancillary measures
Convert to a low-carbon emission energy source system	• Taiwan Power began operation of Taiwan's largest photovoltaic electricity generating facility at the former Yungan Saltworks in Kaohsiung City, which has an annual generating capacity of approximately 6 million kWh, and will make it possible to reduce carbon dioxide emissions by around 3,623 tons per annum • The Bureau of Energy, MOEA completed power load forecasting and power source development planning for the period 2011 – 2025, and compiled a report on the development strategy for Taiwan's wind power sector
Build low-carbon emission communities and a low-carbon emission society	• The EPA began implementation of the Low-carbon City Promotion Plan, targeting four cities (including New Taipei City and Tainan City), completed energy conservation diagnostics for 52 model low-carbon communities, and provided subsidies for 19 local government authorities to implement low-carbon model communities plans • The MOTC completed negotiations with Taitung County Government and Pingtung County Government regarding the environmental ancillary measures for the implementation of electric vehicle projects on Green Island and Hsiao Liuqiu Island
Develop a low-carbon emission industrial structure	• The Bureau of Energy, MOEA completed the conversion of all traffic lights in Taiwan to energy-saving, low-carbon LED lights, permitting savings of around 250 million kWh a year, and reducing Taiwan's carbon dioxide emissions by 155,000 tons. Taiwan has become only the second country in the world (after Singapore) to complete the replacement of all traditional incandescent traffic lights by LED lights. • The Industrial Development Bureau completed energy resource interconnection with respect to a number of major industrial districts and industry clusters, including Linyuan, Kuanyin, Taiwan Technology Industrial Park, Taichung, Tachia Youshi Industrial Park, etc., which is expected to reduce carbon dioxide emissions by around 296,000 tons per annum.
Construct a green transportation network	• The MOTC continued to expand the capacity of the Taiwan High Speed Rail system, which handled 34.74 million passenger-journeys in FY2011, permitting a reduction in carbon dioxide emissions of around 195,000 tons. The MOTC has also approved the provision of subsidies to help 15 county and city governments implement "smart" transportation control systems, and has notified bus operators and road transportation operators of the introduction of the new subsidy regime. • The Ministry of the Interior (MOI) has completed the distribution of subsidies to local government authorities for improving the pedestrian and cycling environment in 169 urban districts.
Create new green landscapes and popularize green buildings	• The MOI has completed on-site evaluation for the awarding of "green convenience store" certification to 2,004 convenience stores. • The Council of Agriculture (COA) has implemented reforestation covering an area of 7,091 hectares, along with maintenance of another 54,704 hectares of existing forest; the results from the COA's program of intensified reforestation are already starting to make themselves felt.
Expand energy-saving and carbon-reducing technological capacity	• The National Science Council directed the implementation of 25 industry-university collaboration projects, and provided subsidies for 200 targeted research items; revenue from technology transfer was boosted by NT$250 million, and the annual production value of related industries was increased by 20%.

Ten Key Strategies	Important Implementation Results
	• The Ministry of Education (MOE) organized an energy technology innovation competition and a presentation of the results achieved in related projects, thereby helping to strengthen energy technology R&D capabilities through enhanced student participation.
Promote energy-saving and carbon-reducing public works projects	• The Public Construction Commission carried out 169 construction audits, and helped other government agencies to implement energy conservation and carbon reduction planning. • The Public Construction Commission also organized government purchasing energy conservation and carbon reduction training classes, with a total of 10,622 people undergoing training.
Enhance energy-saving and carbon-reduction education	• The MOE implemented a Low-carbon Campus Project, involving the provision of subsidies to 13 schools and colleges in Kinmen County, Penghu County, etc. to facilitate the replacement of traditional light-bulbs. • The EPA completed the compilation of the *Illustrated Climate Exchange Mini Encyclopedia*, which members of the public can download free of charge, with the aim of strengthening citizens' awareness of the impact of climate change.
Boost energy conservation and carbon-reduction publicity and discussion	• The Bureau of Energy, MOEA provided technical services for 168 government agencies, schools and colleges, identifying opportunities to save energy that should reduce carbon dioxide emissions by 53,000 tons per annum, thereby helping to enhance public sector carbon reduction capabilities. • The Council of Agriculture organized 632 lectures and hands-on learning sessions to promote sensible use of fertilizers, and to spread awareness of the government's energy conservation and carbon reduction policy.

Source: Council for Economic Planning and Development, Executive Yuan (2012), "A Respectable 95.6% Achievement Rate in Implementation of the 'National Energy Conservation and Carbon Reduction Action Plan' Work Items for FY2011" (Press Release), http://www.cepd.gov.tw/m1.aspx?sNo=0016652.

V Case Studies of Green Innovation Business Opportunities

With the growth in environmental consciousness and the advances that have been made in environmental technologies, coupled with the worldwide promotion of the "green economy," the demand for green products is gradually expanding. In responding to this green trend, business enterprises in Taiwan have been working to integrate green concepts with industrial development, anticipating that a new focus on the environment will help them to achieved enhanced value-added and enable them to upgrade and transform the industries to which they belong. This section presents a number of case studies of successful development of the new green business opportunities, and examines the potential for the further development of these opportunities.

1. Supertex

Super Textile Corporation (Supertex) was founded in 1975 with two employees and capitalization of just NT$90,000. This year, the company posted annual sales in excess of NT$200 million, and Supertex has established itself as a supplier to leading companies in 53 countries around the world. Supertex's main products comprise various types of special-purpose functional fabrics, including fabric made from recycled polystyrene bottles, and fabrics with a wide range of functions that include far infrared, high absorbency and fast drying, anti-bacterial and anti-odor functionality, resistance to staining, anti-electrostatic functionality, luminescence, ultra-thin fibers, bamboo charcoal fiber, anti-UV, etc.

Supertex has been manufacturing fabric made from recycled polystyrene bottles since 1997. The recycled bottles undergo a series of processes to create an environmentally-friendly recycled product (Fig. 7-5-1). Initially, Supertex experienced difficulties with this product due to the fact that the market was not yet fully developed; there were also problems with upstream process control, as a result of which the price could not be lowered enough to boost the product's popularity. However, in 2003 Supertex embarked on a collaborative project with volunteers from the Tzu Chi charitable foundation, which led to a significant improvement in the yield rate. In addition, vertical integration between Supertex and its suppliers helped to turn this product into an important revenue generator for the company. In 2010, Supertex was awarded recycle material certification from Germany's TÜV, providing international recognition for Supertex's ongoing efforts in the development of environmentally-friendly recycled fabric.

Figure 7-5-1 Supertex's Environmentally-friendly Recycled Fabric

Source: Super Textile Corporation, http://www.supertextile.com/index.asp?lang=1.

Supertex's focus on innovation and on the environment has also been recognized in the form of a number of awards, including the National Award of Small and Medium Enterprises, the Taiwan Good Design Award, the National Award for Outstanding Performance in Industrial Waste Reduction, the Enterprises Environmental Protection (EEP) Award, the Energy Conservation Award, the Industrial Sustainable Excellence Award, etc. Supertex has also been awarded ISO 14001, OHSAS 18001 and QS 9000 certification, along with Taiwan's Green Mark and Taiwan's Innovalue mark.

Supertex's efforts in the environmental sphere – which have included promoting waste reduction through its center-satellite system, integrating up-, mid- and downstream firms into the same green supply chain, undertaking not to use environmentally unfriendly substances, and complying with the European Union's RoHS and EUP directives – won further recognition for the company when it was awarded the Executive Yuan's National Sustainable Development Award in 2010 (in which year Supertex was also one of the winners of *Global Views Monthly's* second "Environmental Hero" awards), and the Taiwan Green Classics Award in 2011. Supertex's green initiatives have made it a model for other Taiwanese enterprises to follow.

2. Taiwan Lung Meng Tech

Traditional pulp and paper production requires the felling of trees to be turned into pulp which in turn is processed to make paper. The production process makes use of strongly acidic and alkaline agents, along with bleaching agents and other chemical materials, in order to remove impurities and achieve whitening effects. Furthermore, large quantities of clean, fresh water are needed for washing, in order to produce clean, white paper pulp. Although the waste water is treated to ensure that it conforms to the emission standards set by the government, it still contains considerable

amounts of miscellaneous waste matter which are washed out into the rivers and, eventually, into the sea. Furthermore, while conventional wood-pulp paper can be recycled, this process still requires the use of water for mixing, and the use of bleaching, to create a usable end product; the recycling process is extremely complex, and produces a great deal of waste water.

After 12 years of R&D work, Taiwan Lung Meng Tech has succeeded in creating a new type of paper that, functionally speaking, is practically the same as conventional paper, but which can be produced without the felling of trees, without the use of water, acidic and alkaline agents or bleach, and without creating waste water or waste gases, through the utilization of a concept similar to that of plastic extrusion, employing large quantities of inorganic mineral powder and small quantities of resin. This new paper is water-resistant, abrasion-resistant, and easily foldable. When compared to traditional pulp and paper manufacturing techniques, the production of each ton of Taiwan Lung Meng Tech's "stone paper" saves 20 trees, reduces the amount of solid waste created by 75.7 kilos, cuts the amount of waste water produced by 19 kilos, reduces the amount of waste gas produced by 107 kilos, and saves around 1,646 kilos of water.

Taiwan Lung Meng Tech's environmentally-friendly paper, also known as "Stone Paper," has been patented in over 40 countries. This paper has a wide range of applications, including the production of car handbooks, place mats, labels for frozen food products, tablet PC casings, smartphone casings, covers, notebooks, etc. (Fig. 7-5-2). Taiwan Lung Meng Tech is a supplier to many leading international corporations, including Microsoft, McDonald's, Toyota, Acer, IKEA, and 7-11.

Figure 7-5-2 "Stone Paper" Products

Source: http://www.stonepaperapp.com/index.php?menu=Our%20Products&lang=ch.

Taiwan Lung Meng Tech's "Stone Paper" has already been awarded ISO 14001 environmental certification, along with Cradle-to-Cradle (C2C) Silver certification. The basic idea behind this certification is to learn from nature, ensuring that the nutrients that everything contains go back to nature. The "nutrient management" concept is used, whereby a clear idea of how the product will end its lifespan is developed right at the product design stage, with the aim of ensuring that material is continuously recycled. Cradle-to-Cradle can be divided into two recycling systems: ecological recycling and industrial recycling. Ecological recycling products are manufactured from biodegradable materials, and eventually go back into the natural ecosystem where they provide

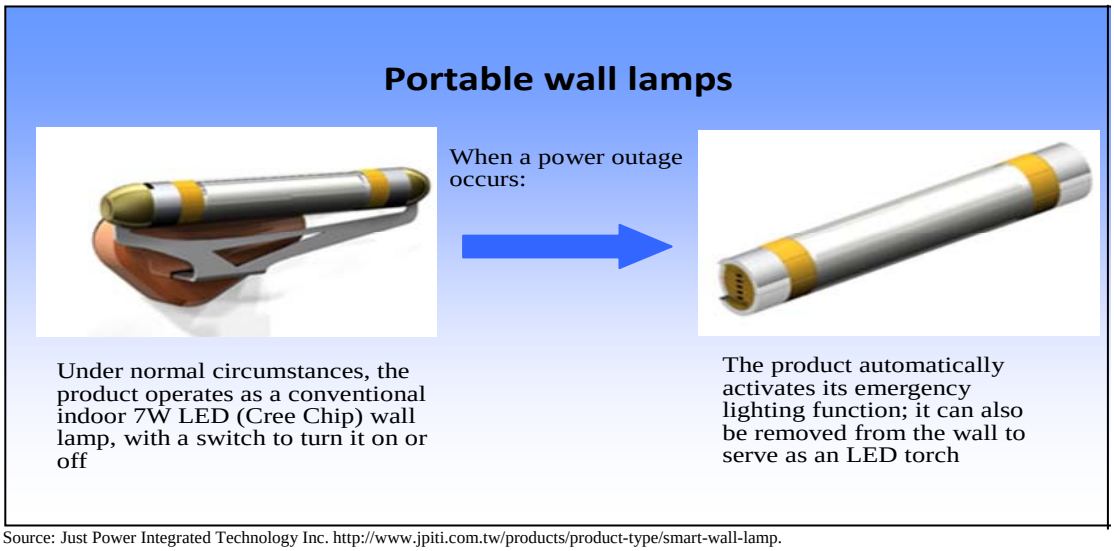
nutrients. Industrial recycling products and materials are continually returned to the industrial cycle; waste products are recycled to create material of the same or higher quality, and then made into new products. Worldwide, over 400 products have received Cradle-to-Cradle certification; only two Taiwanese products have been awarded Cradle-to-Cradle Silver certification, with Taiwan Lung Meng Tech being the first Taiwanese company to receive Cradle-to-Cradle certification.

3. Just Power

Just Power Integrated Technology Inc. evolved out of iDESYN Semiconductor Corporation, which was founded in March 2009. Initially, iDESYN's main business area was the manufacturing of machinery and electronic components for use in semiconductor testing. Recognizing the increasingly serious problem of global resource shortages, and in line with the company's emphasis on sustainability and the government's policy of promoting environmental protection and energy conservation, in 2010 it assigned an R&D team to work on the development of LED lighting products. iDESYN was renamed Just Power in July 2010.

Today, all Just Power products incorporate "smart" LED lighting as their core element. Ordinary LED lamps are integrated with an emergency lighting function, so that under normal circumstances the lamps operate as ordinary LED lights, but in the event of a power outage they can function as emergency lighting. Just Power's products are also equipped with a smart remote control unit to provide even more convenience for consumers. This "smarter" lighting solution enables consumers to enjoy greater peace of mind in their home living environment. In early 2011, Just Power's "Smart Lighting" series of portable wall lamps won the Innovation Award at the 2011 Taiwan International Lighting Show.

Figure 7-5-3 Just Power's "Smart Lighting" Products



Source: Just Power Integrated Technology Inc. http://www.jpiti.com.tw/products/product-type/smart-wall-lamp.

VI Strategies and Methods for SMEs to Develop Green Business Opportunities

Since the concept of the "Green New Deal" was first introduced by the United Nations, countries throughout the world have begun to take the Green New Deal concept as the basis for their own energy conservation and carbon reduction measures. However, the areas on which Green New Deal policies focus will inevitably depend on the current state of economic development of the countries concerned; there is thus a high degree of variation in this regard. Nevertheless, given that, currently, government policy is still the main driver of green industry development in most parts of the world, a broad division can be drawn between green industry development policy in developed nations and in the developing nations. More specifically, because the developed nations tend to consume large quantities of hydrocarbon energy, the main emphasis in their green industry development initiatives has been on developing renewable energy sources, whereas in developing and underdeveloped nations where economic infrastructure is lacking, the response to calls to implement the Green New Deal is likely to be limited to finding ways to reduce carbon dioxide emissions.

Besides the sustainable development aspect, another major goal for most countries when developing green industry is the desire to use green industry to stimulate economic growth. This is because the traditional economic development model is increasingly approaching the limits to growth. In the aftermath of the global financial crisis, a new economic growth model is needed, and many countries believe that green industry has the potential to be the new "rising star" for industrial development.

If one adopts a broad definition of what is meant by "green industry", then the potential business opportunities for SMEs are more or less unlimited. With the impact of new environmental directives and rising environmental awareness among ordinary consumers, "green" products that embody environment-related ideas – ranging from ordinary household goods made from environmentally-friendly materials to environment-connected food, clothing, housing, transportation, leisure and entertainment, etc. – all offer new market segments for SMEs to develop. By combining compliance with environmental directives with innovative thinking, an SME can achieve a smooth introduction of its new, green products into the market, and secure a place at the table.

If a more narrow definition of "green industry" is adopted, this would include the environmental services industry, the environmental equipment industry and the environmental resources industry. The main scope of business for enterprises in these industries is helping other companies to "go green," ensuring that these firms conform to environmental requirements in terms of design, production, recycling and repurposing, etc., thereby helping to reduce the negative impact on the environment. According to a study conducted by the Commerce Development Research Institute (CDRI), when narrowly defined, green industry currently has annual sales of approximately NT$30 billion, but this figure could rise to NT$90 billion in the future. However, there are still some significant challenges to be overcome if this is to be achieved.

Although Taiwan's green industry (narrowly defined) has a technological advantage over China and the ASEAN member nations, and although there is a sound regulatory environment and effective guidance measures in place, with the government using green procurement and public construction to stimulate the industry's development, because the vast majority of the firms that make up this industry are SMEs, they often experience difficulty in securing access to the legal and regulatory information they need; added to this are the problems caused by complex, badly coordinated government policies, the relatively small size of the Taiwanese domestic market, and intense market competition, etc. However, Taiwan enjoys a strategic economic "hub" location at the heart of the Asia-Pacific region, as well as a shared ethnic and linguistic background with China; following the signing of the ECFA agreement between Taiwan and China, there should be significant potential for Taiwan to fully exploit is central location within the region in the development of the Chinese market. A further point is that Taiwan possesses an electronics industry with a comprehensive supply chain and high annual production value, which should help to drive the development of the environmental services industry. However, it is worth noting that China's Twelfth Five-year Plan lists the development of the environmental industry as a priority area, and that other technologically advanced nations are also working to develop the China market; Taiwan's green industry (narrowly defined) will thus also need support from the government. Provided that the government can provide suitable resources and assistance, the potential for successful development of green industry (narrowly defined) is substantial.

Based on the above analysis, the following recommendations can be made as to how Taiwan's SMEs can develop the business opportunities in green industry (broadly defined), and how the government can help firms to take full advantage of the business opportunities available in green industry (narrowly defined).

1. Recommendations for Business Enterprises

(1) Keeping Abreast of Green Trends

If SMEs wish to take advantage of the business opportunities being created by the current vogue for green products, they will need to familiarize themselves with major green trends. Given the efforts currently being made by the government to promote "green trade," export-oriented SMEs should make an effort to learn about the various measures that the government has been implementing, in order to gain access to useful guidance resources that can help them to enhance the "greenness" of their business operations. SMEs also need to focus on obtaining relevant certification, so as to be able to expand the scale of their exports and establish a solid foundation for the ongoing development of green business opportunities.

To give a concrete example, the Ministry of Economic Affairs (MOEA) has been implementing a Green Trade Project, focusing on the list of 408 environmental products issued by the WTO's Committee on Trade and Environment in Special Session (CTESS), and has identified firms with significant export competitiveness that are past winners of the Taiwan Green Classics Award or whose products are included on the Green Trade Project's list of green products, to be the recipients of special support in the form of consulting and guidance services. If Taiwan's SMEs can succeed in gaining a thorough understanding of current trends in green products, and then identify

opportunities for the effective integration of green concepts into product development that take advantage of these trends, while also making effective use of government guidance resources, it should be possible for SMEs to achieve successful development of green business opportunities (for example, Supertex took advantage of its participation in the Industrial Development Bureau's Waste Reduction Programme to exploit the business opportunities relating to products made from recycled PET bottles).

(2) "Going Green" in Industry

Existing international environmental agreements and directives constitute a significant entry barrier for new entrants to particular markets. To be able to develop these markets, SMEs need to conform to the environmental requirements that apply to their products, such as ISO 14000, WEEE or RoHS. In other words, it is only by first going green themselves that SMEs can hope to successfully develop green business opportunities.

2. Recommendations for Government

(1) Proactive Guidance to Minimize the Problem of Information Asymmetry as its Affects SMEs

The vast majority of the companies that make up Taiwan's green industry (narrowly defined) are SMEs, which are inherently disadvantaged compared to large enterprises because of the limited resources available to them. Another problem for SMEs is the extent and complexity of environmental legislation; for example, the *Air Pollution Control Act* has a total of 81 sub-statutes and regulations. While the government does make an effort to publicize all of the relevant information, SMEs' ability to access and interpret this information is inevitably inferior to that of large enterprises. The government needs to adopt a more proactive approach to ensuring easy access to information, for example by holding regular seminars and presentations, or working with industry associations to step up the publicizing of relevant laws and regulations.

(2) Ongoing Promotion of Industry Cluster Development and Technology Upgrading

Currently, Taiwan's green industry (narrowly defined) lags behind Europe, North America and Japan in terms of the level of environmental technology. This problem is exacerbated by the fact that the vast majority of the firms making up Taiwan's green industry are SMEs. The knowledge spillover effects associated with industry clusters can help Taiwan's green industry as a whole to enhance its technology capabilities. The Environmental Protection Administration (EPA) is already implementing an Environmental Science and Technology Park (ESTP) initiative, involving the establishment of four ESTPs in Taoyuan, Tainan, Kaohsiung and Hualien. However, the number of firms actually operating in these parks is currently quite low (a total of 6 firms in Taoyuan, 7 in Tainan, 21 in Kaohsiung and 4 in Hualien), and the four ESTPs have not really been distinguished from one another in any significant way, so that there is little incentive for clustering. To overcome these problems, the government needs to put more effort into getting the ESTPs operating smoothly, while continuing to provide incentives for business enterprises to locate themselves there, and working to give each ESTP its own distinct identity. Only then will it be possible to create a genuine cluster effect that will contribute to enhancing the technology level of the firms located there.

(3) Speeding up the ECFA Negotiations and Working Proactively to Secure Opportunities for Participation in Regional Trade Groupings

Taiwan green industry (narrowly defined) is largely oriented towards the Taiwanese domestic market. However, Taiwan is a relatively small market, while the lack of significant differentiation between firms in terms of technology makes for fierce competition. Only an expansion in market scale can save Taiwanese enterprises in this industry from falling into a vicious circle of competition based on price undercutting. The signing of the ECFA agreement between Taiwan and China puts Taiwan in an advantageous position within the East Asia regional economy. Taiwan should seek to gain maximum benefit from this advantage, using the ECFA negotiations to secure preferential treatment for Taiwan's environmental equipment manufacturing industry, so that Taiwanese firms can leverage their technical superiority over Chinese firms and gain first mover advantage in the China market.

It is important to note that, with China currently in the process of negotiating FTAs with Japan and South Korea, Taiwan cannot afford to rely solely on ECFA, otherwise there is a serious risk of becoming too dependent on the China market. Besides continuing with the ECFA negotiations, Taiwan needs to speed up the pace of negotiations to secure the ASTEP agreement with Singapore, the Taiwan – New Zealand ECA, and FTAs with the U.S. and the E.U. Taiwan should also be working actively to secure membership of the Trans-Pacific Strategic Economic Partnership (TPP) agreement, which can be thought of as an expanded version of APEC, so as to be able to compete on a level playing field with the member nations of the "APEC Plus Three" grouping and with the signatory nations of the FTAs being signed between China, Japan and South Korea, etc.

(4) Speeding up Industrial Upgrading to Secure Taiwan's Status as a Leading Upstream Supplier of Key Components

A study by Wang Su-wan and Ts'ai Chin-hung (2009) notes that, whereas there is a pronounced vertical (upstream-downstream) industrial division of labor between Taiwan and China (including Hong Kong), regional free trade groupings such as the EU, NAFTA and AFTA involve a basically horizontal division of labor between member economies that display a high degree of homogeneity. Given the trend towards regional economic integration, Taiwan should make industrial upgrading its main strategy, with the aim of securing a key position in the upstream segment of the industrial value chain.

(5) Strengthening Communication and Coordination, and Striving for Greater Consistency in Government Policy

The "green economy" has gradually expanded from basic waste processing and pollution control to include waste reduction (including volume reduction of solid waste) and pollution prevention. The scope covered by the green economy now includes the recycling industry and the recycling environment, as well as sustainable development; the range of government agencies involved has grown to include the Ministry of Economic Affairs (MOEA), the Environmental Protection Administration (EPA), the Construction and Planning Agency, Ministry of the Interior, etc. As a result, effective coordination of the policies adopted by different government agencies has become

increasingly important, with a particular need for efficient inter-agency communication that can prevent unnecessary disruption or duplication of effort, and help create extra synergy.

Part Three

Government SME Policies and Prospects

CHAPTER 8

Providing SME Financing and Investment Capabilities

Many SMEs in Taiwan possess unique technology and innovative products, but because of their small size, operational weaknesses, and lack of financial transparency, SMEs generally find it difficult to obtain funding from the capital markets; in addition, SMEs often lack assets that can be used as collateral. This situation has a direct negative impact on the SMEs' ability to grow, and there is thus a clear need for the government to provide more in the way of financing guidance and credit guarantees.

The government should be working actively to establish effective financing guidance mechanisms. Besides encouraging SMEs to make use of the various types of policy loan that are available from the government, establishing "SME Financing Service Windows" at major banks to give SMEs better access to financing information, and encouraging SMEs to make full use of the various low-interest loan schemes that the government provides, the government should also be using the SME financing guidance system and the SME Troubleshooting Center to provide various types of guidance and information, to help SMEs with requests for emergency assistance, and to provide consulting services. In addition, the government should also arrange for financial institutions to provide financing help for SMEs that are experiencing financial difficulties, help SMEs to establish sound financial and accounting systems and to enhance their financial management capabilities, and use the SME Credit Guarantee Fund to provide credit guarantees, thereby increasing banks' willingness to extend loans to SMEs; this could be supported by investment in SME startup incubation, to help newly-established SMEs obtain the working capital they need.

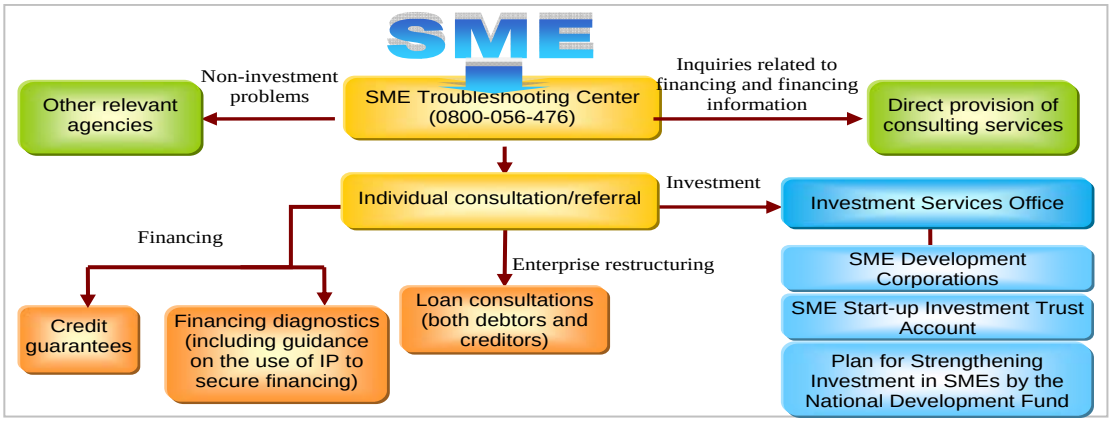
In order to provide comprehensive assistance for SME development, and achieve a further strengthening of financing channels, the Ministry of Economic Affairs has also been working actively to provide innovative new value-added services with respect to SME credit guarantees, investment and guidance, including: helping SMEs to make effective use of their intellectual property to obtain financing, arranging the provision of direct credit guarantees by the SME Credit Guarantee Fund, providing assistance for business startup, launching the Phoenix loan scheme for micro-enterprises, using the Firefly mutual guarantee scheme to help SMEs in the upstream, midstream and downstream segments of particular industries to obtain loans at preferential interest rates, and organizing SME investment plans, etc., thereby giving SMEs a wider range of financing channels to choose from. In 2010-2011, the measures described in the following sections were implemented to strengthen SME financing and investment capabilities.

I Providing Financing Service and Assistance

1. Providing SMEs Financing Service and Assistance

The SMEA has established the SME Troubleshooting Centers to provide SMEs with consulting services in line with their individual needs. The SME Troubleshooting Centers provide assistance in a wide range of areas, including financing diagnostics and consulting, and consultation, referral and guidance, etc., regarding loans (for both borrowers and creditors). The consultation mechanisms are outlined in Figure 8-1-1.

Figure 8-1-1 Finance and Financing Consultation Mechanism



Source: Small and Medium Enterprise Administration, Ministry of Economic Affairs, 2011.

2. Establishment of the SME Financing Service Contact Windows, to Provide Investment and Financing Consulting Services

To help provide SME owners and managers with the financing information they need, and to expand the range of financing service channels available to SMEs, the SMEA has arranged for the establishment of SME Financing Service Contact Windows in the branches of major financial institutions. These Contact Windows provide inquiry and consulting services related to financing guarantees, investment and financial management. In all, 34 banks have established SME Financing Service Contact Windows. SMEs can use the Contact Windows to obtain comprehensive financial information, and to find out about the various types of low-interest loans that the government makes available to SMEs, thereby helping to solve SMEs' financing problems.

3. Setting up the SME Financing Services Platform to Help SMEs Secure Financing

At a meeting of the SME Development Fund Managing Committee held in April 2008, the Committee approved the disbursal of NT$5 million from the SME Development Fund (along with an additional NT$5 million each from five banks – Taiwan Cooperative Bank, First Commercial Bank, Taiwan Business Bank, E.Sun Bank and Chinatrust Commercial Bank – for a total investment of NT$30 million) to establish an SME Financing Services Platform to make it easier for SMEs to secure bank loans by providing clear, transparent details about SME

operations that banks can use as a basis for decision-making when determining whether to grant loans to SMEs. If banks have a clearer picture of the business models that SMEs are using and of what their funding needs are, they are more likely to expand the provision of loans to SMEs, creating a win-win situation for SMEs (which often find it difficult to secure working capital), banks, and the government, which is seeking to provide active support to help SMEs achieve steady growth. The SME Financing Services Platform formally commenced operations on April 1, 2009.

4. Establishing a Financing Services Team for SMEs to Obtain Working Capital

The Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) has established a Financing Services Team. Working through the SME Financing Guidance Platform, the Team helps SMEs to put in place suitable accounting systems, so as to improve their financial structure, which in turn will make it easier for SMEs to obtain the working capital financing they need, thereby enhancing their competitiveness. The main services provided by the Financing Services Team include: (1) Provision of consulting services related to financial, accounting and financing problems, business plans, before SMEs submit loan applications, and the provision of on-site consulting and guidance services related to financial management and internal controls; (2) Provision of guidance to help banks monitor the status of loans granted to SMEs.

5. Finance and Accounting Information Application and Guidance Support for Innovation-oriented SMEs

By and large, the owners of innovation- and R&D-oriented business enterprises have a background in technology or sales, and firms of this type often lack the specialist financial and accounting talent needed to deal with the enterprise's finances and tax planning. To help innovation-oriented SMEs overcome the many financial and accounting management related challenges that they face, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) has been implementing the Innovation-oriented SME Financial and Accounting Information Application and Guidance Plan, with the aim of "promoting the application of information technology to financial and accounting affairs, and optimizing innovation-oriented SMEs' financial and accounting management capabilities." The Plan's key implementation items for 2012 are: (1) Making available the "Streamlined SME Financial Management Tool" financial and accounting software; (2) Organizing events and activities to publicize the ways information technology can be applied to SMEs' financial and accounting operations. (3) Maintaining the "SME Financial and Accounting Information Application Guidance Service Platform"; (4) Promoting the development of innovative development and guidance services for SMEs.

6. Assisting Firms with Debtor/Creditor Negotiations

To help ease the pressure of loan repayment demands from financial institutions on business enterprises that are experiencing operational difficulties, the Ministry of Economic Affairs has drawn up the MOEA Guidelines for Assisting Business Enterprises Involved in

Debtor/Creditor Negotiations with Banks; the aim of these Guidelines is to help prevent firms from being forced out of business by cash-flow problems. Companies in need of assistance can submit applications in the manner specified in the Guidelines. If the firm in question passes diagnostic appraisal, the MOEA will then ask the firm's largest financial institution creditor to convene a debtor/creditor consultation meeting to agree on a rollover, extension, or repayment proposal.

In addition, in accordance with the Executive Yuan's "Economic Revitalization Policy," the government is also implementing the following measures to assist business enterprises with debtor/creditor negotiations:

1. Where a firm has passed assessment by the MOEA's handling unit, arrangements can be made for the firm's largest financial institution creditor to convene a consultation meeting.
2. Provided that the agreement of financial institution creditors representing two-thirds of the firm's outstanding debt can be obtained, all of the financial institutions in question can be required to abide by the strategy adopted to help the firm deal with its debt.
3. The deadline for applications is December 31, 2012.

7. The Taiwan Small Business Integrated Assistance Center (SBIAC) – Providing Specialist Financial Management Support Services

The Taiwan Small Business Integrated Assistance Center (SBIAC) was founded in 1982 through the provision of donations by seven financial institutions – the Bank of Taiwan, Land Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank, Chang Hwa Commercial Bank and Taiwan Business Bank – with the aim of strengthening SMEs' managerial capabilities and competitiveness through the provision of comprehensive guidance, assistance with financing, advice on improving financial management, and assistance with the cultivation of specialist talent, in line with government strategy regarding SME development. The SBIAC provides a comprehensive range of guidance and funding support services for SMEs with significant development potential that have experienced difficulty in obtaining financing from financial institutions.

8. Using Policy Loans to Help SMEs Obtain Financing for Special Projects

The government provides SMEs with various types of policy loans, either directly or through collaboration with banks. What distinguishes these loans from ordinary loans is that the loans are granted for specific purposes, and have preferential interest rates. Altogether, 24 different types of loan are available in 11 categories: SME upgrading loans, loans for the purchase of production equipment, business start-up loans, R&D loans, tourism development loans, export and overseas investment loans, recovery loans, small-value loans, international patent dispute loans, distribution services loans, and loans for entrepreneurs who have returned to Taiwan from overseas.

9. Implementation of the Fifth Stage of the Plan for Increasing Loans to SMEs by Domestic Banks

To encourage the development of a long-term partnership relationship between SMEs and banks, and thus help SMEs to obtain working capital, the Financial Supervisory Commission (FSC) decided that implementation of the Plan for Increasing Loans to SMEs by Domestic Banks should continue into a sixth stage (from January 1, 2011 to December 31, 2011).

To encourage the building of long-term partnership relationships between SMEs and their banks, and to help create a better financing environment for SMEs, in 2012 the Financial Supervisory Commission continued with the seventh year of implementation of the Plan for Increasing Loans to SMEs by Domestic Banks, with the target of raising domestic banks' outstanding loans to SMEs by at least NT$220 billion by the end of December 2012, as compared with December 2011. The range of SMEs that are eligible for assistance under this scheme was expanded by deeming that small commercial enterprises as defined by Article 5 of the Commercial Registration Law that conform to the criteria for SME Credit Guarantee Fund credit guarantees can be classed as SMEs; in addition, a new "Special Award for Contributions to Balanced Regional Development" has been instituted.

10. Providing Credit Guarantees for Loans to Help Industries Affected by Trade Liberalization to Upgrade and Transform

With respect to those industries that are particularly vulnerable to the negative impact of trade liberalization, the Ministry of Economic Affairs (MOEA) has begun implementing the Plan for the Provision of Industrial Adjustment Support in Response to Trade Liberalization. Three different levels of adjustment support are available, depending on the extent to which the individual firm will be affected by trade liberalization: Revitalization Guidance, Structural Adjustment, and Relief for Harm Suffered. At the Relief for Harm Suffered stage, the MOEA can provide Upgrading and Transformation Loans for Industries Affected by Trade Liberalization, as relief for those industries and individual firms that have suffered harm because of the impact of trade liberalization. These loans are available to help industries (or firms) which it has been confirmed – in an International Trade Commission (MOEA) Import Relief Case – have suffered harm to reorient themselves towards a different industry or different products.

II SME Financing and Credit Guarantees

To help strengthen the provision of credit guarantees to SMEs, the government established the SME Credit Guarantee Fund in 1974. More recently, as part of the government's efforts to ensure that the operation of the credit guarantee system and industry guidance system conform to the needs of the government's industrial policy (thereby facilitating effective policy implementation), on May 15, 2003 the Executive Yuan approved the replacement of the Ministry of Finance by the Ministry of Economic Affairs as the regulatory authority with oversight over the SME Credit Guarantee Fund; from this point on, the SME Credit Guarantee Fund was able to provide both direct and indirect credit guarantees.

1. The Principles That Underlie the SME Credit Guarantee Fund's Operations, the Fund's Functions

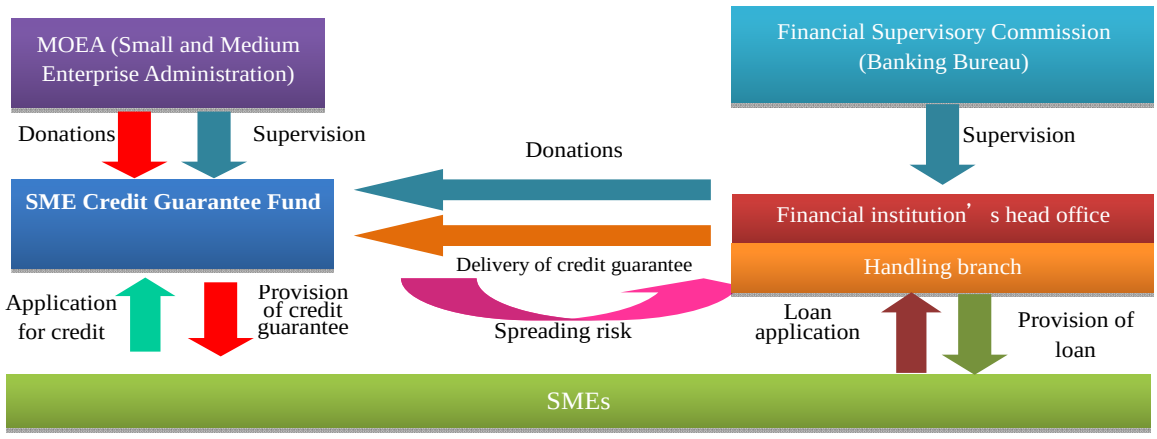
The main purpose that the SME Credit Guarantee Fund was established to fulfill was to provide credit guarantees to SMEs, and to work closely with financial institutions in the development of financing guidance services for SMEs, helping SMEs to obtain the funding they need from financial institutions and thereby contributing to the healthy development of Taiwan's SME sector and promoting Taiwan's economic growth and social stability. The SME Credit Guarantee Fund's main functions are as follows:

1. helping SMEs to overcome the difficulties that they experience when trying to provide the collateral needed to secure loans
2. To make financial institutions more willing to provide loans to SMEs
3. To maximize the efficacy of guidance projects undertaken by other SME guidance organizations

2. Establishment and Operation of the SME Credit Guarantee Fund, and Application for Credit Guarantees

The mechanisms for the establishment and operation of the SME Credit Guarantee Fund involved the allocation of a supporting budget by the government and the signing of contracts with financial institutions whereby they agree to provide additional funding to boost the Fund's ability to provide credit guarantees, and to share some of the potential loss (Fig. 8-2-1), thereby enabling the Fund to continue providing guarantees and helping SMEs that have significant development potential but which lack sufficient collateral to secure the financing they need from financial institutions.

Figure 8-2-1 Establishment and Operation of the SME Credit Guarantee Fund



Source: SME Credit Guarantee Fund, 2012.

Application for a credit guarantee can be made either via a financial institution or directly to the SME Credit Guarantee Fund, depending on the requirements of the individual enterprise making the application.

(1) Application via a financial institution

The SME Credit Guarantee Fund has signed credit guarantee agreements with 40 leading Taiwanese financial institutions. Business enterprises can submit their application for a credit guarantee at any of over 3,000 branches belonging to these 40 financial institutions throughout Taiwan; the financial institution in question will then pass the application on to the SME Credit Guarantee Fund.

To improve overall service quality and create a more user-friendly online handling environment, the SME Credit Guarantee Fund has restructured the existing "authorized guarantee" and "special project guarantee" systems so that applications received via financial institutions are now handled by a single, unified contact window; the new credit guarantee online processing system was launched on July 1, 2012.

(2) Application made directly to the SME Credit Guarantee Fund

In line with government policy regarding industrial development and the strengthening of SME financing, SMEs with significant R&D, operational or market development potential may now apply directly to the SME Credit Guarantee Fund for credit guarantees, which they can then use to secure financing from financial institutions.

1. Expanding the Scope of Credit Guarantee Operations in Line with the Requirements of Government Policy

Besides undertaking regular SME credit guarantee operations, the SME Credit Guarantee Fund also collaborates with government policy implementation by providing a range of other credit guarantee services. As of the end of April 2012, the Fund was providing the following types of credit guarantee to meet the needs of various government policy initiatives (Table 8-2-1).

2. Implementation by the SME Credit Guarantee Fund of the Plan for Promoting Employment through Credit Guarantees

To provide continued support for the implementation of the government's Economic Revitalization and Employment Promotion Policy Measures, helping business enterprises to obtain the working capital funding they need from financial institutions (thereby protecting existing jobs, and also creating new jobs), after reviewing the results achieved in the SME Credit Guarantee Fund Golden Lever Project, in 2010 it was proposed that a new Plan for Promoting Employment through Credit Guarantees should be implemented. While maintaining the original measures of the Golden Lever Project to provide smoother access to credit, this new scheme also brings business start-up loans within the scope of credit guarantee provision, freeing new start-ups from the requirement that credit guarantee recipients must have been in business continuously for a specified period of years. There is also a reduction in the charge rates for credit guarantees, etc. for those enterprises that achieve significant results in job protection and job creation. In 2012, it was decided that, to continue the provision of support for the government's employment creation policy, while at the same time taking into account the risks applying to SME financing and credit guarantees, a revised version of this program would be implemented up until December 31, 2012.

Table 8-2-1 The Types of Credit Guarantees

Type of Credit Guarantee	Starting date	Name
Credit Guarantees for Entrepreneur Loans	October 1986	Credit Guarantees for Young Entrepreneur Loans
	May 2007	Credit Guarantees for Firefly Counterpart Guarantee Loans (merged with Micro-enterprise Start-up Loans)
	February 2008	Credit Guarantees for Firefly Counterpart Guarantee Fund Loans for People Who Have Been in Care
	February 2009	Credit Guarantees for New Taipei City Government's "Happy Start-up" Low-interest Loan Program
	August 2010	Credit Guarantees for Start-up Loans for the Jobless Based on Employment Insurance
	June 2011	Credit Guarantees for Taipei City Young Entrepreneur Financing Loans
Credit Guarantees for Firefly Counterpart Loans	January 2009	Credit Guarantees for Kaohsiung City Government's "Little Giants" Business Loans
	April 2009	Credit Guarantees for Taipei City SME Financing Loans
	June 2010	Credit Guarantees for SME Strategic and Innovative Financing Loans
	December 2009	Credit Guarantees for Travel Industry Loans
Credit Guarantees for Areas Damaged in Natural Disasters Loans	May 2006	Credit Guarantees for Disaster Recovery Loans
	October 2008	Credit Guarantees for Loans to Repair Buildings Damaged in Natural Disasters
	September 2009	Credit Guarantees for Home Repair Loans for Households Affected by Typhoon Morakot
	September 2009	Credit Guarantees for Loans for Enterprises Affected by Typhoon Morakot
	December 2009	Credit Guarantees for Loans to Tourism Industry Enterprises Affected by Typhoon Morakot
Credit Guarantees for Specific Industry Loans	February 2007	Credit Guarantees for Low-interest Loans for Film and TV Content Production
	May 2010	Credit Guarantees for Loans for Key Service Industries
	July 2010	Credit Guarantees for Loans to Help Industries Affected by Trade Liberalization to Upgrade and Transform
	November 2010	Credit Guarantees for Loans for Sports and Service
	April 2011	Credit Guarantees for Low-interest Loans for Cultural and Creative Industries
Credit Guarantees for Boosting Employment Financing Loans	May 2010	Credit Guarantees for Small Retailer Loans
	July 2010	Credit Guarantees for SME New Business Start-ups
Other Credit Guarantees	October 1990	Credit Guarantees for Brand Development Loans
	July 2005	Credit Guarantees for Loans to Help Taiwanese Enterprises Fight International Patent Lawsuits
	January 2006	Credit Guarantees for Loans to Help SMEs Invest in Countries with Which Taiwan has Diplomatic Relations
	April 2011	Credit Guarantees for Innovation or R&D Loans for Industrial Upgrading

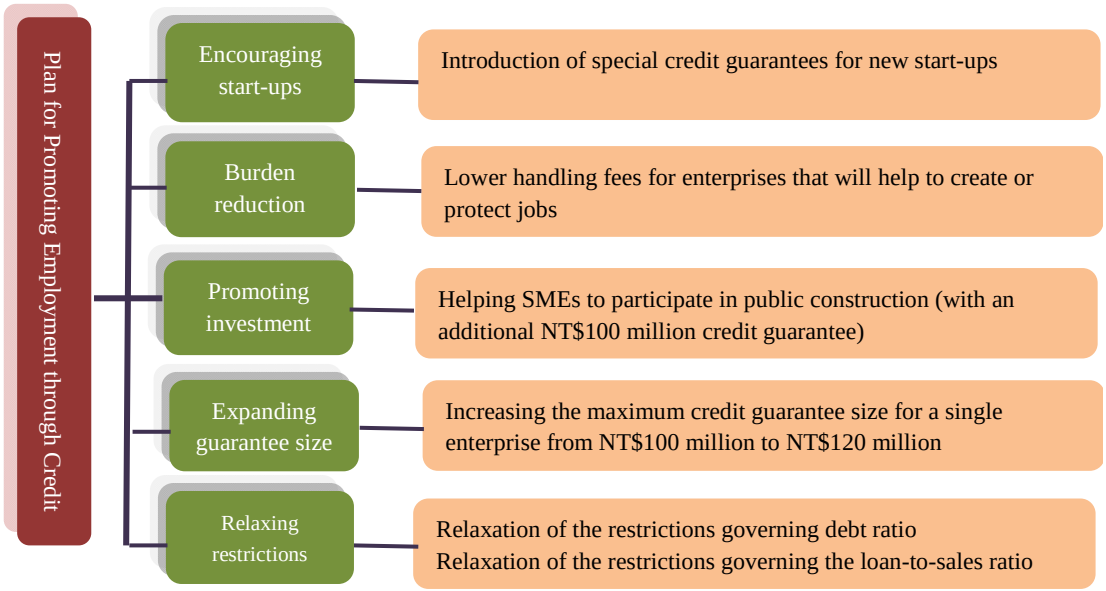
3. The Results Achieved through the Provision of Credit Guarantees to SMEs

After 38 years of hard work, the SME Credit Guarantee Fund has achieved impressive results, and the total volume of credit guarantees provided has grown rapidly.

(1) The Benefits Achieved in Terms of SME Funding

As of the end of May 2012, the SME Credit Guarantee Fund had helped a total of 320,638 enterprises. The total number of credit guarantees provided through financial institutions was 4,665,978 with a cumulative credit guarantee volume of NT$9,328.1 billion (Table 8-2-3).

Figure 8-2-2 The Content of the Plan for Promoting Employment through Credit Guarantees



Note: Some of the measures noted above have been adjusted following the introduction of the SME Credit Guarantee Fund's new online processing system on July 1, 2012.
Source: SME Credit Guarantee Fund, 2012.

Table 8-2-2 The Performance of the SME Credit Guarantee Fund in Credit Guarantee Provision, 2007-May 2012

Item / Year	No. of Credit Guarantee Recipients	No. of Credit Guarantee Applications Accepted	Combined Value of Credit Guarantees (NT$ millions)	Total Amount of Financing Secured (NT$ millions)	Outstanding Credit Guarantees at Year-end (NT$ millions)	Outstanding Financing at Year-end (NT$ millions)
2007	154,859	238,801	290,611	495,257	358,998	554,129
2008	147,452	237,446	330,757	523,151	328,988	501,395
2009	139,755	254,807	475,248	631,207	393,928	532,439
2010	135,821	312,593	692,598	863,787	489,577	625,493
2011	136,244	342,796	808,426	1,011,834	554,123	699,851
Jan. – May. 2012	128,695	148,158	355,330	446,055	575,138	725,373

Note: The number of credit guarantee recipients listed above is the total for that fiscal year; it does not include the following types of guarantee recipient: credit guarantees for tertiary education student loans, which the SME Credit Guarantee Fund has been handling on behalf of Taipei City Government and Kaohsiung City Government since January 2003; credit guarantees for overseas study loans, which the Fund has been handling since August 1, 2004; credit guarantees for young people's overseas working holidays, which the Fund has been handling since July 1, 2005; credit guarantees for Taipei City Young People's Overseas Study Loans, which the Fund has been handling since June 1, 2011.
Source: SME Credit Guarantee Fund.

Table 8-2-3 Provision of Credit Guarantees to SMEs by the SME Credit Guarantee Fund, 2007 – May 2012

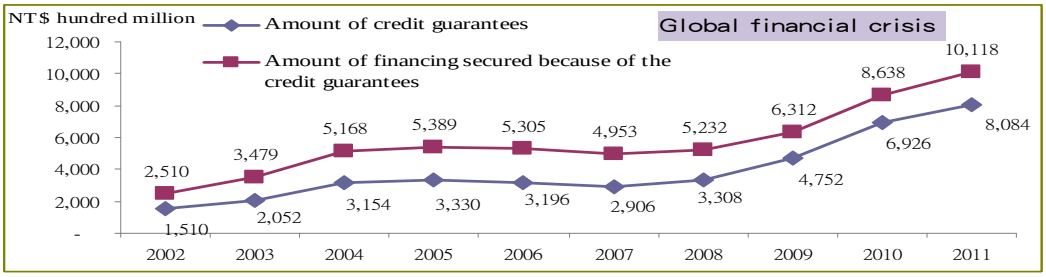
Item / Year	No. of Credit Guarantee Recipients	No. of Credit Guarantee Applications Accepted	Combined Value of Credit Guarantees (NT$ millions)	Total Amount of Financing Secured (NT$ millions)	Outstanding Credit Guarantees at Year-end (NT$ millions)	Outstanding Financing at Year-end (NT$ millions)
2007	147,227	236,409	288,210	492,721	348,553	542,550
2008	139,768	235,020	327,830	519,654	318,705	489,946
2009	130,269	248,374	462,030	613,141	376,768	511,394
2010	124,932	305,463	676,592	842,801	468,750	600,562
2011	124,640	336,973	800,382	1,001,720	536,400	679,336
Jan. – May. 2012	117,008	146,091	353,187	443,520	558,638	706,518

Source: SME Credit Guarantee Fund.

(2) Reducing the Negative Impact of the Global Economic Downturn on SMEs

The downturn in the global economy has led financial institutions to adopt cautious lending policies. Over the years, whenever Taiwan's economy has been depressed, the SME Credit Guarantee Fund has stepped up its support for SMEs, helping to mitigate the negative impact that SMEs experience during an economic downturn and in the early stages of the recovery (Fig. 8-2-3).

Figure 8-2-3 Provision of Credit Guarantees by the SME Credit Guarantee Fund over the Past Ten Years



Source: SME Credit Guarantee Fund, 2012.

(3) Being helped by the SME Credit Guarantee Fund to Grow

The vast majority of SMEs that receive credit guarantees from the SME Credit Guarantee Fund find that, within a few years, they are able to raise money on the capital markets or obtain loans directly from banks. Furthermore, 2,481 of the SMEs that have been granted credit guarantees in the past have since grown sufficiently large to be classed as "large enterprises" rather than SMEs, and 779 have secured a stock market or OTC listing.

As of June 2012, 63% winners of the Employment Contribution Award, National Award of Small and Medium Enterprises, Little Giant Award, Small and Medium Enterprise Innovation Research Award, and National Quality Award had previously been recipients of credit guarantees from the SME Credit Guarantee Fund

1. New Measures Being Implemented by the SME Credit Guarantee Fund in 2012

To help SMEs and micro-enterprises obtain the working capital they need, and to reinvigorate the provision of small-value commercial loans at the local level, in addition to working with other organizations to provide Firefly Counterpart Guarantee Fund credit guarantees, the SME Credit Guarantee Fund is also playing its part in the MOEA's SME guidance policy through the active implementation of various new credit guarantee initiatives in 2012, including the Support and Peace of Mind Project, the Returning Home to Realize a Dream Project, and the Lighting up the Stars Project.

(1) The Firefly Counterpart Guarantee Fund:

Currently, a total of seven county and city governments – Taipei City, New Taipei City, Tainan City, Kaohsiung City, Pingtung City, Yilan County and Penghu County – are participating in the Firefly Counterpart Guarantee Fund project. To encourage more county and city governments to take part, the share of the overall cost of providing credit guarantees that county and city

governments are required to bear has been reduced (central government agencies are now required to cover 50% of the cost, the five metropolitan governments are required to cover 40%, and other county and city governments are required to cover 30%); the aim is to make credit guarantees more widely available, so as to revitalize small-scale business activity at the local level.

(2) The Support and Peace of Mind Project:

In this Project, the SME Credit Guarantee Fund is working together with NGOs and collaborating with social welfare and charitable organizations to serve as a vehicle for the transfer of MOEA funds for use in financing support, to help micro-enterprises obtain small-value working capital loans.

(3) The Returning Home to Realize a Dream Project:

The Returning Home to Realize a Dream Project is being implemented in line with the government's Plan for the Provision of Loans to Help Young People Returning to the Communities Where they Grew up Start New Businesses. Young people aged 20 – 45 who are registered as citizens of Taiwan and conform to certain other conditions will be eligible to apply for start-up funding when they are getting their new businesses off the ground.

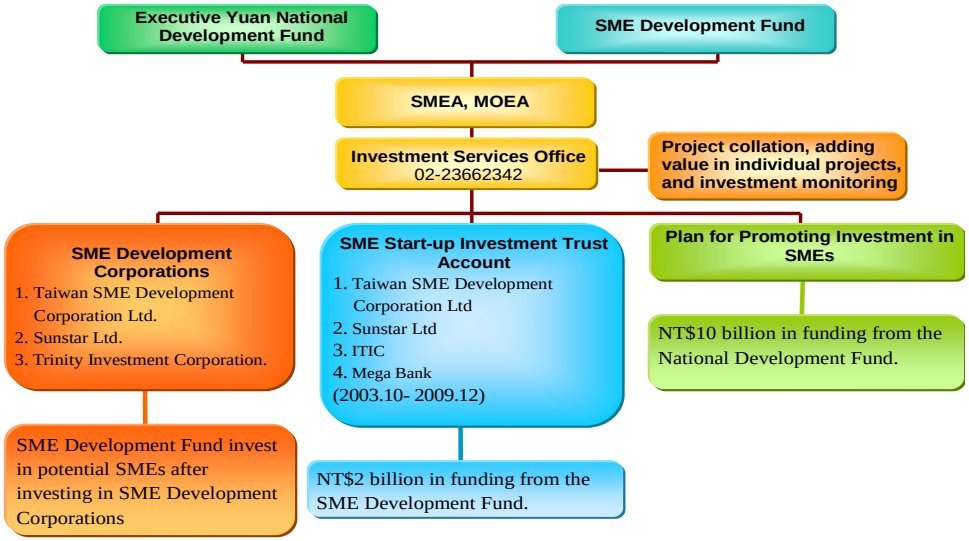
(4) The Lighting up the Stars Project:

To help support the development of Taiwan's key emerging industries – including the biotechnology, green energy, healthcare, cultural and creative, restaurant and logistics industries – the Lighting up the Stars Project has been launched to provide direct credit guarantees to companies in the "Six Key Emerging Industries," "Four Smart Emerging Industries," and "Ten Key Service Industries" that the government has designated. On average, these credit guarantees cover over 80% of the value of the loan; they can be expected to make a significant contribution towards ensuring smoother access to financing for SMEs.

III Strengthening Investment in the SME Sector

SMEs have always been the foundation on which Taiwan's economy rests, and they play an important role in ensuring social stability through job creation. To enhance the competitiveness of Taiwan's SMEs and create new financing channels for them, on March 26, 1993 the government promulgated the Regulations Governing the Establishment, Operation and Management of SME Development Corporations, with the aim of investing in the SME sector and providing SMEs with managerial and consulting guidance through the establishment of SME Development Corporations. In October 2003, to help SMEs overcome the difficulties that they often experience in securing equity investment, the SMEA established the SME Start-up Investment Trust Account system; in August 2007, the National Development Fund, Executive Yuan allocated NT$10 billion for use in this project, with the SMEA being commissioned to implement the Plan for Promoting Investment in SMEs. The SME investment architecture formed by these three measures is illustrated below (Figure 8-3-1):

Figure 8-3-1 Framework for Promoting Investment in the SME Sector



Source: Small and Medium Enterprise Administration, Ministry of Economic Affairs, 2012.

1. Establishing the Investment Services Office

To ensure more efficient implementation of investment initiatives, the Small and Medium Enterprise Administration established the Investment Services Office in September 2007. It was intended that the Office would provide support for the agencies commissioned to implement the Plan for Strengthening Investment in SMEs and the SME Start-up Investment Trust Account project, through the provision of "brains trust" consulting services and administrative support services. The Investment Services Office has been providing comprehensive guidance service for the companies charged with providing guidance for SMEs and incubation centers, and has been supporting the matching of domestic and overseas venture capital with business enterprises in Taiwan, while also serving as a platform for coordination and communication between the investment management companies involved in implementing investment projects and the SMEs taking part in the projects.

2. The National Development Fund's Plan for Promoting Investment in SMEs

To stimulate investment in the SME sector by venture capital firms and other private-sector companies, on April 17, 2007 the National Development Fund approved the Plan for Promoting Investment in SMEs; the Fund allocated NT$10 billion for investment in SMEs. This Plan is being implemented over a period of 10 years, with the actual investment taking place during the first seven years, and the remaining three years being devoted to the disposal of remaining investments. The formal launch of the Plan for Promoting Investment in SMEs took place on August 30, 2007.

Originally, under the Plan for Strengthening Investment in the SME Sector, venture capital firms were invited to invest in SMEs with significant growth potential at a 1:1 ratio with the

Executive Yuan National Development Fund. In September 2010, the Implementation Measures for the Plan for Strengthening Investment in the SME Sector were revised, with adjustments made to the capital provision ratio, with the aim of promoting SME development, making it easier for early-stage SME start-ups to secure funding, and supporting the Executive Yuan's strategy of promoting service sector development to create more job opportunities in Taiwan:

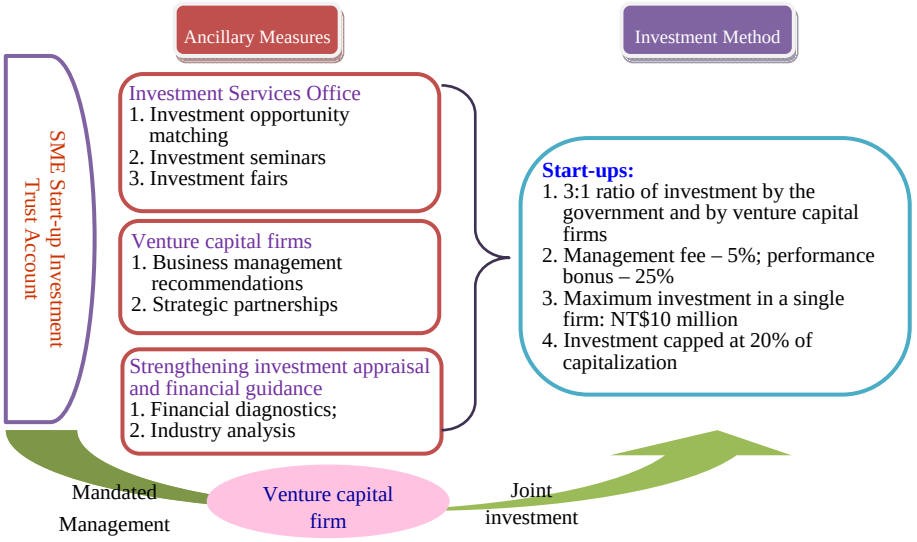
1. For enterprises at the seed-capital / start-up stage, the capital provision ratio was set at a ratio of NT$3 from the Executive Yuan National Development Fund for every NT$1 provided by the venture capital firm.
2. For enterprises in the cultural and creative industries, the capital provision ratio was set at a ratio of NT$3 from the Executive Yuan National Development Fund for every NT$1 provided by the venture capital firm.
3. For enterprises in key service industries, the capital provision ratio was set at a ratio of NT$2 from the Executive Yuan National Development Fund for every NT$1 provided by the venture capital firm.
4. For enterprises that have added at least 30 new employees (in Taiwan) during the year prior to appraisal by the venture capital firm, the capital provision ratio was at a ratio of NT$2 from the Executive Yuan National Development Fund for every NT$1 provided by the venture capital firm.

It is anticipated that the measures outlined above will give venture capital firms more incentive to invest in emerging industries, encouraging private-sector firms to support government policy by investing in those industries the development of which the government is seeking to prioritize. As of the end of April 2012, investment had been secured for a total of 93 enterprises, with the National Development Fund providing a total of NT$3,029.23 million in investment and venture capital firms providing NT$2,308.40 million, for a combined total of NT$5,337.63 million. The program also succeeded in attracting NT$487.64 million in overseas investment from the U.S., Japan, etc., and served to stimulate an additional NT$15,544.3 million in domestic private-sector investment. It helped the business enterprises concerned to secure 418 intellectual property rights and 42 domestic and international awards, and helped protect 8,693 jobs. Overall, the program has had a significant positive impact on both the development of Taiwan's SMEs and job creation in Taiwan.

3. The Plan for Strengthening Investment in SMEs – Early-stage Investment in Start-ups

To achieve ongoing improvement in the ease with which SME start-ups can secure access to financing, the Small and Medium Enterprise Administration has used the Plan for Strengthening Investment in SMEs to launch the SME Start-up Investment Trust Account initiative. Through this project, the Administration has arranged for venture capital firms to provide matching funds for joint investment in SME start-ups. The measures being implemented under the SME Start-up Investment Trust Account project are outlined below (Fig. 8-3-2):

Figure 8-3-2 SME Start-up Investment Trust Account Initiative as Applied to Investment in Strategic Service Industries



Source: Small and Medium Enterprise Administration, MOEA, 2012.

4. Establishment of the SME Start-up Investment Trust Account to Invest in SMEs with Significant Growth Potential

On May 29, 2003, the SMEA received approval from the Executive Yuan to transfer NT$2 billion from the SME Development Fund to establish the SME Start-up Investment Trust Account, with the funds in question to be entrusted to the custody of designated banks. Investment from the SME Start-up Investment Trust Account began in October 2003.

As of the end of April 2012, the SME Start-up Investment Trust Account had invested in 80 SMEs. The total investment by the SME Development Fund came to NT$1,518,300,000, with the asset management companies providing a further NT$1,679,210,000. The return on investment was: cash dividends – NT$91.98 million; profits from disposal of assets – just over NT$255.48 million.

5. Promoting Investment – the SME Development Corporations

In accordance with the SME Development Statute, the government set up the SME Development Fund, which in turn has established a number of SME Development Corporations. Besides helping SMEs to obtain funding through direct and indirect investment, these corporations also provide assistance with domestic and international technology collaboration, market and product development and management consulting services, as well as helping SMEs to formulate medium- and long-term funding plans.

Development corporations that have received funding from the SME Development Fund include: (1) Taiwan SME Development Corporation Ltd (SME Development Fund investment totaling NT$87 million); (2) Sunstar Ltd (SME Development Fund investment totaling NT$69.9 million); (3) Trinity Investment Corporation (SME Development Fund investment totaling NT$55 million).

The distribution of the SME Development Corporations' investment by industry is: optoelectronics–18%; biotechnology–10%; electronic components manufacturing–28%; software and IC design–15%; others (including nanotechnology)–29%.

CHAPTER 9

Assistance in Upgrading, Transforming and Enhancing R&D Capabilities

With constantly changing scenarios in international competition and cooperation in recent years, small and medium enterprises (SMEs) face operational bottlenecks and pressure to transform themselves. Under these circumstances they especially need to enhance their ability to innovate and conduct research and development to cope with the numerous challenges faced. Compared with large corporations, which have access to abundant capital and human resources, SMEs are at a disadvantage and therefore the government has provided a number of support measures to encourage SMEs to actively engage in innovation, transformation and upgrading so that the country's competitiveness in international markets can be enhanced.

This chapter is divided into four sections and discussion will be focused on the various government measures that have been taken in the period from 2011 to 2012 to help SMEs upgrade and transform as well as their corresponding accomplishments. These include: e-services guidance, enhancement of quality and management capability, upgrading of technologies, as well as improvements in research and development capacity.

I Promotion of e-Services (Value-added ICT Application)

The Ministry of Economic Affairs (MOEA) has provided SMEs with a series of guidance programs on e-services based on their requirements and electronic workflow. The major projects for e-services guidance are the: Project for Bridging the Industry Digital Divide, Industry-specific e-Commerce Business Operation Project, SME e-Services Corps Project, SME e-Learning Project (SME Online University), and SME Knowledge Management Promotion Project.

1. Promoting Digital Applications, Bridging the Industry Digital Divide, and Gaining Access to Online Business Opportunities

The promotion of the "Bridging Industry Digital Divide Project" focuses on the digital development of rural industries. The main targets of this program are micro-enterprises with less than 20 employees. Local community-based training activities are provided through service teams in order to increase the ability of micro-enterprises in rural communities to conduct digital business, creating marketing effects "for common folk by common folk" and further extending online opportunities and continuing business development.

In 2011, the achievements included the formation of 22 e-community micro-enterprises assisting more than 2,139 SMEs to upgrade their electronic application capabilities, and driving NT$54.71 milliion in business opportunities for the IT services industry.

2012 saw the launch of the e-CARE plan (to be implemented over the period 2012 – 2015). Taking as its core philosophy the concept of using in-depth development of digital applications to strengthen self-directed learning, the e-Care guidance model focuses on four key areas (Fig. 9-1-1), aiming to provide micro-enterprises and SMEs in Taiwan's more remote districts with high-quality, in-depth support services tailored to the local needs of each region. e-CARE emphasizes qualitative improvement, taking as its key objectives the cultivation of individual enterprises, supporting regional development, promoting the development of communities with a strong local theme, getting more people learning, and promoting more widespread adoption of e-learning applications. The main areas of emphasis in e-CARE guidance are outlined below.

Figure 9-1-1 e-CARE Plan Implementation Strategy

Source: Small and Medium Enterprise Administration, 2012.

1. **C**are – **C**oach: Targeting micro-enterprises in remote areas, and using the adoption of social service type concern that integrates the activities of local e-enablement consultants and volunteers to gain a clearer understanding of what the priorities are in firms' digital needs, and then provide suitable digital capability enhancement services.
2. c**A**re – **A**dvance: Identifying SMEs that already have significant e-enablement potential and providing guidance service to help them achieve a more advanced level of e-enablement.
3. ca**R**e – **R**econstruct: Helping micro-enterprises with significant potential to transform their business models and develop niche markets, making use of industry-university collaboration

and joint marketing platforms to reduce learning costs and operating costs, thereby helping to change business models and stimulate the development of new business models.

4. car**E** – **E**xpand (e → e+): Promoting the developing of "flagship" products and the strengthening of service image; encouraging SMEs to make more use of the Internet to enhance brand recognition, and in so doing expanding the benefits gained from e-enablement guidance.

2. Promoting the International Internet Marketing Project

The "Industry-specific e-Commerce Business Operation Project" implemented by the SMEA aims to promote strategies to help SMEs enhance their digital marketing capability, providing guidance to enterprises or clusters in e-Commerce marketing companies and assisting export-oriented businesses and clusters to build Internet sales channels and to expand their presence in overseas markets. The main focuses of the work include: (1) Assisting industry associations to provide e-Commerce operation guidance; (2) Assisting international marketing and promoting, including International Internet Marketing and providing guidance on international network marketing business models.

3. Promoting Cloud Computing Extension Services to Stimulate Industrial Upgrading and Transformation

The Small and Medium Enterprise Administration, MOEA has established the SME Cloud Computing Promotion Service Center to help SMEs in Taiwan make more effective use of cloud computing-based services, with an emphasis on driving Taiwan's development of cloud computing technology R&D and the development of innovative cloud computing applications.

The government has identified a number of key high-value-added application fields in which it will be providing subsidies to encourage information service providers to step up the development of "total solutions" that integrate cloud computing technology innovation, system innovation and service innovation, thereby helping to transform service models, meet the shared cloud service needs of SMEs (such as business software, personal mobile commerce, e-commerce, etc.), speed up the creation of new cloud-based service models and stimulate the growth of the cloud computing value chain, building a new paradigm and achieving across-the-board diffusion, and in so doing permitting the development of new markets, new applications and even new industries, with a consequent increase in business opportunities.

4. Promoting the Effective Use of ICT by SMEs, Thereby Enhancing the Capabilities of Industry as a Whole

To encourage SMEs to make more effective use of information and communications technology (ICT) to strengthen their innovation capability, the Small and Medium Enterprise Administration, MOEA has launched the SME ICT Innovation Upgrading Plan, which involves integrating smart technology with innovative value-added creation and working to strengthen network and cluster linkages; the Administration is encouraging leading industry clusters and bellwether firms to develop cutting-edge smart ICT applications that can facilitate value-added integration of value chains and processes, technology and services, thereby enhancing the

capabilities of industry as a whole.

5. Using Intellectual Property to Create Value

The Small and Medium Enterprise Administration, MOEA has been implementing the SME Innovation IP Value Creation Plan, to help SMEs that have been undertaking technology innovation to gain economic value from their intellectual property (IP), and to evaluate the potential for diversified IP utilization. Under this Plan, experts provide individual firms with guidance regarding their IP organization, and SMEs are encouraged to attach more importance to IP. The guidance provided under the Plan helps SMEs to reduce the time needed to complete R&D projects, and to reduce R&D costs; the aim is to achieve coordinated linkage and effective evaluation guidance service with respect to the entire IP value chain, including IP management and protection, IP acquisition and technology transfer, IP distribution and utilization, etc. The Plan's main work items include:

1. Operation of the SME IP Value-added Service Center, to help optimize SMEs' IP-related capabilities.
2. Planning the development of IP project guidance mechanisms, to enhance SMEs' ability to utilize IP effectively.
3. Building the necessary legal and regulatory framework and policy environment.

6. Promoting Value Chain Information Applications of Manufacturing Industry

The Industrial Development Bureau provides guidance via the "Manufacturing Industry Value Chain Information Technology Project" on innovative business operation models, improving business processes and utilizing information network technology, implementing the construction of new operational models and driving the development of smaller enterprises with inadequate IT infrastructure, and helping them to gain competitiveness in the industry. Types of guidance, eligibility and grant amounts are as follows:

1. Operational headquarters information application: The government will provide up to NT$ 10 million in subsidies for two years (limited to costs incurred locally).
2. Value chain information application: The government will provide up to NT$ 5 million in subsidies for two years (limited to costs incurred locally).
3. Manufacturing Industry Value Chain IT Application Plan – XaaS Joint Service Guidance: The XaaS (Anything as a Service) concept as the foundation, SaaS (Software as a Service), PaaS (Platform as a Service) and IaaS (Infrastructure as a Service) are used to build an innovative IT service platform to promote the development of services relating to cross-industry integration, value chain interconnection, etc.

   The applicant must provide no less than 50% of matching funds.

7. Guidance for Traditional Manufacturing Industries in Implementing Value-added ICT Applications

In view of the high degree of digital divide in traditional manufacturing industries compared with the information and electronics industries, the Industrial Development Bureau has implemented the "Traditional Industries ICT Value-added Application Guidance Project." to help conventional industries introduce value-added applications, which promote the enterprise itself and the transformation of the system processes. In addition, the project also assists individual enterprises in the development of new products and services which bring in the ICT-related elements in order to add value and to encourage IT services vendors to develop ICT applications and solutions or service platforms.

8. Promoting Logistics Niche and Supply Chain Management Services

From 2009 on, the Department of Commerce, MOEA has implemented the "Logistics Niche Market and Supply Chain Services Promotion Project," to develop large-scale, global, and integrated logistics service, innovation providers with a view to providing supply chain management e –Services. At the same time, the Department also encourages the logistics industry to develop niche markets that require a high degree of specialization and high added value.

9. Implementing Intelligent Identification Application Service

In order to assist the business service provider develop new business and new business models, the Department of Commerce implemented the "Implementing Intelligent Identification Application Service Plan" in 2011 to encourage intelligent identification technology (RFID, bar code, LBS and NFC), communication network (3G, WiMAX), etc., to be applied to vehicles and the environment, thereby transmitting various kinds of information accurately to the back-end for analysis and processing through the information network. The following guidance has been provided based on implementing the model on intelligent identification services, the intelligent identification model demonstration line, and the integration services platform of intelligent identification. The goal is to establish Taiwan as a leader in the Asia-Pacific area in intelligent application services and create an environment of intelligence identification demonstration and services.

10. Promoting the Servitization of Industrial Logistics

To support the global expansion of Taiwanese industry and the development of first-class logistics services, the Department of Commerce, Ministry of Economic Affairs (MOEA) has used the provisions of the Industrial Logistics Servitization Promotion Plan related to government subsidies and guidance measures as a basis for promoting industrial logistics servitization guidance operations, focusing on stimulating industrial upgrading and innovation, strengthening logistics network development and integration, and enhancing the capabilities and service quality of the logistics services industry, thereby strengthening the supply chain management capability of domestic industry and the competitiveness of its value chain, and promoting the development of business processing outsourcing- (BPO-) based global logistics outsourcing service.

The provision of guidance under this program targets industries whose products are included on the Early Harvest List of the Economic Cooperation Framework Agreement (ECFA) signed between Taiwan and China, industries in which Taiwan enjoys a significant competitive advantage in the manufacturing of key components and/or finished products, and traditional industries in which Taiwanese companies possess strong brands. Guidance is provided for firms in the industries concerned, as well as for logistics service providers and transportation service providers.

11. Optimizing Business Innovation and Network Development

To encourage business service providers to develop new market opportunities and provide new value for consumers, the Department of Commerce, Ministry of Economic Affairs has been implementing the Plan for Optimizing Business Innovation and Network Development. Companies wishing to submit subsidy applications under the Plan must be business service providers which share information and communications technology (ICT) with their business partners, and must also conform to at least one of the following:

1. Be engaged in trans-national operational management, the establishment of overseas business locations, the integration and development of distribution channels, the provision of customer service or the implementation of marketing operations for the purpose of developing new market opportunities.
2. Be engaged in business model innovation, or the formation of strategic alliances (either with companies in the same industry or companies in other industries) for the purpose of developing a diversified service model, expanding an existing service model or enhancing overall competitiveness.
3. Be engaged in the development of innovative new services, the restructuring of inter-firm business processes, service process improvement, or the development, strengthening or integration of new knowledge sharing channels or marketing channels, for the purpose of enhancing service capabilities or the value provided to consumers.

12. Promoting Chinese-language E-Commerce

Taiwan's e-commerce sector has enormous development potential, deriving competitive advantage from its innovative business models, unique products, strong ICT capabilities, and the influence of Chinese culture on Taiwanese lifestyles. The Department of Commerce, Ministry of Economic Affairs has therefore decided to implement the Chinese-language E-Commerce Plan, with the aim of promoting sales of Taiwan's products and virtual services in the global Ethnic Chinese Chinese language market. The Plan involves the provision of assistance to help Taiwanese companies solve the problems related to money flow, distribution, product certification, etc. that they need to overcome in order to be able to develop the wider Chinese language market, and to help cultivate international e-commerce talent, thereby helping to build Taiwan into an "innovation laboratory" for e-commerce. The key implementation work items for 2012 include: helping firms to make effective use of e-commerce to develop the China market, putting in place the basic infrastructure needed to support cross-strait e-commerce linkage, and promoting cross-strait business matching.

II Improving Quality and Management in SMEs

In addition to competing with advanced countries over quality, Taiwan also faces challenges from Southeast Asian economies on price. SMEs must change their business philosophy and improve on product quality and create an image of quality products (brands) in order to be able to move away from low-value production activities and upgrade and transform themselves to reclaim their core competitive capabilities by engaging in high-value activities such as R&D, design and brand marketing.

1. Upgrading SME Quality

In order to assist SMEs in carrying out the requirements of quality management systems, training high-quality management talents, and creating a new quality image for Taiwan's SMEs, the SMEA has continued to promote the "SME Quality Management Upgrade Project," including industrial guidance and personnel training. The industrial guidance portion includes: quality service diagnosis, general enterprise guidance, top-quality enterprise guidance, and industry cluster guidance. Personnel training includes: organizing quality management awareness and application promotion seminars; international certification series, business management quality series, key industry management practices, tourism and leisure services series and other online courses; tailor-made corporate internal training programs to meet the manpower development needs of SMEs.

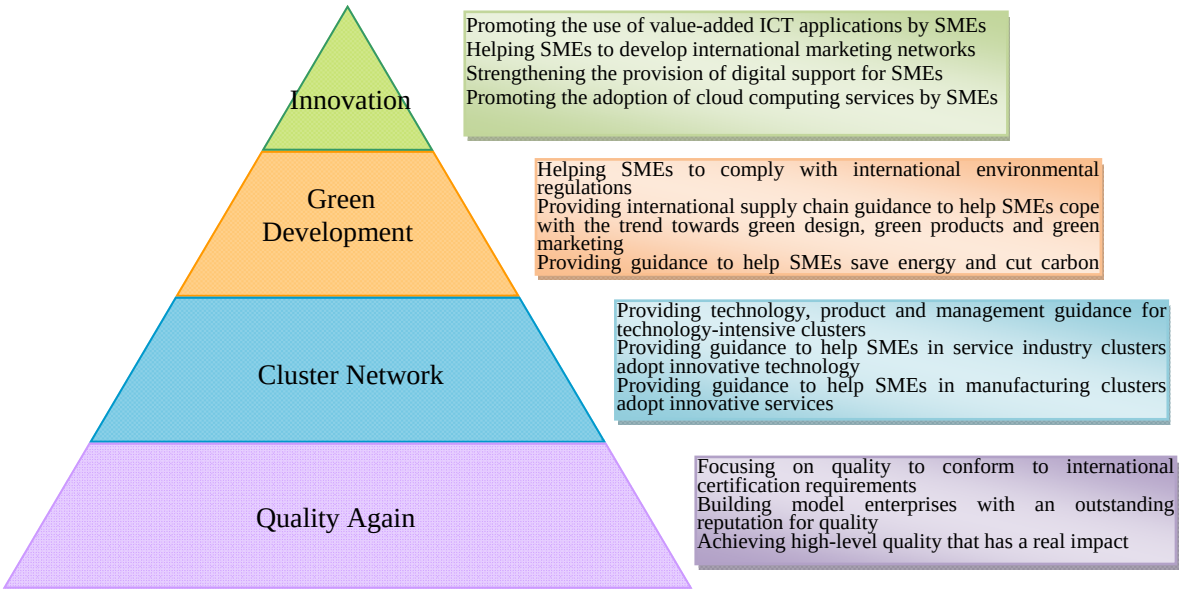
2. Helping SMEs to Innovate and Transform Themselves through Quality Enhancement, so as to Strengthen Their Overall Competitiveness

To help SMEs strengthen their quality-related basic capabilities and ability to make effective use of collaborative logistics, so that quality can serve as the foundation for enterprise transformation and innovation, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) has been collating information relating to quality standards and rules in Taiwan and overseas, with the aim of enabling SMEs to achieve breakthroughs in terms of products, technology and markets. In 2012, the Administration is implementing the SME Innovation and Transformation Strategy, with the goal of using quality improvements, industry cluster and network development, the adoption of hi-tech, value-added applications, and responsiveness to "green" trends, to strengthen SMEs' innovation capabilities. The main areas addressed and the key points of the promotional efforts are as shown in Fig. 9-2-1.

3. Raising Competitive Advantage for SMEs' Qualia

A vision of the SMEA has been the creation of a high-end qualia image for SMEs as well as to raise their overall qualia image and create synergy to promote industrial cooperation. Hence the "SME Qualia Promotion Project" is aiming at shaping corporate attractiveness and characteristics, enhancing enterprise value, and creating an economy with its own style and features. The priorities of the project include: qualia business diagnosis, top-qualia enterprise guidance, personnel training, and qualia idea conveyance and promotion.

Figure 9-2-1 Key Strategies for the Provision of Guidance to Help Small Enterprises Innovate and Transform Themselves



Source: Small and Medium Enterprise Administration, 2012.

4. Promoting System Supply Chain Collaboration and Enhancing Supply Chain Value and Quality Performance

In order to promote substantive cooperation between SMEs and large enterprise supply chain systems and provide guidance on value enhancement demonstration systems to drive business opportunities and give SMEs a chance to upgrade their technological capabilities, the SMEA has implemented the “System Supply Chain Value and Quality Efficiency Enhancement Guidance Project.”

5. Promoting Innovation and Integration Services for Knowledge-intensive Service-oriented Clusters

In order to promote the upgrading of industrial technology and knowledge and to utilize cluster-based guidance models to help enterprises upgrade and transform themselves and to enhance their competitiveness, the SMEA has launched the “Knowledge-intensive Service-oriented Cluster Innovation and Integration Services Project.

6. The Emerging SME Innovation-based Value-added Service Plan

To encourage Taiwan’s SMEs to develop service innovation and create new value, thereby raising their competitiveness, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) is implementing the Emerging SME Innovation-based Value-added Service Plan. The implementation measures adopted for this Plan include practical guidance, which comprises showing firms how to adopt a service-oriented mindset, stay abreast of changes in consumer needs, and keep their finger on the pulse of the market. This will help firms to explore the new sources of demand and new business opportunities that service innovation can

provide access to; they can then go on to undertake service design and make effective use of technology in the development of high-profitability business models and service systems. At the same time, the sharing of service innovation case studies and the arranging of business matching collaboration can help to encourage more firms to participate actively and enthusiastically in service innovation.

III Providing Guidance to SMEs on Energy Conservation and Reduced Carbon Emissions

1. Providing Guidance to SMEs in Response to the International Green Supply Chain

To help SMEs respond to international green product directives and the green procurement requirements of major international manufacturers, establish a capability for green supply chain management, effectively adapting to customers' green supply chains and creating green business opportunities, the SMEA has promoted the "SME Response to the International Green Supply Chain Guidance Project" with the following priorities:

1. Providing guidance to SMEs that have been affected by European Union (EU) directives on green products (WEEE, RoHS, EuP, ELV, GHG, REACH and customers' green procurement requirements).
2. Providing guidance to enterprises on compliance with green product standards and certification and on deepening their quality control technology in order to provide products with stable quality in the long term.
3. Providing guidance on green supply chain system models and propagating the supply chain of SMEs.
4. Implementing cases in new directive guidance models and compiling teaching materials on model cases for follow-up and expanded applications.

Organizing green supply chain management classes for instructors and auditors, and also green supply chain expert forums, workshops and seminars to promote related concepts and applications.

2. Providing Guidance to SMEs on Energy Conservation and Reduced Carbon Emissions

In order to provide guidance for SMEs on energy conservation and reduced carbon emissions as well as to enhance the capacity of SMEs to respond to changes and explore new business opportunities, a "Project for Energy Saving and Carbon Emissions Reduction Consulting for SMEs" has been initiated with the following key tasks:

1. Providing consultation and recommendations on improving production efficiency, carbon footprint and energy consumption.
2. Guidance for energy-saving technology and reduction management.
3. Demonstration of guidance for industries.

4. Cultivating green elites.

3. Assistance with Sustainable Development of Industries and Response to International Environmental Standards

To provide support to industry on an effective response to international environmental guidelines/standards, product environmental information disclosure, corporate social responsibility reports and other requirements, the IDB has launched the "Industrial Sustainable Development and Response to International Environmental Standards Guidance Project." Details of the program are as follows:

1. Guidance category/technical cooperation category: (1) Guidance on product eco-design systems; (2) Guidance on Environmental Product Declarations (EPD); (3) Establishment of Product Category Rules (PCR).
2. Advisory services category/technical tools category: (1) EU EuP / ErP directive advisory services; (2) International environmental guidelines/standards advisory services; (3) Advisory services on non-compliant product disclosure in Europe and North America; (4) Corporate Social Responsibility report advisory services; (5) Chemical substance information management tools; (6) Integrated product green procurement assessment tools.

IV Enhancing SME Research and Development Capabilities

In order to encourage businesses to invest in R&D to enhance core strengths in international competition, the Ministry of Economic Affairs has offered many guidance measures and funding sources for innovative R&D. These are expected to increase the input of R&D, upgrade the industry and improve the competitiveness of the country.

1. Improving the Working Environment for SMEs

In order to reduce industrial occupational hazards in the country, the IDB has implemented the "SME Working Environment Improvement Project" with the following key tasks: (1) Basic technical guidance on working environment improvement. (2) Guidance on the industrial park safety and health mutual aid system (SHMAS). (3) Guidance on risk management. (4) Research on regulations and monitoring of international safety and health trends. (5) Other policy awareness promotions and campaigns.

2. Providing Guidance on Real-time Technology to SMEs

In order to help SMEs upgrade and transform, the IDB has implemented the "Project for SME Real-time Technology Guidance" by utilizing existing mature technological capabilities of the corporate world, academic community and technical services industry to provide R&D, design, production, logistics, automation and electronic technologies necessary for upgrading the industry and to provide real-time, small scale, short-term technical guidance, so that the technology levels of SMEs can be upgraded and their competitiveness enhanced.

Unlike other long-term or large-scale research and development subsidy plans, the "Project for SME Real-time Technology Guidance" aims to provide small subsidies, in which the government is responsible for 80% of the funding to reduce the financial burden on industry. It is hoped that through the mature technologies and capabilities of the supporting institutions, the technological level of SMEs can be upgraded rapidly, and assistance can be provided to domestic SMEs to carry out comprehensive technology upgrading or transformation through expansion from only a few points initially.

3. Conventional Industry Technology Development (CITD)

"Conventional Industry Technology Development" is a government-funded program that provides enterprises with R&D subsidies which are used to encourage conventional industries to develop new products and new technologies to expand service offerings and make R&D endeavors more prevalent in conventional industries. The features of the program include:

1. Product development: maximum amount subsidized per case is NT$2 million.
2. Product design: maximum amount subsidized per case is NT$500,000.
3. R&D alliance: 1. maximum amount subsidized per case is NT$10 million; 2. maximum amount granted is NT$2.5 million to the leading enterprise and NT$2 million each for other individual companies.

4. Small Business Innovation Research Program (SBIR)

To encourage and assist domestic SMEs to engage in active technology research and innovation or product development, the Small Business Innovation Research (SBIR) program has been launched in accordance with the "Incentive Schemes for Enterprises to Develop Industrial Technologies, MOEA." Through grants and subsidies provided by SBIR, the risks and costs borne by SMEs engaging in innovation and R&D activities will be reduced. The program encourages SMEs to carry out active innovation and helps to expand private-sector investment in R&D so that the results and achievements will help the country further its economic development.

From the inception of the SBIR program in 1999 until May 2012, a total of 4,570 cases of innovation and R&D projects were approved and implemented, with government subsidies exceeding NT$8.8 billion and over NT$16.7 billion in private-sector investments. This has been instrumental in enhancing the technological capabilities of SMEs in this country and improving the industry's competitiveness, as well as in providing assistance on upgrading and transformation to conventional industries.

5. Industrial Technology Development Program (ITDP)

To encourage enterprises to engage in technical innovation and research in applications, and to help enterprises build research capacity and institutions, nurture and utilize technology talents, as well as to foster exchange and collaboration between the industry, academia and research communities, the MOEA launched the "Industrial Technology Development Project" in 1999.

Since February 1999, when the project was first introduced, enterprises have been very enthusiastic in submitting applications. As of May 2012, a total of 857 projects had been approved, with 1,371 enterprises participating.

6. Innovative Technology Application & Service (ITAS)

Since 2008 the Ministry of Economic Affairs has been in support of the "twin engines" economic development requirements of high-value manufacturing and knowledge-oriented services and has launched the Innovative Technology Application & Service project in order to promote industry upgrading, enhance industrial value and encourage enterprises to engage in innovation and applications research, or to engage in the development of applications and services with technological content and implication, thus creating innovative business models.

7. Provision of Assistance to SME Technology Development by the University Sector

In order to help SMEs to change and innovate, and to adopt the new ways of thinking that will be needed to cope with the constantly changing global environment, in 2008 the Department of Industrial Technology, Ministry of Economic Affairs began implementation of the Plan for the Provision of Assistance to SME Technology Development by the University Sector, to help Taiwanese industry to upgrade itself by making effective use of the extensive R&D capabilities of the university sector. Expert diagnostic service is provided to help enterprises to develop their R&D activity, and to make use of the R&D subsidies available from the government. The idea is to make the university sector a long-term partner for enterprise development, thereby strengthening SMEs' core technology capabilities and enhancing the competitiveness of Taiwanese industry.

As of May 2012, nearly 3,713 SMEs had benefited from the Plan. University and college experts had helped provide timely solutions to over 13,300 problems; assistance had been provided to help secure SME participation in 175 government research projects, involving a total of over NT$700 million in R&D funding; SMEs had been helped to install R&D equipment worth a combined total of over NT$3.5 billion; SMEs had been helped to secure orders worth approximately NT$4 billion, and more than 3,000 new jobs had been created.

8. Assist Service Sector Innovation and R&D Program (SIIR)

In order to foster the development of the commercial services industry and encourage enterprises to engage in research on "new service products," "new business models" and "new marketing models" or the development of "new business application technologies," the Department of Commerce has initiated the "SIIR " program to provide case-based subsidies, thus facilitating the introduction of new aspects and categories of business activities and enhancing the core competitiveness of the industry, while increasing its added value and creating a competitive advantage.

9. Provision of Subsidies for Agricultural Technology Development and for Brand Development and the Development of Innovative Business Models in the Agricultural Sector

To encourage business enterprises in the agricultural sector to invest in R&D and in the commercialization of technology-intensive products, in 2007 the Council of Agriculture began to accept applications from agricultural firms under the Agricultural Sector Technology R&D Subsidy Plan, with the aim of reducing the level of risk that agricultural sector enterprises are exposed to when they engage in R&D, thereby speeding up the commercialization of new technology and the enhancement of the overall competitiveness of the agricultural sector as a whole. Subsidy applicants must be agricultural sector enterprises engaged in the development of key agricultural technologies, agricultural brand development, the development of innovative new business models, or other R&D-related activities that can contribute to enhancing the innovation capability of the agricultural sector. The amount of the subsidy available is capped at 50% of the total cost of project implementation.

10. Provision of Subsidies for Agricultural Biotech Parks and Agricultural Biotech R&D and Technology and Product Commercialization

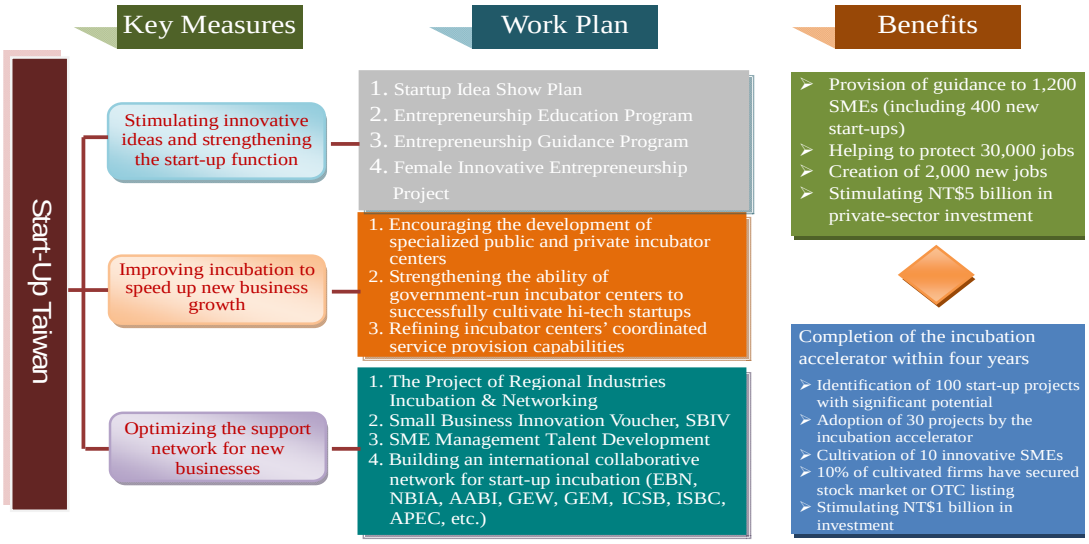
Given the trend towards the evolution of agriculture into a knowledge-intensive industry, business enterprises in the agricultural sector need to be undertaking R&D on an ongoing basis in order to create higher levels of value-added. In accordance with the provisions of Item 3, Paragraph 1, Article 7 of the *Statute for the Establishment and Management of Agricultural Technology Science-based Parks*, the Agricultural Biotechnology Park Administration, Council of Agriculture, Executive Yuan (hereafter referred to as “the Administration”) has formulated the “Key Points Regarding Subsidies for the Promotion of R&D Among Enterprises Located in Agricultural Biotechnology Parks,” with the aim of reducing the risk that firms located in Agricultural Biotechnology Parks are required to bear when they undertake R&D, encourage investment in R&D and the commercialization of new products and technologies, and bring about a gradual improvement in core technologies so as to enhance the global competitiveness of Taiwan’s agricultural sector. The amount of the subsidy available is capped at 50% of the total cost of project implementation, and at a maximum of NT$1 million per project.

CHAPTER 10

Strengthening Business Start-up Capabilities and Promoting New Business Incubation

To further the development of a high-quality environment for new business creation in Taiwan, and facilitate the identification of promising early-stage start-ups so that they can be matched with "angel" investors and benefit from regional industrial resources, while at the same time putting in place a comprehensive support network, besides continuing to implement the Start-up Guidance Plan, in 2012 the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) has also launched the new Start-up Taiwan initiative, the key theme of which is "refining the incubation process to speed up the achievement of excellence," and which embodies three key strategies: "stimulating innovative ideas and strengthening the start-up function," "improving incubation to speed up new business growth," and "optimizing the support network for new businesses." The program will involve an intensification of efforts to identify first-rate innovative ideas, the creation of a "start-up laboratory" environment, and the adoption of an "idea factory" model with mechanisms for mentoring and for speeding up the incubation process, providing outstanding new start-ups with tailor-made service and making effective use of the business start-up service centers located in Northern, Central and Southern Taiwan to coordinate the integrated application of regional industry resources and the expansion of service capabilities at the local level, so as to build a first-class start-up support environment. The implementation framework for the Start-up Taiwan project is shown in Fig. 10-0-1 below.

Figure 10-0-1 Start-up Taiwan – Key Measures and Benefits

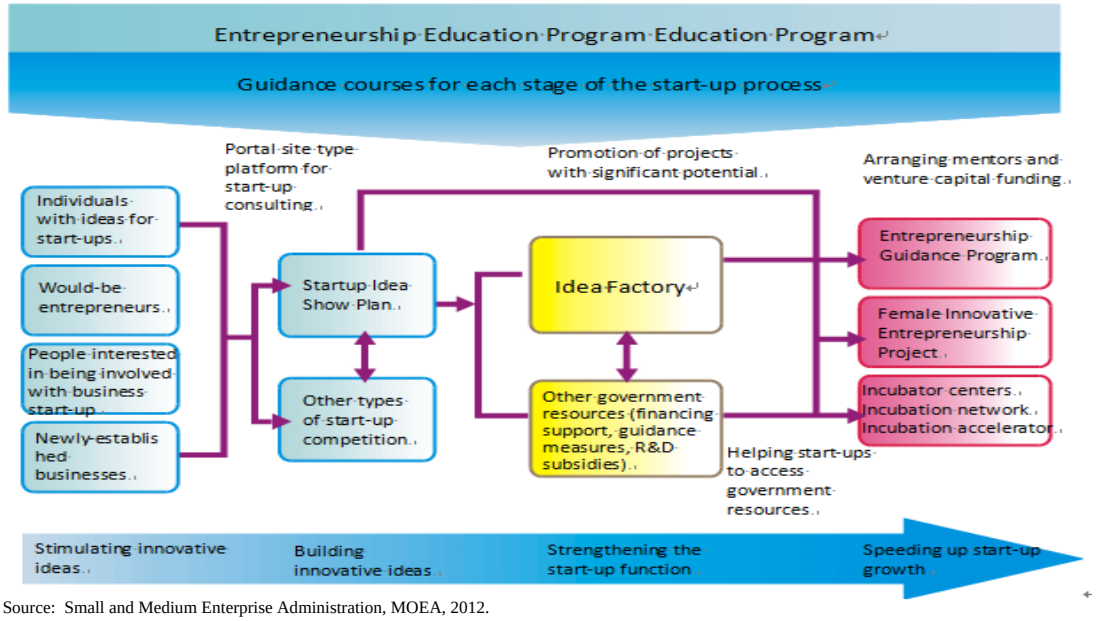


Source: Small and Medium Enterprise Administration, MOEA, 2012.

I Stimulating Innovative Ideas and Strengthening the Start-up Function

There are four individual plans related to the "stimulating innovative ideas and strengthening the start-up function" strategy: the Startup Idea Show Plan, Entrepreneurship Education Program, Entrepreneurship Guidance Program, and Female Innovative Entrepreneurship Project. The implementation framework and measures for these plans are shown in Figures 10-1-1 and 10-1-2 below (for more information about the Female Innovative Entrepreneurship Project, see Section IV of this chapter).

Figure 10-1-1 Framework for Startup Promotion



Source: Small and Medium Enterprise Administration, MOEA, 2012.

1. Startup Idea Show Plan

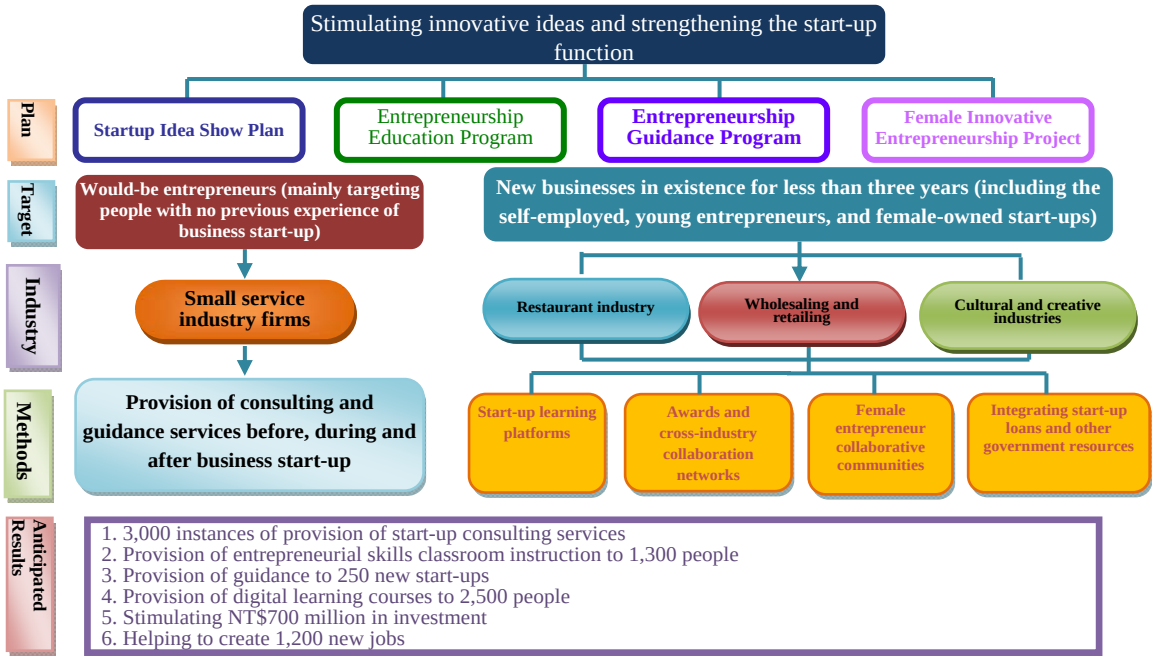
The Startup Idea Show Plan provides those interested in starting up their own businesses or owners of start-up businesses between start-up and development with an entrepreneurial knowledge platform.The purpose of this plan it to plant the seeds of entrepreneurship, to develop entrepreneurial spirit, to help individuals learn about entrepreneurialism through the SME entrepreneurship consultation service network to be better prepared for entrepreneurship. The major tasks for this plan include: establishing the Entrepreneurship Taiwan Consultation Service Center, enriching the contents of the Entrepreneurship Dream Website (http://sme.moeasmea.gov.tw/) and entrepreneurial knowledge bank, collecting and value-adding the start-up ideas, publishing the entrepreneurship tutorial handbook and holding the start-up seminars.

This plan also link global and academia SME-related organizations, including GEW (Global Entrepreneurship Week) and ICSB (International Council for Small Business). We also publish "Journal of Entrepreneurship Research" and "Start-up Innovation and Incubation Bimonthly

Journal" to help the industry, government, academic and research institutions to grasp current trends of entrepreneurship in order to improve Taiwan's entrepreneurship environment.

1. Establishment of the Start-up Taiwan Advisory Center to Provide Proactive Communication and Follow-up
2. Establishment of the "Start-up Taiwan" Website and Publication of Related Materials to Help Enhance the Capabilities of Would-be Entrepreneurs
3. Establishment of the Entrepreneurship Guidance Program to Identify Start-up "Bright Spots"

Figure 10-1-2 Business Start-up Promotion Measures



Source: Small and Medium Enterprise Administration, MOEA, 2012.

2. Entrepreneurship Education Program

In the era of globalization and the knowledge economy, the provision of entrepreneurship education and training opportunities for members of the public interested in setting up their own business, and for start-up owners, through the organizing of basic entrepreneurial skills courses, industry-specific courses, entrepreneur "boot camps," and the SME Online University digital learning portal site, can help both existing and would-be entrepreneurs to keep pace with new trends and to access the latest information about management techniques and international business start-up, thereby enabling entrepreneurs to make effective use of their own operational characteristics and sources of competitive advantage to enhance their market competitiveness. A diversified range of innovative educational methods are used to provide multi-faceted support, increasing the success rate for new start-ups and stimulating the growth of entrepreneurial drive in society as a whole, while also effectively promoting the concept of lifelong learning and stimulating knowledge-intensive business start-up.

3. Entrepreneurship Guidance Program

This project is to help potential enterprises to enhance the visibility of products and services, expand more business cooperation opportunities and create a new vision of the business. The ultimate goal is to shape the dazzling benchmark of entrepreneurial companies and to assist in its sustainable operation. The service content is as follows:

1. The use of start-up consultants to help firms that have been in existence for less than three years to evaluate their business model and development strategy, thereby helping them to stay in business.
2. Encouraging firms that have been in existence for less than three years to take part in the Taiwan Innovation Competition (TIC), so as to establish models that other start-ups can learn from.
3. Integrating the resources of industry, universities, “angel” investors and the Small and Medium Enterprise Administration’s various business start-up-related initiatives to organize “angel” investor business matching activities that can help start-ups access early-stage funding and develop new business opportunities.
4. Stimulating the growth of the “Start-Up Taiwan” trend through the development of the Entrepreneurship Guidance Program, involving the establishment of a special area on YouTube featuring 50 case studies that have benefited from the guidance provided by the Small and Medium Enterprise Administration’s various guidance teams.

A Start-up Service Network has been established, involving the integration of the various start-up-related plans that the Small and Medium Enterprise Administration has initiated, and the organizing of experience-sharing seminars in Northern, Central, Southern and Eastern Taiwan, to help start-ups grow and prosper together.

II Improving the Incubation Characteristic to Boost New Start-up Business

To help SMEs get established and undertake innovation, since 1997 the SMEA has been working with other government agencies, research institutions, universities and private-sector companies to implement the government’s incubation center policy and encourage the establishment of new incubation centers.

1. Innovation of Incubation Center and Approaches

An incubation center is a facility that cultivates new businesses, new products and new technologies, and helps SMEs to upgrade and transform themselves. It provides a wide range of resources in an efficient, integrated manner (including the provision of office space, access to equipment, R&D technology, help in finding funding, business services, management consulting, etc.), thereby reducing the costs and risk that new businesses need to bear in the start-up stage and in the early stages of R&D projects. By creating a first-class cultivation environment,

incubation centers increase the likelihood that a new business will be a success. The following sections describe the current state of incubation center operation in Taiwan.

(1) Incubation Centers

1. As of 2011, there were a total of 130 incubation centers in Taiwan, located in 20 different counties and cities. Of this total, 73 incubation centers received subsidies from the SMEA in 2011; the combined total of subsidies received was NT$141 million.
2. Incubator center distribution by region and by category is as follows:

Table 10-2-1 Incubator Center Distribution – by Region and by Category

Unit: No. of centers

Category	Total	Northern Region	Central Region	Southern Region and Outlying Islands	Eastern Region
All categories	130	58	28	38	6
University-affiliated	98	40	22	31	5
Foundation-type	13	7	4	1	1
Government-affiliated	13	6	1	6	0
Private-sector type	6	5	1	0	0

Source: Small and Medium Enterprise Administration, MOEA, 2012.

3. In line with government policy and industry development needs, the Ministry of Economic Affairs has been directly involved in the establishment of a number of incubation centers in both northern and southern Taiwan, including the Nangang Software Incubator (ICT industry guidance), the NanKang Biotech Incubation Center (biotech industry guidance), the Tainan Science Park incubator (general innovation and research guidance for the biotech, electronics, information and precision machinery industries), and the Kaohsiung Software Incubator (focusing on digital content, software, IT-enabled services, etc.). There are also plans to establish the Hsinchu Biotech and Healthcare Science Park Incubation Center.
4. Regarding the industries that individual incubation centers seek to support, 28.35% of Taiwan's incubation centers are oriented towards supporting the information, communications and electronics industries, followed by the biotech field (14.83%), and electromechanical equipment manufacturing (13.44%). Education, culture and the arts account for 5.74% of the total, the environmental protection industry for 4.66%, the multi-media communications industry for 4.42%, raw materials for 4.05%, the healthcare field for 3.75%, and consumer goods for 3.67%.
5. Incubation center performance: In 2011, the government provided total funding of NT$2,324 million to incubation centers. Taiwan's incubation centers had successfully cultivated 5,024 start-ups, and had increased the total capital by NT$70.1 billion, including 1,920 innovation-oriented start-ups. The total number of people working at firms located in incubation centers was 89,276. The cumulative total for patents secured by firms located in incubation centers over the years was 3,106; there have been 1,475 instances of technology

transfer. 53 firms that had been cultivated in incubation centers have secured stock market or OTC listing.

(2) Promoting Innovation through Incubator Centers

1. Developing incubator centers with their own individual area of specialty

The number of incubator centers in Taiwan has been growing steadily. In order to meet the needs of industry, incubator centers are, increasingly, providing a wider range of services, and individual centers are being encouraged to develop their own unique business models and core competencies, to as to be able to provide effective support for the development of start-up "bright spots." Incubator centers whose development plan is approved can receive a basic subsidy of NT$1 million. Having secured sufficient funding to maintain normal operation, the centers then submit proposals for value-added operation and related business plans, based on their own individual development strategy, positioning, strengths and core cultivation areas, etc. Centers can apply for value-added specialization subsidies of up to NT$4 million to help them focus on internationalization guidance, financial guidance and support, market development support, etc.

2. Promoting adoption of the incubator mark system

Currently, most of the incubator centers in Taiwan cover a wide range of different fields. The government is working actively to promote the adoption of a new "incubator mark" system which will encourage incubator centers to align themselves more closely with the needs of industry, and to develop resources that will enable them to differentiate themselves from other centers; the establishment of a unique "service brand" will help incubator centers to enhance their specialist capabilities.

3. Creating a welcoming investment environment through the growth of "Soft Landing" incubator centers

As regards efforts to get incubator centers in Taiwan to adopt international best practice, the government has been working actively to help incubator centers secure "Soft Landing" certification from the National Business Incubator Association (NBIA) in the U.S., and has signed related MoUs with the NBIA, the Asian Association of Business Incubation, and the European Business & Innovation Centre Network (EBN).

The "Soft Landing" certification issued by the NBIA relates to services that help foreign enterprises locate themselves in one's own country. Securing NBIA Soft Landing certification demonstrates that an incubator center is qualified to undertake this form of "international" incubation. Currently, there are a total of 17 incubator centers in Taiwan that accept foreign companies, of which 3 have already secured NBIA Soft Landing certification. The government will continue to encourage first-rate Taiwanese incubator centers to apply for NBIA Soft Landing certification, so as to be able to provide foreign start-ups interested in locating themselves in Taiwan with the market appraisal, personnel recruitment, translation, patent application and IP management services, etc. that they need.

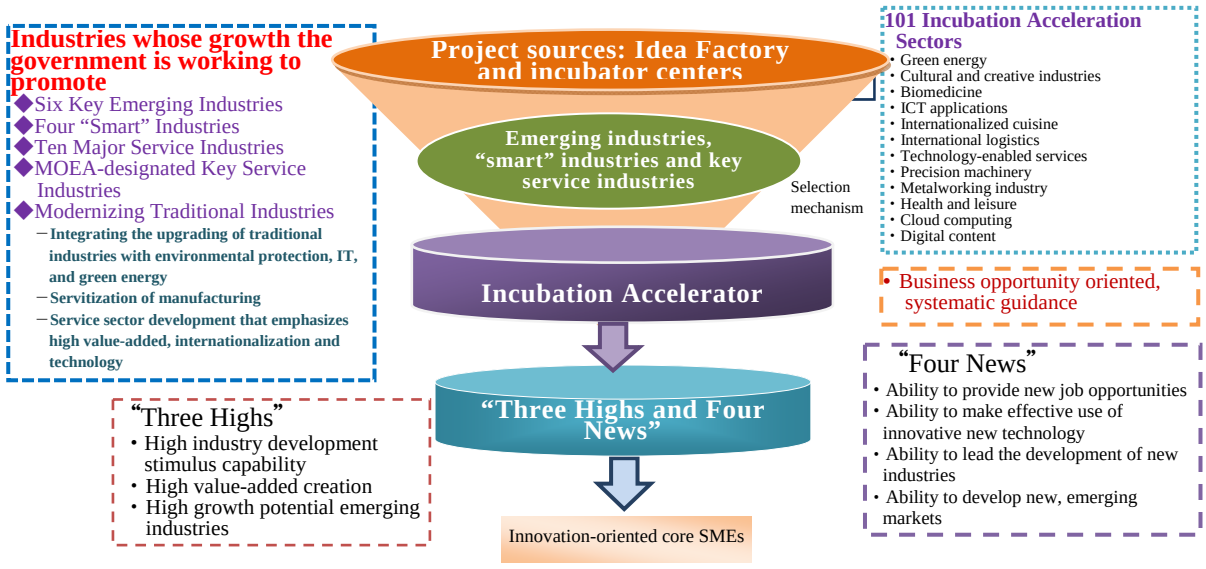
2. Building Innovative, Core SMEs through the Idea Factory and Incubation Accelerator

An "Idea Factory" uses a selection mechanism to evaluate the potential of innovative start-up ideas, and then provides the necessary environment and support at every stage from initial conception through sample fabrication to prototype creation. It then leverages the capabilities of a team of expert consultants to provide a comprehensive, "one-stop shopping" range of services that include technology evaluation, R&D input support, market research and business environment analysis, incubation guidance, international business matching and assistance with securing venture capital funding, so as to help speed up the commercialization of the original innovative concept.

As regards the "Incubation Accelerator," once a start-up has passed selection, it begins to receive business opportunity-oriented, systematic guidance provided by experts, with a "one-stop shopping" service that covers technology appraisal, R&D input assistance, market research and business environment analysis, incubation guidance, international business matching and assistance with securing venture capital funding, with the aim of enhancing the success rate for new start-ups, and realizing the ideal of accelerating the transformation of innovative ideas into new technology, the transformation of new technology into new products, and the successful commercialization of those new products.

The wealth of new ideas created in the Idea Factory or in incubator centers can be brought into the Incubation Accelerator for the provision of business-opportunity-oriented, systematic guidance, so that the start-ups in question can grow and become more competitive, eventually being transformed into "innovation-oriented core SMEs" that embody the "Three Highs" and "Four News" (Fig. 10-2-1).

Figure 10-2-1 The Methods Adopted to Cultivate Innovation-oriented Core SMEs



Source: Small and Medium Enterprise Administration, MOEA, 2012.

III Optimizing the Start-up Support Network

1. Establishing The Project of Regional Industries Incubation & Networking

In order to help realize the government's new economic policy, with its emphasis on supporting SME development as part of the process of industrial restructuring, following on from the launch of the Start-up Guidance Plan in 2009, in 2012 the Small and Medium Enterprise Administration, MOEA began implementation of the Start-up Taiwan initiative, which will contribute to the progress of Taiwan's economy towards new milestones in its development. The existing Northern, Central, Southern and Eastern Taiwan SME Start-up and Innovation Service Centers, which had previously focused on supporting the dominant industries in their respective regions, will be working to optimize industry networks and coordinate the cultivation of start-ups that embody regional characteristics, while carrying out an "inventory-taking" of the distribution and state of development of key industries in each region. These efforts will be supported by the establishment of a start-up resource integration center and business matching center, with incubator centers being encouraged to serve as contact windows for liaison with regional industries, and with effective use being made of the Idea Factory and Incubation Accelerator to provide entrepreneurs and start-ups with an environment in which they can experiment and grow (Fig. 10-3-1).

Figure 10-3-1 Regional Incubation Networks in Northern Central, Southern and Eastern Taiwan

Source: Small and Medium Enterprise Administration, MOEA, 2012.

2. Promotion of SME Innovative Services Certification Subsidies and Grants

In line with the national industrial development and technology policy, in 2010 the SMEA began to promote the SME Innovative Service Certification Plan to encourage SMEs either located in or that had "graduated" from incubation centers and were in receipt of funding from the SMEA. Those firms that secure approval can obtain innovative service certification subsidies (or grants) of NT$300,000, which they can use to access customized, innovative services from the knowledge-intensive service organization.

In 2012, in line with the government's key policy objectives and efforts to provide support for a larger number of SMEs, the scope of subsidy provision under the Start-up Taiwan initiative was expanded to include start-up guidance, design, marketing, new product launch planning, etc. In addition, the criteria for subsidy awards were relaxed so that firms that were not located in incubator centers (and had not previously "graduated" from incubator centers) could apply. At the same time, efforts are being made to make it easier for small enterprises, micro-enterprises, recent start-ups and firms that have never participated in a government subsidy program before to submit applications, with the aim of benefiting as many SMEs as possible and helping them to enhance their innovation capabilities and competitiveness, while also facilitating the efficient transfer of university and research institute R&D resources to industry, so that industry and the university and research sector can work together to build first-class innovation capabilities.

3. SME Management and Incubation Talent Cultivation

As part of its strategy for supporting the development of new start-ups, identifying new businesses with strong potential and competitiveness, and helping to build Taiwan into a major Asia regional center for new business incubation, besides helping new start-ups to access the resources they need, the Small and Medium Enterprise Administration, MOEA has also been focusing on the cultivation of relevant specialist SME guidance talent. In addition to providing training for specialist incubation talent, the Administration has also organized SME management leadership classes, SME manager training courses, and conferences to discuss important trends, thereby making a meaningful contribution towards upgrading start-ups' managerial capabilities and raising the success rate for innovative, R&D-oriented new firms.

4. Provision of Guidance for Business Start-up

The Council of Labor Affairs is implementing the "2011 Business Start-up Consulting and Guidance Service Plan," with the aim of helping citizens to start their own businesses by organizing entrepreneurship training courses, providing consulting and guidance services, establishing start-up funding plan application review committees and providing follow-up guidance for loan provision. It is anticipated that the Plan will help to increase the success rate of new start-ups, and contribute to the creation of new kinds of job opportunity. The Plan's key measures include: the establishment of a nationwide, toll-free start-up consulting hotline (0800-092-957); the establishment of local consulting service contact windows; organizing entrepreneurship training activities and consulting services; holding team-building activities; the establishment of a Northern Taiwan entrepreneur loan review and coordination mechanism; the

establishment and maintenance of a start-up case study database and related website; the provision of a telephone guidance service; the holding of "Phoenix" program exchange meetings and related promotional activities, etc.

IV Provision of Guidance for Female Entrepreneurial Activity

1. The Council for Economic Planning and Development (CEPD), Executive Yuan formulates the "Plan for Reducing the Gender Digital Divide"

In order to help reduce the gender digital divide and ensure that women have more opportunities to acquire computing skills, in 2007 the Council for Economic Planning and Development (CEPD) launched the Gender Digital Divide Reduction Pilot Project, with funding support from the Sino-American Fund for Social and Economic Development. The formal launch of the Gender Digital Divide Reduction Plan followed in 2008, with subsidies being provided for the holding of relevant courses by NPOs, schools and colleges, with the aim of expanding the range of social and economic opportunities available to women, and making it easier for them to find work or start their own business. Implementation of this project has continued in 2012.

2. SMEA launched the Female Entrepreneurship Guidance Plan

In 2007, the SMEA launched the Female Entrepreneurship Guidance Plan, which has helped many women to make their dream of starting their own business a reality. 2010 saw further integration of resources and capability expansion with the initiation of the Female Entrepreneur Cultivation Network Plan and Start-up Guidance Plan, which is specifically designed to provide a comprehensive range of resources and business matching platforms for female entrepreneurs. By promoting the dissemination of entrepreneurial experience and knowledge, the Plan aims to encourage female entrepreneurs to focus on innovative, knowledge-intensive fields.

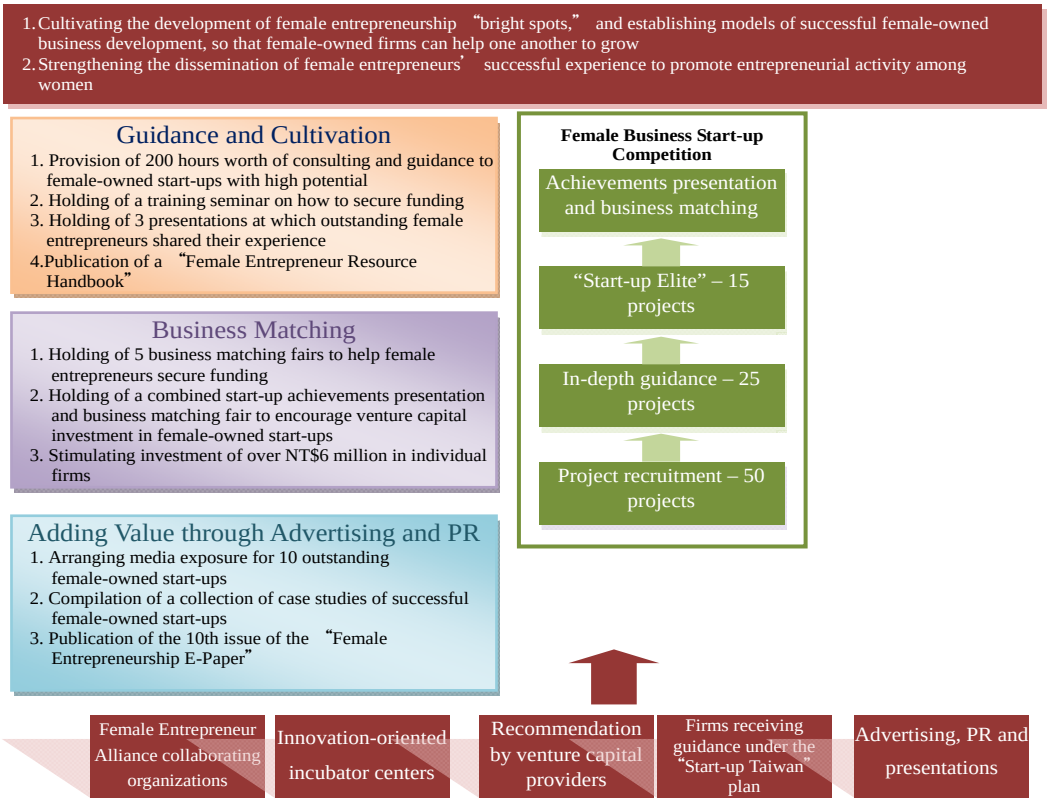
With the growth in the number of female innovative entrepreneurs, SMEA has taken new measures to encourage female entrepreneurs through starting the "Female Innovative Entrepreneurship Project." Outstanding women entrepreneurs are selected through competition and are mentored and cultivated by professional consultants. Furthermore, these selected entrepreneurs will be provided with business matchmaking opportunities and successful stories as well. This project is aimed at any female entrepreneurs, corporations with female presidents or executives.

In 2012, a Female Entrepreneurial Elite sub-plan was launched as part of the Start-up Taiwan initiative. This sub-plan is being integrated with other start-up guidance resources to create a comprehensive service mechanism for female entrepreneurs (Fig. 10-4-1).

3. The National Youth Commission Flying Goose Program

The National Youth Commission launched the Flying Goose Program to help solve the problems that women experience when starting their own business, increase the success rate of female-owned start-ups, and enhance their operational efficiency.

Figure 10-4-1 Female Entrepreneurial Elite Plan – Implementation Framework



Source: Small and Medium Enterprise Administration, MOEA, 2012.

4. Council of Labor Affairs Measures to Support New Business Start-up – the Business Startup Phoenix Plan

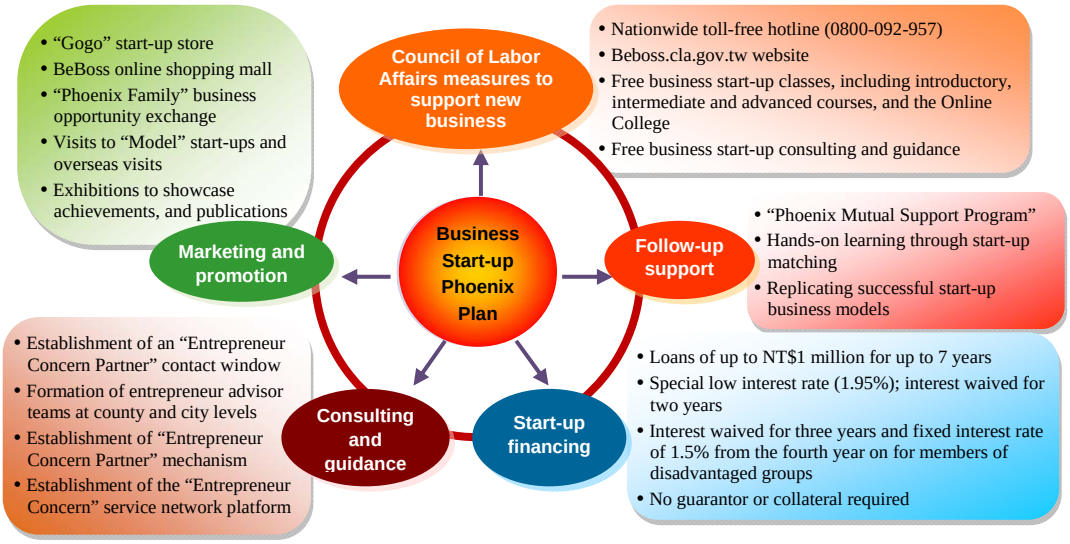
The Council of Labor Affairs has launched the Business Startup Phoenix Plan to boost labor-force participation by women and the middle-aged, establish a business environment conducive to new business creation, and help women and the middle-aged to start their own microenterprises, thereby creating new jobs. The Plan also provides entrepreneurs with advisors, and help in securing credit guarantees and loans. The structure of the Business Startup Phoenix Plan and the implementation measures are shown in Figure 10-4-2.

5. Organization of Mutual Assistance Networks for Female Entrepreneurs

The government is working to establish female entrepreneur networks through the establishment and promotion of the Female Entrepreneurship and Innovation Alliance, as well as related business matching activities and support for the formation of strategic alliances, with a view to assisting female entrepreneurs in expanding their network of business contacts, and making use of this network for mutual support and assistance, thereby helping female-owned businesses to achieve continuing growth, and creating new business matching opportunities. So far, the Alliance has been extended to include nine incubation centers in Northern, Central, Southern and

Eastern Taiwan; these centers are pooling their limited resources to ensure that their efforts help as many female entrepreneurs as possible, using inter-center referrals to ensure that every aspect of female-owned businesses' needs is met. The Alliance is also organizing joint seminars and business start-up fairs, and employing physical activity platforms to integrate Alliance resources and extend its capabilities, so as to provide female entrepreneurs with a platform for start-up cluster development.

Figure 10-4-2 Business Start-up Phoenix Plan – Implementation Measures



Source: Council of Labor Affairs, Executive Yuan, 2012.

6. Information Exchange Platforms for Female Entrepreneurs

The government provides female entrepreneurs with a range of online consulting services through the establishment of information exchange platforms and provision of e-business guidance for female-owned enterprises; one example is the Female Entrepreneurs program that has been established within the New Business Actualization Plan. In addition, female-owned businesses are encouraged to develop new business opportunities (both in Taiwan and overseas) through websites such as the Women Village e-commerce site and the Women Business portal site.

7. Financing Support for Female Entrepreneurs

Funding is the most vital resource for female entrepreneurs. The following types of low-interest loans are available to women:

1. Young Entrepreneur Loans: To be eligible, candidates must be aged between 20 and 45, and must be the registered owner, or shareholder in, a company or other business enterprise that has been in existence for less than five years. For more information, go to:
2. Phoenix Micro-enterprise Loans: To be eligible, candidates must be women aged between 20 and 65 who have undergone a government training course within the past three years and received start-up consulting and guidance, and whose enterprise employs less than 5 people

(excluding the business owner). The size of individual loans is capped at a maximum of NT$1 million; interest is waived for the first two years of the loan period (with the difference being made up by the Council of Labor Affairs). In the case of business owners whose households are classed as “households with special circumstances,” or who have been victims of domestic violence, occupational injury or crime, or who belong to a low-income household or a household that has been severely affected by a natural disaster, or who have been negatively impacted by trade liberalization, or who are the sole breadwinner for their family, or who are members of another disadvantaged group, interest will be waived for the first three years, and the annual interest rate for the fourth and subsequent years of the loan period will be set at 1.5% (with the difference being made up by the Council of Labor Affairs).

3. Council of Labor Affairs, Executive Yuan “Assistance for Unemployed Persons with Employment Insurance Coverage Wishing to Start Their Own Business”: This type of loan is available for unemployed persons who are covered by Employment Insurance who want to start their own business. Candidates receive entrepreneurship consulting, guidance and suitability appraisal, and then undergo “Entrepreneur Boot Camp” management training. After receiving guidance from the Council of Labor Affairs, the would-be entrepreneur is formally registered as the responsible person of their new enterprise. The maximum size of individual loans is capped at NT$1 million. Interest is waived for the first three years of the loan period (with the Council of Labor Affairs making up the difference); the annual interest rate for the fourth and subsequent years of the loan period will be set at 1.5% (with the difference being made up by the Council of Labor Affairs).
4. Small and Medium Enterprise Administration, MOEA “SME Start-up Loans”: To be eligible to receive a loan, the candidate firm must be an SME start-up which was formally registered as a company or other business enterprise less than three years previously, and which has been the recipient of an MOEA award, subsidy, or guidance (excluding consulting service); candidates are also required to submit the relevant supporting documents.

CHAPTER 11

Revitalizing Local Economies and Promoting the Development of New Business Opportunities

Over the last few years, the government has been actively working to promote the development of "local cultural industries". The Small and Medium Enterprise Administration, Ministry of Economic Affairs launched the Plan for Helping Local Cultural Industries to Create Value and an ICT Plan to revitalize regional economies through value-added creation. Other related initiatives include the Creative Lifestyle Industry Development Plan launched by the Industrial Development Bureau (IDB), and others. These projects seek to promote the development of local tourism, innovation and new business models, to encourage SMEs to actively participate in local cultural industry R&D, and to revitalize local economies by strengthening the competitiveness of local industries.

I Local Industry Innovation Strategies

The term "local cultural industries" is normally used to refer to local industry clusters that have evolved in a particular township, rural township, city or community and which are engaged in manufacturing or service provision involving special local products with particular historic or cultural significance, or uniqueness, and making use of local materials, natural resources and traditional handicraft techniques, as well as local labor, etc. "One Town, One Product" (OTOP) local cultural industry products can be divided into six broad categories: processed food products, cultural and handicraft products, innovative lifestyle products, local cuisine, agro-tourism, and traditional festivals and cultural traditions.

1. The Development of Local Cultural Industry Guidance Strategy

In 1989, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) began to allocate resources to support the development of local cultural industries. Over the years, the support and guidance measures have focused on different aspects of local cultural industry development, as shown in Fig. 11-1-1.

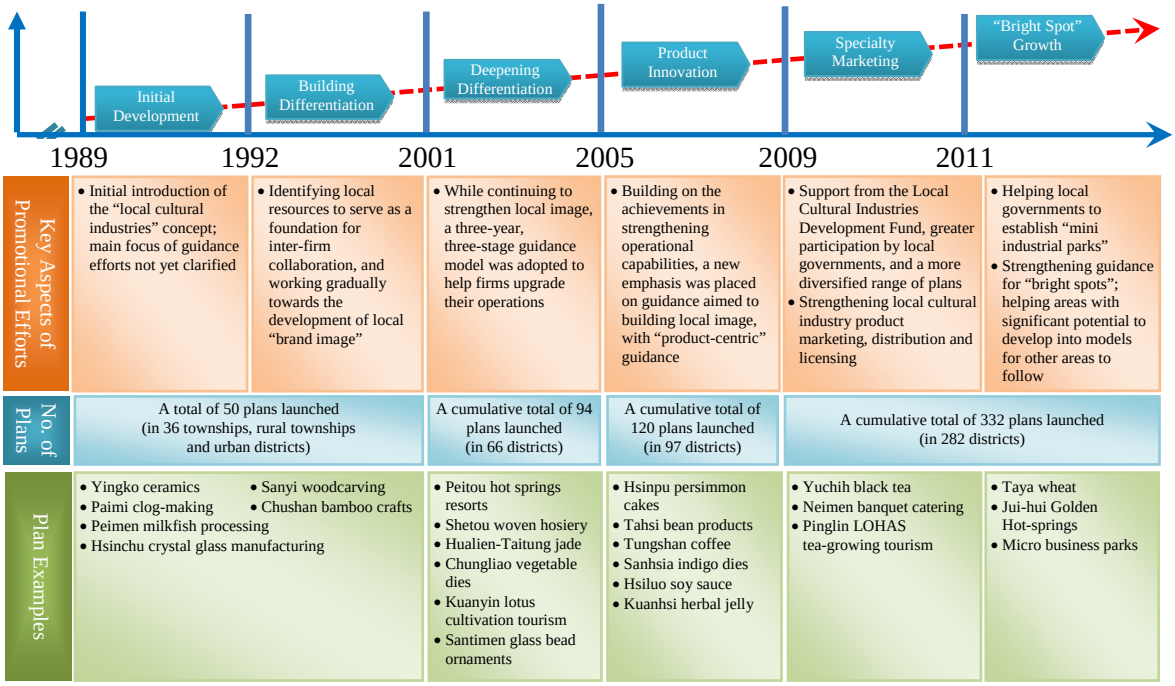
2. Local Industry Guidance – Fostering the Development of Local Industries with their Own Unique Character, and Stimulating Economic Development at the Local Level

In 2012, the Small and Medium Enterprise Administration, MOEA began implementation of a new Local Cultural Industry Guidance Plan based on the vision of building competitive Taiwanese local cultural industries, and with the objectives of revitalizing local economies and creating jobs in local communities. The main emphasis in terms of guidance is on helping

domestic local cultural industries to strengthen the development of industry organizations, enhance firms' operational capabilities, improve the visual appearance of local communities, encourage local industries to internationalize, build "bright spot" local cultural industries that can serve as a model for others, strengthen the economic potential of local cultural industries, and promote job creation at the local level. The promotional framework and strategies are outlined in Figures 11-1-2 and 11-1-3.

The main action plans for 2012 were as noted below.

Figure 11-1-1 Timeline of the Development of Local Cultural Industries in Taiwan



Source: Small and Medium Enterprise Administration, MOEA, 2012.

(1) Internationalization of Taiwan's Local Cultural Industries

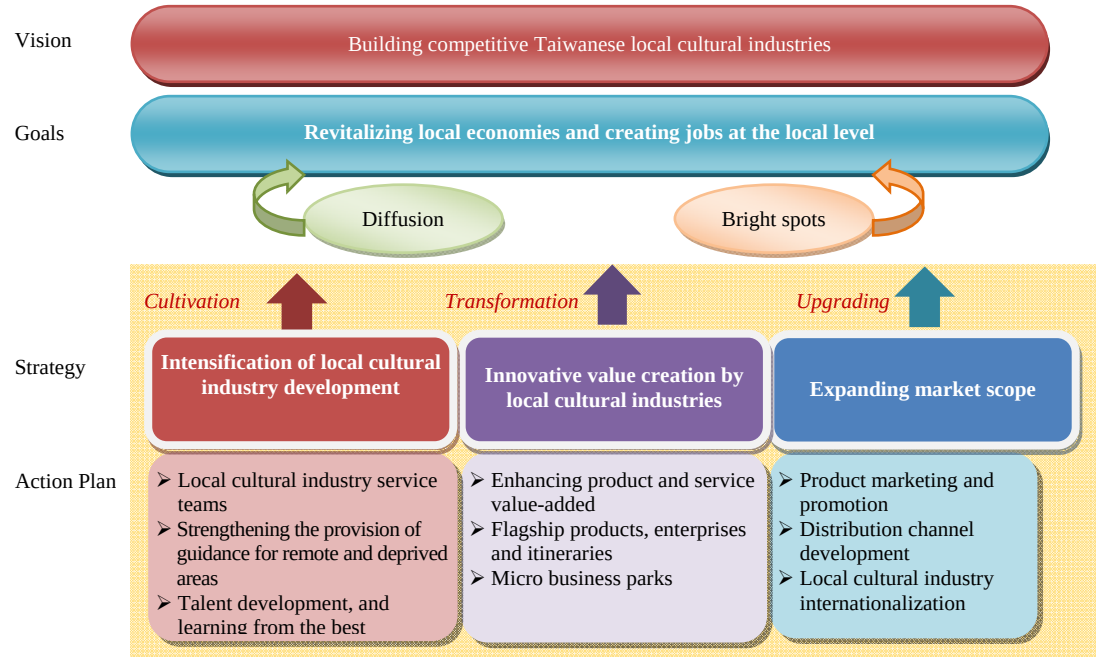
i. Using the shared "Taiwan OTOP" mark to promote the internationalization of local industries.

ii. Ongoing, long-term monitoring of developments in international markets to support the formulation of strategies and methods for local industry internationalization.

iii. Bringing together industry organizations to collaborate on internationalization-related capability building and arrange collaboration on distribution.

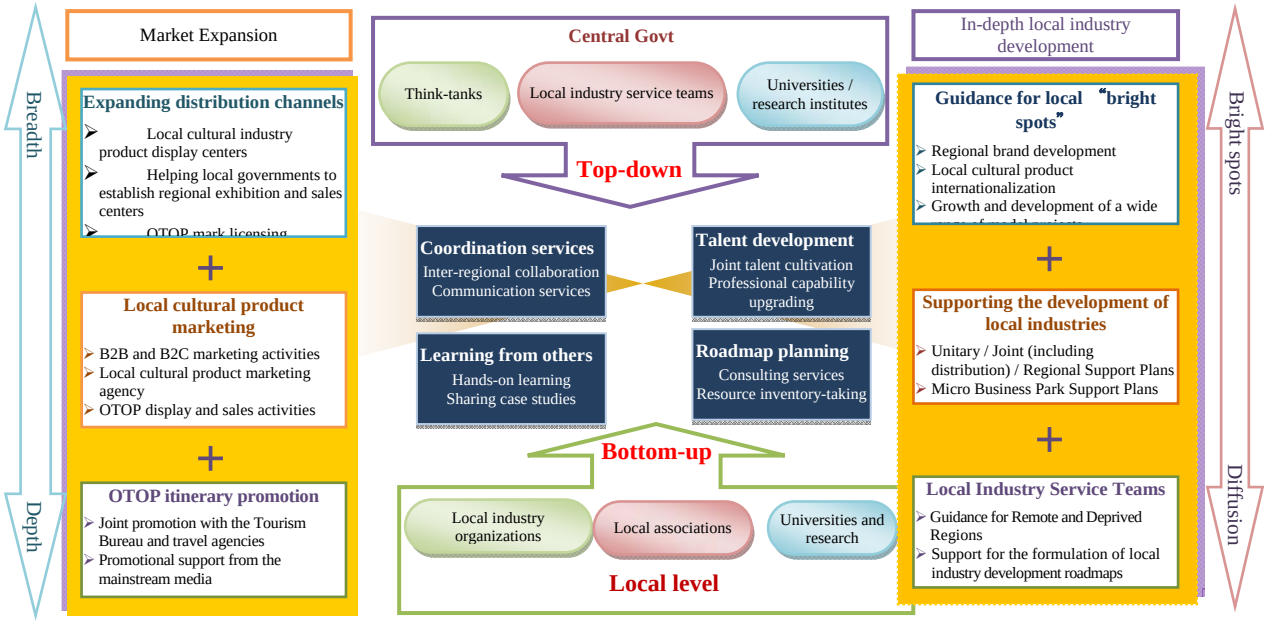
iv. Adopting an international outlook to stimulate innovation in local cultural industries.

Figure 11-1-2 Framework for Promoting the Development of Local Cultural Industries



Source: Small and Medium Enterprise Administration, MOEA, 2012.

Figure 11-1-3 Strategies for Strengthening the Appeal of Local Cultural Industries and Reinvigorating Local Economies



Source: Small and Medium Enterprise Administration, MOEA, 2012.

(2) "Bright Spot" Guidance

In 2009, the Small and Medium Enterprise Administration, MOEA launched the Local Industry Development Fund Plan, the objective of which was to support the development of local "bright spots," using the "local government authorities submit applications, the central government commissions service providers to provide guidance" model. It was anticipated that the creating of local cultural industry "bright spots" would contribute to the ongoing development of local industries, while also enhancing their overall production value, strengthening the image of local cultural industries and their appeal as tourist attractions, and helping to build strong "town brands" that can boost international visibility, strengthen local competitiveness, and serve as a model for other regions and other industries to follow.

II Strengthening Local Industries

1. The Plan for Helping Local Cultural Industries to Create Value

The SMEA launched the Four-year Plan for Helping Local Cultural Industries to Create Value (2008–2012) in 2008. The Plan, which has the "One Town, One Product" (OTOP) concept as its goal, uses "Taiwan OTOP" joint branding to promote products that embody a high quality image for Taiwan's local cultural industries, aiming to promote both domestic and export sales and stimulate the development of local tourist industries. The Plan also involves identifying those local cultural industries that have significant potential for developing international markets and helping them to upgrade their individual value chains, creating "bright spots" on the map of Taiwan's local cultural industries that can help to strengthen Taiwan's overall national image.

2. The Architecture for the Utilization of the Local Industry Development Fund

In 2009, the Executive Yuan established the Local Industry Development Fund to promote local economic prosperity by providing funding assistance in line with the development needs of local industries at the county and city level. It was anticipated that the Fund would help to transform the face of Taiwan's local communities, encouraging people to move back to their home areas from the big cities and from overseas, creating new job opportunities, and imbuing local economic development with new vigor.

The types of subsidies are as follows:

1. Individual funding support projects: The proposals are submitted by city and county governments covering only a single urban district, city, township or rural township. The total funding per project is capped at NT$6 million over a three-year period. Plans are to be implemented over a period of 3 years.
2. Integrated funding support projects: The proposals are submitted by city and county governments covering 3 or more urban districts, cities, townships or rural townships. The total funding per project is capped at NT$ 15 million over a three-year period. Plans are to be implemented over a period of 3 years.

3. Regional funding support projects: The proposals covering the regional development plan are submitted by the central government. The total funding per project is capped at NT$ 15 million over a three-year period. Plans are to be implemented over a period of 3 years.

3. The Establishment of a Micro Park from the Subsidy of the Local Industry Development Fund

Based on the Ministry of Economic Affairs' approval of the Key Points Regarding the Provision of Subsidies by the Local Industry Development Fund and the Key Points Regarding the Provision of Micro Park Subsidies by the Local Industry Development Fund, the establishment of the micro park is supported by the Local Industry Development Fund, central government agencies, municipalities and county (city) governments. The total funding per Micro Park is capped at NT$ 55.5 million. The remaining deficiencies in the development costs are to be budgeted for by the applicant.

4. Providing Industry Cluster Guidance and Evaluation at the Local Level

Recognizing the global trend towards "industry tourism" and the need for Taiwanese industry to upgrade itself, in 2003 the Industrial Development Bureau and the Central Region Office launched the Factory Tourism Guidance Plan. By developing factory tourism, traditional factories would be transformed into "tourist factories" with significant cultural and educational value, giving the enterprises concerned an opportunity to restructure themselves, and giving the general public new tourism and leisure options that are both fun and educational; factories that already have distinctive local character will be able to develop new business models through tourism that enable people to learn while they are enjoying themselves.

5. The Creative Lifestyle Industry Development Plan

The Industrial Development Bureau launched the Creative Lifestyle Industry Development Plan to help domestic industries transform and upgrade themselves, create new jobs, help enterprises to integrate cultural and creative elements into their operations, promote the development of innovative new products, services, locations and activities, and stimulate the adoption of new business models that can contribute to value-added creation and the development of new business opportunities.

6. The Local Industry Innovation Engine Plan

In 2008, the Department of Industrial Technology introduced a Plan to stimulate the development of local industries in individual counties and cities within Taiwan, thereby contributing to regional prosperity. The Plan involves integrating the capabilities of 18 foundations and research institutes, including the Industrial Technology Research Institute, Academia Sinica, and the Institute for Information Industry, to leverage the division of responsibility and "industry adoption" system that links individual research institutes with particular counties and cities so as

to facilitate planning for the development of high-value-added industries and industry clusters in individual counties and cities.

III Helping SMEs to Develop New Business Opportunities

The SMEA, Bureau of Foreign Trade and Commerce Department have formulated a number of business development and marketing plans to help Taiwan's SMEs develop new business opportunities at home and expand into overseas markets. The aim of these projects is to assist SMEs in the development of new markets, in expanding their marketing and distribution channels (both in Taiwan and overseas), in raising the export competitiveness of their products, and in developing their own brands. The following sections examine the plans implemented in 2011–2012, focusing on the provision of assistance for market development and the provision of assistance for brand development.

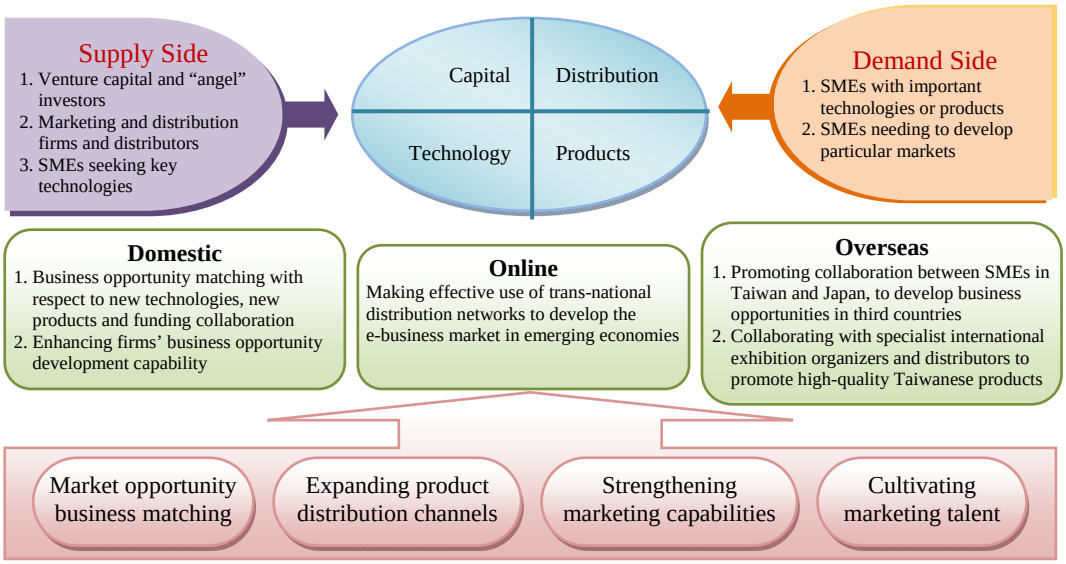
1. SME Strategies for Business Opportunity Development

In 2012 the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) launched an initiative to help SMEs develop new business opportunities, with the vision of enabling SMEs to get more value from their marketing activities. The project incorporates strategies for business matching, distribution channel development, marketing capability enhancement, cultivation of marketing expertise, etc. The framework for SME business opportunity development and the implementation strategies are shown in Figures 11-3-1 and 11-3-2 below.

2. Promoting Business Matching and Technology Development among SMEs

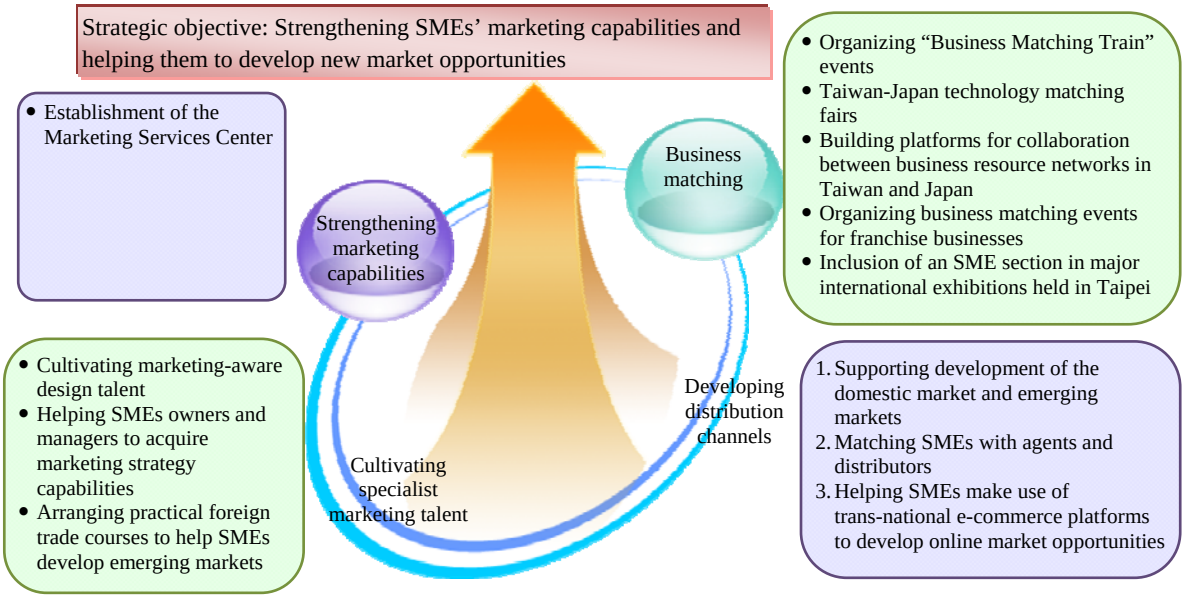
To help enterprises in both traditional industries and emerging hi-tech industries to develop the Taiwanese domestic market and access information related to high-value-added technologies and products, in 2007 the SMEA launched the "SME Business Matching and Technology Exchange Train" activity, whereby the Administration would provide active support to help SMEs obtain intensive exposure for their new products within a short space of time, giving the general public an opportunity to familiarize themselves with these new products, while at the same time building new channels for marketing collaboration, so that the inventors of new technology can quickly find funding support to commercialize it, or can access key technologies that they require for successful commercialization. In this way, the SME Business Matching and Technology Exchange Train initiative can contribute to ensuring that technology development conforms better to the market's needs, and encourages the use of online platforms and resources for product marketing and technology presentation.

Figure 11-3-1 Framework for Promoting Business Opportunity Development by SMEs



Source: Small and Medium Enterprise Administration, MOEA, 2012.

Figure 11-3-2 Strategies for Helping SMEs to Develop New Business Opportunities



Source: Small and Medium Enterprise Administration MOEA, 2012.

3. The SME Marketing Value Creation Plan

Recognizing the urgent need for more marketing guidance resources for Taiwan's SMEs, in 2012 the Small and Medium Enterprise Administration, MOEA began implementation of the SME Marketing Value Creation Plan, with the aim of providing guidance measures to help SMEs grow and transform themselves. The Administration has also set up an SME Marketing Service Center to provide "one-stop service," including consulting service, resource referral, information

collation, planning management and follow-up services, so as to help SMEs overcome the challenges they experience with respect to marketing. One point particularly worth noting is that, in order to speed up the development of new business opportunities by SMEs, the Small and Medium Enterprise Administration has invited a group of over 30 experienced marketing consultants – specializing in the fields of branding strategy, product development and distribution channel development – to form three "Marketing Service Flagship Teams":

1. Branding Strategy Marketing Service Flagship Team: Focusing on consumer behavior research, market surveys, brand positioning, etc.
2. Product Development Marketing Service Flagship Team: Focusing on product development, graphic design, packaging design, pricing strategy, marketing activities, etc.
3. Distribution Channel Development Marketing Service Flagship Team: Focusing on sales, distribution, retail outlet planning, etc.

In order to be able to help SMEs solve a wider range of marketing-related problems, the Small and Medium Enterprise Administration has arranged for the SME Marketing Service Center to establish a toll-free consulting service hotline (0800-017-868), with expert advisors available to provide marketing-related consulting services. The Administration has also developed a special app that can be used to download marketing resources handbooks, marketing service team information, information about overseas trade fairs and other marketing opportunities, etc., with the aim of helping SMEs to access up-to-date information about the latest SMW Marketing Value Creation Plan activities.

4. Providing Guidance to Help SMEs Develop Their International Marketing Capabilities

The SMEA has launched the SME International Marketing Promotion Guidance Plan to encourage Taiwan's SMEs to expand their international marketing activities, enable them to gain increased international exposure at minimal cost, and undertake collaborative development of overseas markets, thereby boosting the overall image of Taiwanese industry. The Plan's contents include the organizing of overseas marketing teams, the establishment of special display zones for SMEs at major international exhibitions and trade fairs held in Taipei, and helping SMEs to undertake international marketing over the Internet.

5. The Project to Promote Most-Valued Products in Emerging Markets (MVP)

Emerging markets possess a rapidly growing middle class that is looking for a high-quality but affordable lifestyle. This "good enough" consumption model, with its emphasis on reasonably-priced luxury and value-for-money, is creating new market opportunities. In 2010, the Ministry of Economic Affairs (MOEA) launched the Project to Promote Most-Valued Products in Emerging Markets (MVP), which is being implemented over a three-year period (2010 – 2012), targeting emerging markets such as China, India, Indonesia and Vietnam. To implement the MVP project, the MOEA is coordinating the resources of its various subordinate agencies, including the Department of Industrial Technology, the Industrial Development Bureau, the Small and Medium Enterprise Administration, the Commerce Department and the Bureau of Foreign Trade, adopting a four-pronged approach (market demand, innovative R&D, product

design, and international marketing) and a framework based around three key axes – innovative R&D and production platforms, integrated international marketing platforms, and environment-building platforms – to help provide enterprises with coordinated guidance and support that addresses technology, production, design, branding and marketing related issues, to help them develop business opportunities in emerging markets.

6. Promoting Collaboration between Taiwanese and Japanese SMEs

2009 was designated the "Year of the Special Partnership of Taiwan and Japan." As part of the development of strategies and measures for furthering collaboration between Taiwanese and Japanese industry in the future, a special initiative was launched to promote the building of collaborative relations between SMEs in Taiwan and Japan, focusing on the key industries whose growth the two countries are seeking to promote, and aiming to create a win-win situation through the development of a new model for Taiwan-Japan SME collaboration, so that Taiwanese and Japanese firms can work together to develop the China market and build a new Asian "Triangle of Gold." The key elements in the efforts to promote Taiwan-Japan collaboration in the SME sector include:

1. Establishment of a platform to coordinate collaboration between Taiwanese and Japanese SMEs, to enhance the success rate of Taiwan-Japan joint ventures seeking to develop third-country markets.
2. Establishment of a database of the needs of Taiwanese and Japanese SMEs, to guide the collaborative development of third-country markets by Taiwanese and Japanese SMEs.
3. Organizing Taiwan-Japan SME business matching activities, to promote substantive, practical collaboration between Taiwanese and Japanese enterprises.

Provision of information regarding business opportunities and trends in third-country markets, to help encourage more Japanese SMEs to integrate their capabilities with those of Taiwanese firms and build trans-national supply chains and trans-national industry clusters.

7. Improving the Brand Image and Packaging Design of Taiwan's Agricultural Exports

To strengthen the international competitiveness of Taiwan's agricultural products, the Council of Agriculture, Executive Yuan has formulated the Plan for Strengthening Agricultural Export Product Brand Image and Packaging Design, which involves providing guidance to Taiwanese exporters involved in the exportation of agricultural products, and helping them to enhance their brand image and improve product packaging design, thereby enabling Taiwanese agricultural products to build a reputation for high standards of quality and food sanitation (which in turn can be expected to contribute to increased export sales). To be eligible to receive assistance under this Plan, an exporter must submit a proposal listing at least six branding and packaging design items where it requires assistance. The Council of Agriculture will bear half of the design expenses, up to a maximum of NT$400,000 per project; the exporter receiving guidance will be required to fund the remaining half of the design costs itself.

CHAPTER 12

Participation in International Affairs and Other Related Resources

I Participating in International SME Meetings and Events

The main purpose of this chapter is to outline the results achieved through Taiwan's participation in major international conferences, to present statistics regarding the utilization of government resources to assist SMEs, and to describe the SME-related manpower cultivation and legal/regulatory adjustment work that has been undertaken by the government. Taiwan has for many years been an active participant in the SME-related meetings and activities undertaken by international organizations such as Asia Pacific Economic Cooperation (APEC), the International Small Business Congress (ICSB), the International Council for Small Business (ICSB), and the Asian Association of Business Incubation (AABI), and uses these events and activities as an opportunity to share Taiwan's experience in SME development with other countries. In recent years, Taiwan has also been actively involved in international collaboration with regard to SME incubation and industry-university collaboration, which provide opportunities for the exchange of ideas and for collaborative growth, while also contributing to the development of a more international outlook and bilateral exchange.

1. Participating and Hosting International Conference in 2011

(1) Hosting the APEC Symposium on Enhancing SME Capacity of Managing the Risks Associated with Trade Liberalization

In order to help SMEs cope with the international financial crisis, in 2009 Taiwan proposed to APEC the establishment of an APEC SME Crisis Management Center (SCMC); the SCMC was formally established in Taipei on May 24, 2010. With the aim of helping to address the various issues that have arisen in relation to trade liberalization, the APEC SCMC invited leading domestic and overseas experts to attend an APEC Symposium on Enhancing SME Capacity of Managing the Risks Associated with Trade Liberalization, held in Taipei on August 16 – 17, 2011, to discuss the challenges and opportunities presented by trade liberalization, and to help SMEs acquire a more in-depth understanding of the risks associated with export trade.

The Symposium was held over two days. On the first day, the participants discussed the international trade environment currently facing SMEs, and the importance of risk management to SME development and economic growth. The discussion on day two focused on how government policy can help SMEs to upgrade their ability to cope with the external trading environment and raise their international competitiveness, along with discussion and sharing of experience in relation to the role of credit in international trade, management of political risk, etc.

During the Symposium, a set of "Principles for Enhancing SME Capacity to Manage the Risks Associated with Trade Liberalization" were formulated, to serve as a reference for overcoming obstacles to trade; it was anticipated that these Principles would help SMEs in APEC member economies to eliminate or control potential sources of risk when undertaking international trade, thereby strengthening SMEs' ability to cope with the current trading environment.

(2) Attendance at the 2011 APEC SME Summit

The 2011 APEC SME Summit in Hong Kong was hosted jointly by the Hong Kong General Chamber of Small and Medium Business, the Hong Kong Trade Development Council, and the Chinese Manufacturers' Association of Hong Kong. The Summit was held on December 1, 2011 at the Hong Kong Convention and Exhibition Centre; the Summit theme was "Working together to develop emerging markets."

In his capacity as Director General of the Small & Medium Enterprise Administration, Ministry of Economic Affairs, and Chairman of the APEC Small and Medium Enterprises Working Group (SMEWG), Dr. Robert Sun-Quae Lai described to the other participants how the Taiwanese government had successfully guided Taiwan's SMEs towards upgrading and transformation and towards the development of international markets through the building of a first-class business environment conducive to SME development, strengthening the provision of operational management guidance to SMEs, building first-rate SME start-up, innovation and incubation platforms, upgrading SMEs' ability to make effective use of IT, and achieving effective coordination of SME financing mechanisms, etc. Dr. Lai also presented an analysis of the economic imbalances that have emerged as a side-effect of globalization, the business opportunities in emerging markets, the progress made in SME-related collaboration within APEC, and developments in Taiwan – Hong Kong collaboration, etc. He also discussed with the other participants the question of how SMEs can cope with the current difficult international economic climate, the opportunities for strengthening exchange and collaboration between SMEs in Taiwan, Hong Kong and China, and the potential for collaborative development of business opportunities in emerging markets (including China).

(3) Hosing the APEC SME Workshop on Innovation, Entrepreneurship and Cloud Computing

With regard to the suggestion by the U.S. regarding ways to reduce the barriers to trade affecting SMEs in APEC member economies that relate to logistics and transportation costs, the Small and Medium Enterprise Administration, MOEA proposed that cloud computing technology could be used to improve logistics efficiency and reduce related costs. During the 33rd Meeting of the APEC SMEWG in Bangkok, an APEC SME Workshop on Innovation, Entrepreneurship and Cloud Computing was held, organized by the Small and Medium Enterprise Administration in collaboration with the U.S. Department of Commerce

The Workshop emphasized the potential for SMEs to make effective use of cloud computing technology to enhance the efficiency of supply chain and business management. Physical freight movement processes can be integrated with virtual, cloud-based services, permitting a substantial increase in freight transportation efficiency, quality and safety, and effectively reducing logistics

costs. The experts participating in the Workshop also noted that, to be of practical benefit, cloud-computing services must take the needs of business owners and other users as their starting point. The suggestion was also made that governments could do more to help business enterprises familiarize themselves with and adopt cloud-computing technology.

2. Participating and Hosting International Conference in 2012

(1) Participation in APEC SME Summit at the first 2012 Meeting (ABAC I) of the APEC Business Advisory Council (ABAC), and in dialog between ABAC representatives and senior APEWC officials

The APEC SME Summit was organized in collaboration with the Hong Kong Trade Development Council (HKTDC), and was held in Hong Kong on February 21, 2012, with the theme of "Entrepreneurship in Asia-Pacific." The topics discussed at the Summit included: "Success Story of a Taiwanese Entrepreneur," "Entrepreneurship – Born or Learned?", "Where is the Funding Coming From?", "Re-inventing the Family Company," "Public-Private Partnership in Fostering SME Development," "Government Support for SMEs: A Regional Insight into What Works… and What Does Not," "Entrepreneurship in Big Corporations," and "Benchmarks." The response from those attending the Summit was very positive.

On February 22, 2012, ABAC representatives met with senior APEC officials at the Hong Kong Convention and Exhibition Centre to discuss issues that included: liberalization of trade and investment and the expansion of regional economic integration; strengthening food security; building reliable supply chains; cultivating innovation-based growth, etc.

(2) Participation in the 34th APEC Small and Medium Enterprise Working Group (SMEWG) Meeting

The 34th APEC Small and Medium Enterprise Working Group (SMEWG) Meeting was held in Brunei on April 22 – 26, 2012, with Dr. Robert Sun-Quae Lai (Director General of the Small and Medium Enterprise Administration, MOEA) serving as Chairman. Following the Meeting, the U.S. delegation arranged for Dr. Lai to be interviewed by the media; these interviews received extensive coverage in the media in Brunei. To accompany the Meeting, South Korea arranged two workshops on "green" issues, during which APEC member economies shared their experience of implementing Green Action Plans (GAPs) and presented case studies of successful projects; there was also discussion of future plans, and of potential areas of collaboration between member economies. Taiwan (which uses the name "Chinese Taipei" in its APEC membership) chaired the meeting which was held to formulate SMEWG's strategic plan for 2013 – 2016. In addition, Taiwan presented five reports during the Meeting, all of which received support from the other members. The results of the discussions during the Meeting are highly relevant to current trends in global economic development; they included proposals regarding methods for overcoming obstacles to trade, regional economic integration, corporate ethics, sustainable business operation, participation in global supply chains, energy conservation and carbon reduction, "green" innovation, etc. All of these can serve as a useful reference for APEC member economies when formulating their own domestic policies, as well as pointing the way towards suitable strategies for boosting SME competitiveness.

(3) Participation in the 57th Annual Sessions of the ICSB Conference

The 57th ICSB Conference was held from June 10 to June 13, 2012 in Wellington. The theme of the conference was "Leading From The Edge: Through Collaboration, Creativity and Sustainability."

Dr. Robert Sun-Quae Lai (Director General of the Small and Medium Enterprise Administration, MOEA) was invited to attend the International Council for Small Business (ICSB) 2012 World Conference in his capacity as Chairman of the APEC Small and Medium Enterprise Working Group (SMEWG) and Executive Director of the APEC SME Crisis Management Center. Dr. Lai gave a talk in which he discussed the progress made in the promotion of SME-related activities by Taiwan, and Taiwan's experience in this regard. Dr. Lai also attended several of the supporting conferences and forums, where he discussed the content of the multi-year Improving Natural Disaster Resilience of APEC SMEs to Facilitate Trade and Investment plan that Taiwan has been implementing.

(4) Holding of a Network Meeting and first Experts' Meeting with respect to the Improving Natural Disaster Resilience of APEC SMEs to Facilitate Trade and Investment plan, along with the holding of an APEC Symposium on Promoting Business Continuity Plans to Enhance SMEs' Participation in Global Supply Chains

At the first APEC Senior Officials Meeting (SOM1) of 2011, Taiwan proposed the launch of an Improving Natural Disaster Resilience of APEC SMEs to Facilitate Trade and Investment project to help SMEs respond effectively to natural disasters; this proposal was approved by APEC, and was granted funding support for three years, starting from 2012; the plan is being carried out as a collaborative project between SMEWG and the Emergency Preparedness Working Group (EPWG), and will be implemented in three one-year stages, commencing in 2012. Implementation of the 2012 stage will involve the initial data collection and analysis stage, with the establishment of a contacts network and the undertaking of joint research with other countries to analyze the current status of the threat from natural disasters faced by SMEs in APEC member economies, as well as preliminary formulation of business continuity plan (BCP) and policy framework model (PFM) guidance principles and checklists. A report on the results achieved will be submitted at the 35th SMEWG and SME Ministerial Meeting (SMEMM) meetings in August 2012. The second stage of project implementation will involve "train the trainers" cultivation, with the compilation of teaching materials, guidance principles and checklists to help SMEs respond effectively to natural disasters, and the holding of a second Experts Meeting to support "train the trainers" education. The emphasis in the third stage will be on knowledge diffusion and encouraging SMEs to formulate business continuity plans. Three APEC member economies will be invited to host workshops and high-level dialog, and the principles and teaching materials that it is intended will be formulated in the project will be disseminated for the use of SMEs in all APEC member economies. In 2012, a Network Meeting and the first Experts Meeting will be held in Taiwan, along with the APEC Symposium on Promoting Business Continuity Plans to Enhance SMEs' Participation in Global Supply Chains and visits to companies that have formulated outstanding BCPs, etc.

(5) Hosting the APEC SME Workshop on Transporting Goods and Services Reliably and Cost-Efficiently

A joint statement issued in May 2011 by the APEC Ministers Responsible for Trade and SMEs urged member economies to address nine major barriers to trade affecting SMEs, with the aim of achieving an across-the-board improvement of the SME business environment.

In 2012, funding support was obtained from APEC for the holding of an APEC SME Workshop on Transporting Goods and Services Reliably and Cost-Efficiently, to be held on the morning of July 11, 2012 during the APEC Symposium on Promoting Business Continuity Plans to Enhance SMEs' Participation in Global Supply Chains. This Workshop will provide an opportunity for the sharing of case studies of successful projects, with the aim of helping SMEs in the APEC member economies to reduce their transportation costs.

1. The Signing of a Memorandum of Understanding for Collaboration between Taiwan and Israel in the SME Sector

The 9th Taiwan-Israel Economic and Technological Cooperation Conference was held in Tel Aviv, Israel on November 16, 2011, with Administrative Deputy Minister Hwang Jung-Chiou of the Ministry of Economic Affairs heading the Taiwan delegation. Administrative Deputy Minister Hwang and Mr. Shalom Simhon, Israel's Minister of Industry, Trade and Labor, presided over the Conference's opening ceremony. At the end of the Conference, Administrative Deputy Minister Hwang and Mr. Sharon Kedmi, Director General of the Ministry of Industry, Trade and Labor witnessed the signing by Chang Liang-Jen (Taiwan's Representative in Israel) and Simona Halperin, Head of the Israel Economic and Cultural Office in Taipei, of a Memorandum of Understanding for Collaboration between Taiwan and Israel in the SME Sector. It is anticipated that the signing of this MoU will contribute to a strengthening of exchange and collaboration between Taiwanese and Israeli SMEs.

4. Signing a Memorandum of Agreement between Taiwan and South Africa on SMEs

To implement the resolutions adopted at the "Fifth Taiwan-South Africa Economic and Trade Consultative Meeting" and to enhance bilateral SME cooperation and development between Taiwan and South Africa, a Memorandum of Agreement between Taiwan and South Africa on SMEs was signed in October 2009 as the basis for the two countries to promote bilateral cooperation projects and personnel training. The memorandum provides a framework in which projects such as "The International Best Practice Exposure Program: Learning from the Taiwan Experience" will be implemented in each 3-year period to help members of South Africa's SME Bureau, Ministry of Trade and Industries, receive training in Taiwan. From 2009 to 2011, South Africa's SME Bureau has sent trainees to Taiwan three times thus far.

5. Participating in the GEM Research Project

To assist SMEs to participate in Global Entrepreneurship Monitor (GEM) entrepreneurial activity research, the SMEA sponsored SMEs in conducting the GEM survey, achieving the 2,000-sample Adult Population Survey (APS) and National Expert Survey (NES) in 2011. The

SMEA also supported a survey on early-stage entrepreneurial activity in Taiwan, held from May to July 2011, through interviewing 36 experts on 9 topics, and collecting their professional points to be the basis of a survey within the entrepreneurial activity framework.

6. Attending Global Entrepreneurship Week

In 2010, Taiwan formally participated in Global Entrepreneurship Week (GEW) for the first time. In 2011, efforts were made to integrate GEW with other entrepreneurship-related activities in Taiwan; these related activities got underway in June 2011, with "Start-up Taiwan" as the activity logo. The aim was to create an atmosphere in which "every day is start-up day, and every week is start-up week," and to show the world just how strong Taiwan's entrepreneurial spirit and entrepreneurial capabilities are. The launch of the "Start-Up Taiwan" project in 2012 represented a declaration of Taiwan's determination to continue living up to the "Start-Up Taiwan" ideals, and an invitation for all citizens to come up with creative ideas for new business establishment, with the Idea Factory and Incubation Accelerator mechanisms being used to showcase the new trend towards the creating of outstanding start-ups in Taiwan.

7. Hosting the Asian Association of Business Incubation (AABI) 17th General Assembly

Taiwan was one of the founders of the Asian Association of Business Incubation (AABI), and is currently chairing the Association. The AABI's 17th General Assembly and International Conference are scheduled to be held in Taipei on November 15 – 18, 2011. The areas on which this year's General Assembly will be focusing include collaboration within international incubation center networks, key trends in the development of the incubation sector, and optimizing incubation projects. It is anticipated that hosting the General Assembly in Taiwan will provide an opportunity to "market" Taiwan to other countries in the Asia region, and to showcase the development of the incubation sector in Taiwan and the innovativeness and strengths of Taiwan's SMEs.

8. Hosting the International Conference on Business Incubation

To help bring business incubation activity in Taiwan up to world-class standards, enable the business incubation sector to benefit from domestic and overseas incubation center management expertise, and help start-ups in Taiwan to develop an international outlook, an International Conference on Business Incubation is being held in Taipei on November 17, 2011. The main focus of this Conference will be on business incubation in the Asia-Pacific region, with the theme of "Cutting-edge Globalized Business Incubation – Key Trends in the Asia Region." The aim is to help would-be entrepreneurs appreciate the business start-up potential of the Asia region from the globalized perspective, while at the same time considering the future of global business incubation from an Asian point of view.

II Statistics on Government Resources Allocated to SMEs

It is explicitly stated in the Act for the Development of Small and Medium Enterprises that the government should clearly specify in the SME White Paper the amount of resources allocated to SMEs. In addition to the resources expended by the government on SMEs, this section will also contain statistics pertaining to the government's procurement of property, public works or labor from SMEs as well as special loans made available to SMEs. In 2011, total government resources allocated to SMEs amounted to NT$729.24 billion. However, statistics on government guidance resources and financing are limited to those from agencies at the central government level. In this section, the statistics provided are on the basis of actual disbursement. The details are explained as follows:

1. Government Procurement from SMEs Reached NT$695.92 Billion

According to Government e-Procurement System statistics on awarded contracts, in 2011 the amount contracted or subcontracted by SMEs in government procurement totaled NT$ 695.92 billion, a substantial increase of NT$102.92 billion from the NT$593 billion in 2010.

2. Assistance to SMEs Totaled NT$30.7 Billion

The statistics on resources allocated by the government for SME guidance purposes include funding to government agencies that have a significant relationship with SMEs, e.g., the Small and Medium Enterprise Administration, Industrial Development Bureau, Bureau of Foreign Trade, Department of Commerce, Department of Industrial Technology and Department of Investment Services, as well as training expenses of the Council of Labor Affairs, government contributions to the SME Credit Guarantee Fund and financial institutions' contributions to the SME Credit Guarantee Fund.

As for government agencies with a substantial involvement in providing guidance to SMEs, the amount was NT$37.14 billion in 2011, of which NT$28.49 billion was allocated to SMEs, representing 76.71% in the final accounts (Table 12-2-1). When viewed by government agency, the Department of Industrial Technology was ranked first with NT$12.01 billion in terms of allocation to SMEs, followed by the SMEA, with NT$7.73 billion. However, this includes the NT$5.7 billion of government contributions to the SME Credit Guarantee Fund. The next highest was the Industrial Development Bureau, with NT$ 4.27 billion.

When compared with 2010, the overall assistance funding for SMEs decreased by NT$326 million. With the exception of the decrease of NT$407 million from the SMEA, and the decrease of NT$610 million from the Department of Industrial Technology, the remaining agencies had relatively large increases in SME funding allocation, notably the Bureau of Foreign Trade, with the largest increase of NT$402 million. When viewed from the percentage of funding allocated to SMEs, MOEA funding for SMEs increased by 1.4% in 2010 in terms of overall funding (Table 12-2-2).

Table 12-2-1 MOEA Resources and Funding Allocated to SMEs

Unit: NT$1,000; %

Organizer \ Annual Funding	Fiscal Year 2010 Final Accounts	Total Amount Allocated to SMEs
Small and Medium Enterprise Administration (including SME Development Fund)	7,725,941	7,725,941 (100.00)
Industrial Development Bureau (industrial technology guidance and industrial park development and management fund)	6,445,686	4,268,158 (66.22)
Bureau of Foreign Trade (overseas marketing guidance and trade promotion fund)	4,559,671	3,949,102 (86.61)
Department of Commerce (promotion of trade modernization and commercial technology development)	1,354,442	536,193 (39.59)
Department of Industrial Technology (DOIT)	17,049,070	12,007,677 (70.00)
Total	**37,134,610**	**28,487,071 (76.71)**

Notes: 1. Figures in parentheses represent the percentages in the final accounts.
2. Funding allocated to SMEs contain the NT$6 billion donated to the SME Credit Guarantee Fund.
Source: Various government agencies.

In 2011, in addition to the relevant government resources allocated to SMEs by agencies such as the MOEA, 40 financial institutions also contributed a total of NT$20.1 billion to the Small and Medium Enterprise Credit Guarantee Fund of Taiwan to enhance the Fund's strength. Therefore, total public and private sector guidance resources available to SMEs totaled NT$30.50 billion in 2011.

Table 12-2-2 Increase/Decrease in MOEA Funding to SMEs

Unit: NT$1,000; %

Organizer \ Annual Funding	Total Allocated to SMEs in 2009	Total Allocated to SMEs in 2010	Increase/ Decrease (%)
Small and Medium Enterprise Administration (including SME Development Fund)	8,132,790 (100.00)	7,725,941 (100.00)	-406,849 (0.00)
Industrial Development Bureau (industrial technology guidance and industrial park development and management fund)	3,946,733 (67.61)	4,268,158 (66.22)	321,425 (-1.39)
Bureau of Foreign Trade (overseas marketing guidance and trade promotion fund)	3,546,932 (79.76)	3,949,102 (86.61)	402,170 (6.85)
Department of Commerce (promotion of trade modernization and commercial technology development)	569,116 (40.74)	536,193 (39.59)	-32,923 (-1.15)
Department of Industrial Technology (DOIT)	12,617,529 (68.41)	12,007,677 (70.00)	-609,852 (1.59)
Total	**28,813,100 (75.31)**	**28,487,071 (76.71)**	**-326,029 (1.40)**

Note: Figures in parentheses represent the percentages in the final accounts.
Source: SMEA.

In the area of assistance in human resources investment, two options are available in the enterprise human resources upgrade project of the Council of Labor Affairs, namely, the individual type and the joint type. The funding for this project is NT$334 million, of which the individual type is available to individual enterprises, and business owners are encouraged to improve productivity and product quality via existing equipment and resources or professional training institutions. For the joint type, three or more enterprises are grouped together for the planning of employee training for the purposes of propagating and sharing training experiences

and resources, while at the same time enhancing corporate human resources to facilitate the development of industry or regional upgrading. From the point of view of the overall upgrading of human resources, the funding for this project applicable to SME personnel training reached approximately NT$161 million, and government funding for providing guidance to SMEs totaled NT$30.66 billion.

3. Providing SMEs with Special Loans Totaling NT$2.7 Billion

Eligible SMEs in Taiwan have access to the following six types of special loans: SME Upgrade Guidance Loans, Youth Entrepreneurship Guidance Loans, SME Development Fund Special Loans, Assistance for SMEs to Take Root Special Loans, Indigenous Integrated Development Fund Loans (Indigenous youth business loans, Indigenous economic industry loans, and Indigenous micro-business activities loans), and Micro Business Start-up Phoenix Loans (Council of Labor Affairs). A total of NT$2.67 billion in government-funded SMEs loans was made available in 2011 (Table 12-2-3).

Table 12-2-3 Special Loans to SMEs Funded by the Government in 2011

Unit: NT$100 million

Name of Loan	Eligible Applicant	Structure	Status	
			Total Loan Amount	Gov't Funding
SME Upgrade Guidance Loan	SMEs	Each loan is funded by the Development Fund, Executive Yuan (25%) and lending institution (75%)	63.15	15.79
Youth Entrepreneurship Guidance Loan	Youth aged 20-45 engaging in business start-ups	Each loan is funded by the Sino-American Fund (50%) and lending institutions (50%)	21.98	0.00
SME Development Fund Special Loan	SMEs	SME Development Fund	5.11	5.11
Assistance for SMEs to Take Root Special Loan	SMEs	Earmarked funds from CEPD Long-term Fund	50.50	2.92
Indigenous Integrated Development Fund Loans (Indigenous youth business loans, Indigenous economic industry loans, Indigenous micro-business activities loans)	Indigenous people	Fully funded by the Council of Indigenous Peoples	2.74	2.74
Micro Business Start-up Phoenix Loans	Women aged 20-65 and women aged 45-65	Loans provided by Banks' own funds and interests subsidized by the Council of Labor Affairs	4.18	0.15
Total			**147.66**	**26.71**

Source: Various government agencies.

III Manpower Training for SMEs

1. Digital Learning, Business Incubation, Business, Technology Personnel Training - SMEA

In order to solve the manpower shortage problem, the MOEA has allocated a generous budget to bring together experts from industrial, academic and research communities to plan projects for training qualified personnel. The following is a list of training programs carried out by various government agencies for 2010-2011.

(1) SME Online University

As of April 2012, the total number of visits to the SME Online University, which was founded in August 2006, had exceeded the 10 million mark, and the web platform had attracted participation from more than 450,000 trainees in a variety of training courses (http://www.smelearning.org.tw/). The website currently provides over 1,000 courses in five major faculties: information technology, financial management, marketing and distribution, human resources and general knowledge. The cumulative number of course participants has reached 3.5 million; some 750 SMEs have even adopted the website as their in-house training platform.

(2) Nurturing SME Business Leaders

The SME Business Leaders Research Project was established in 2002 to enhance the core operating capacity of domestic SMEs. The Lifelong Learning Network was established to help senior managers working in SMEs adapt to the rapid pace of change in the political, economic, social and technological environments. Over the period 2002 – 2011, a cumulative total of 1,294 SME senior managers received training under this program. Many of SMEs at which these managers were employed have since gone on to become winners of the Rising Star Award, the National Award of Small and Medium Enterprises, or the National Awards of Excellence. For more information, visit:

http://open.moeasmea.gov.tw/

(3) Develop Incubation and Certification of Professionals

The country's capabilities in nurturing new ventures and providing consulting services is shaped and enhanced through the organization of incubation and certification exams for professionals and with a forward-looking, specialized and diverse training system. This provides even more professional assistance in entrepreneurship, innovation and business operations as well as in improving the success rate of new enterprises and the competitiveness of SMEs.

(4) Industry-University Collaboration on the Cultivation of Financial Talent

The Small and Medium Enterprise Administration has implemented the Innovation-oriented SME Financial and Accounting Information Application Development – Industry-University Collaboration Plan for Manpower Cultivation, the SME Specialist Talent Train-the-Trainers Course, and the SME Financial Specialist Cultivation Classes, working together with other organizations to strengthen trainees' financial capabilities, and ensuring that all of these programs dovetail with the SME Financial Specialist Certification System, so as to cultivate the financial expertise that SMEs need, while also helping students to enter the job market successfully on graduation.

(5) SME Management Consultant Cultivation

The Small and Medium Enterprise Administration, MOEA has organized the SME Management Consultant Training Course. The course content covers everything from practical business administration to business strategy formulation, with a modular course structure that includes modules on marketing management, service flow, human resources management, enterprise

management skills, diagnostic guidance skills, strategic marketing, value management, enterprise resource integration and transformation, etc. It was anticipated that this two-stage, systematic training would cultivate management consultants who are familiar with modern management techniques and possess a global outlook, and who can provide effective guidance to help SMEs improve their managerial performance. For more details, visit:

http://www.moeasmea.gov.tw or http://www.bmca.org.tw

(6) Training Information - Government Training Integrated Services Information Network

To bring together all the educational and training resources provided by government agencies in a more effective manner and to provide a single access point for citizens, businesses and training institutions, the SMEA completed the deployment of the Government Training Integrated Services Information Network (http://get.nat.gov.tw) in 2007, which contains information on 10 government training programs. It is hoped that this will strengthen the integration of inter-departmental information and services and further enhance the performance of government administrative services so as to reap the benefits of information integration via the exchange of information and services by various government agencies.

2. Professional Training Programs for Various Industries - Industrial Development Bureau, MOEA

In FY2012, the Industrial Development Bureau, MOEA will be implementing 20 manpower cultivation projects. The scope of the Bureau's in-service training and cultivation classes covers: the chemical industry, the cultural and creative industries, the smart electronics industry, the food processing industry, the textile industry, the information and communications technology (ICT) industry, the IT application services industry, the green energy industry, the networking and communications industry, the digital content industry, the machinery manufacturing industry, the medical devices manufacturing industry, and the pharmaceuticals production equipment manufacturing industry.

3. R&D and Management Technology Talent Training – Department of Industrial Technology, MOEA

(1) Training Cross-Sector International Management Talent (Cross-sector Technology Management Course)

The program will continue to run from 2010 to 2013 with a training approach that consists of domestic and overseas training sessions. For the domestic training, trainees will each be responsible for NT$20,000 in tuition and will receive a 50% subsidy from the government for the overseas training, while the underlying enterprise will be responsible for the remaining 50%.

(2) Training R&D Management and Business Strategy Professionals

The R&D management and business strategy professional training program is primarily aimed at training senior R&D personnel. The purpose is to provide training on the development of innovative business strategies and on the enhancement of key practices in management operating performance.

4. Fostering International Trade and Business Talent - Bureau of Foreign Trade, MOEA

To assist SMEs to secure trade, marketing and language professionals, each year the Bureau commissions the Taiwan External Trade Development Council (TAITRA) to conduct dedicated courses for both fresh graduates and experienced workers. The work items implemented included the following:

(1) Orientation training

i. International enterprise course: Provides training for talents in international business, which is divided into foreign languages, international trade, overseas study and other courses, and includes the following subgroups: international trade (1 year), English language (1 year), MBA program (1 year), European languages (German, French, Spanish, Russian, Portuguese) / Korean / Arabic (2 years), English language (2 years) and Japanese (2 years).

ii. International trade training course: In 2012, it was anticipated that a total of 188 trainees would undergo training in foreign trade practice and business English lasting for a period of six months. Since this course was established, a cumulative total of 1,947 persons have successfully completed the training.

(2) In-service training

i. Post-Masters international marketing course

ii. Masters-level business English course

iii. In-service training short courses

(3) Developing Exhibition Talents and Certification

TAITRA has been commissioned to implement an Exhibition Talent Cultivation and Certification Plan, to cultivate specialist talent for the exhibition and conference industry.

i. Exhibition talent certification system:

Certification system related training: Implementation of Preliminary Certification Testing for Exhibition Talent, and Advanced Certification Testing for Exhibition Talent

ii. Exhibition Talent Cultivation Training

Organizing of a “train-the-trainers” cultivation class, arranging visits to exhibitions in other countries (including the U.K., South Korea and the U.S.), provision of exhibition-related English classes, provision of exhibition and activity reception English classes, preparatory classes for the Global Certificate in Meetings and Business Events, and provision of a Key Aspects of International Conferences and Business Travel course, etc.

5. Industry-specific Masters Degree Courses – Ministry of Education

Industry-specific Masters Degree courses are tailored to meet the needs of industry. The business enterprise(s) and university concerned submit a joint curriculum proposal to the Ministry of Education. If the proposal is approved, the university in question can then launch an

industry-specific Masters Degree program, to help cultivate the Masters-level human talent that firms need. The range of industry sectors for which industry-specific Masters Degree courses are available or planned covers: (1) Electromechanical engineering; (2) Optoelectronics; (3) ICT; (4) Cultural and creative industries; (5) Biomedicine (including biotechnology and pharmaceuticals manufacturing); (6) Finance (including wealth management, etc.); (7) Food, textiles and other manufacturing industries; (8) Service industries; (9) Other.

IV Improving Legal Rights Adaptation

The main results achieved in FY2011 in the government's efforts to improve the legal and regulatory environment for SMEs are outlined below.

1. Implementation Results in FY2011

In order to help create a first-class environment in which SMEs can grow and prosper, the Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA) strives to function as a bridge for communications via which SMEs and government agencies can coordinate the making of necessary changes to laws and regulations. The Administration has worked to establish a comprehensive set of legal and regulatory adjustment mechanisms, and has formulated standard operating procedures covering every stage from the collection and evaluation of data relating to problems affecting the legal and regulatory environment, through the establishment of a legal and regulatory monitoring center, to follow-up work. In FY2011, the Administration handled a total of 83 cases in this area, including visits to industry associations and individual SMEs, referrals and petitions submitted from the various SME guidance systems, proactive examination of the draft versions of new legislation when it is first announced, collection of data regarding relevant news items, and handling of legal and regulatory adjustment cases. The largest number of cases comprised those relating to commercial and trade law. It is clear that SMEs do need assistance from the government with respect to legal and regulatory adjustment. As part of its efforts to enhance SMEs' legal awareness, the Administration has compiled the "What the Revised Personal Data Protection Act Means for SMEs" handbook, and the "Consumer Protection Handbook"; it is anticipated that these publications will help to strengthen SMEs' legal and regulatory "general knowledge," thereby boosting their competitiveness.

2. Studies on Legal and Regulatory Issues Relating to SMEs, 2011

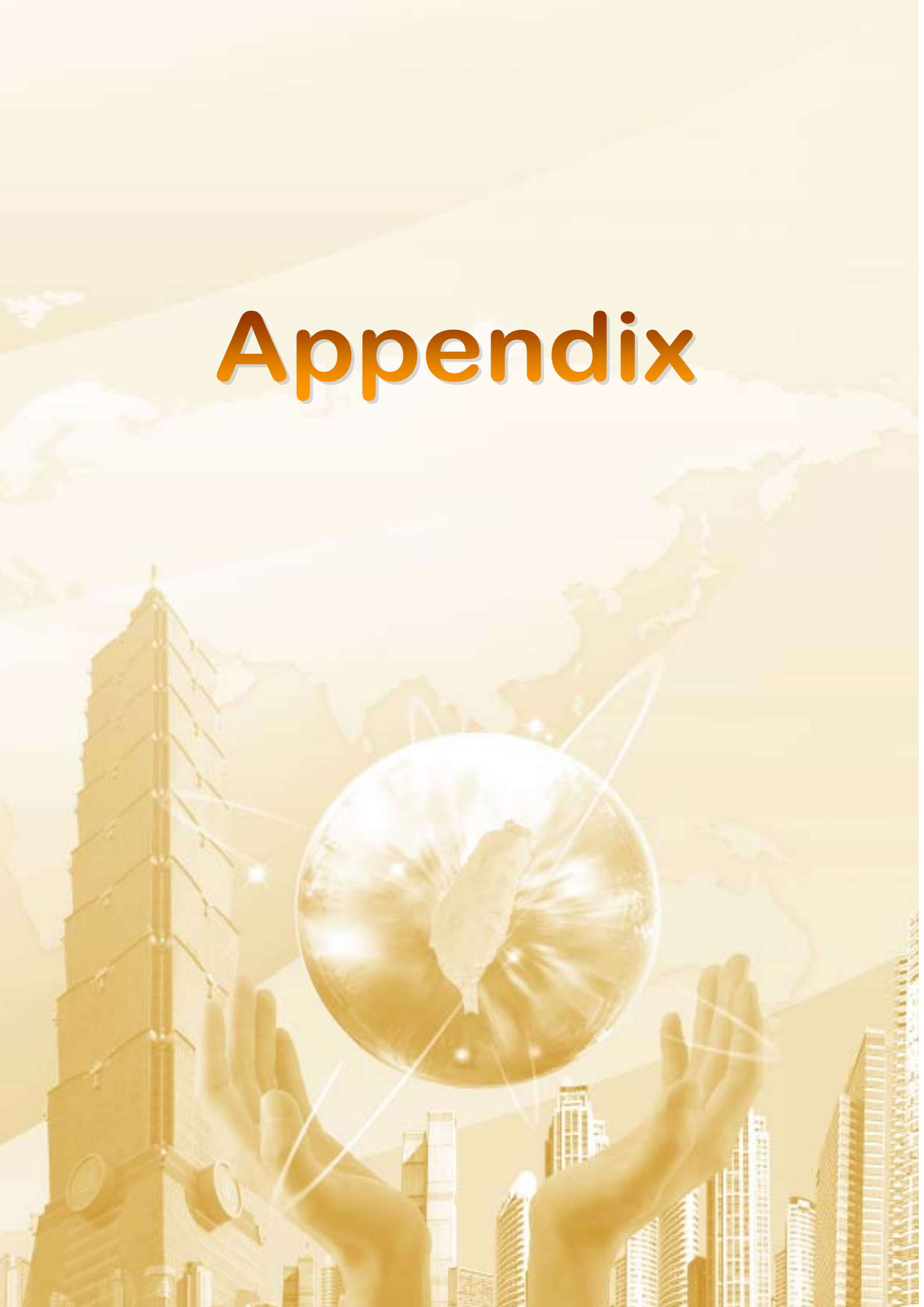
Research and analysis of legal and regulatory issues relating to SMEs which was undertaken in FY2011 addressed the following areas: the tax environment in Taiwan, lawsuits, the adoption of international accounting principles by SMEs, SMEs' ability to cope with statutory labor costs, and compliance costs relating to building permit applications. The main proposals made on the basis of this research were as follows:

1. Clarification and publicization of the principles tax auditing, to reduce the incidence of taxation-related lawsuits involving SMEs: To strengthen the tax system in Taiwan and support the ongoing development of Taiwan's SMEs, it is recommended that, in the near future, an effort be made to familiarize SMEs with the key points they need to be aware of

with respect to auditing, through the compilation of a "Practical Auditing Handbook." In the longer term, the various types of documentary evidence that may need to be submitted (for costs and expenses) should be clearly stipulated in the auditing principles, so as to reduce the potential for disputes.

2. An "SME version" of international financial reporting standards should be compiled, in line with global trends, and appropriate guidance measures should be provided: Given that financial reporting requirements should give consideration to the economic interests of Taiwan's SMEs, and the business environment that they face, consideration should be given to the formulating of financial reporting standards specifically tailored to SMEs, which would take into account Taiwan's overall economic interests and business environment, SME size, environmental and managerial needs, as well as the needs of financial statement users, etc. The provision of suitable guidance measures and resources by the government would reduce the difficulty that SMEs experience making the transition to the new accounting system; efforts could also be made to enhance the quality of accounting and bookkeeping staff at SMEs, so as to maximize the benefits that SMEs will receive from the adoption of the new "IFRS for SMEs."
3. The total statutory labor costs borne by SMEs in Taiwan amount to around NT$284.9 billion per year. This figure is on a par with Taiwan's neighboring competitor nations, but constant monitoring is needed to prevent Taiwan's competitiveness – in terms of labor costs – from being eroded.
4. Reducing the time needed to obtain building permits could significantly reduce the opportunity costs that SMEs have to bear: In the World Bank's *Doing Business 2011* report comparing the business environment in different countries, Taiwan ranked 95th in the world with respect to building permit application procedures, significantly behind Taiwan's Asian competitor nations such as Japan, South Korea, Singapore and Hong Kong. It is suggested that the government should consider simplifying the relevant procedures, for example by establishing a "one-stop shopping" contact window for building permit applications, and by ensuring that all building permit and usage permit operations are centrally coordinated. Other feasible measures would include the outsourcing of building permit application review, promotion of e-enabled operational systems, and review of relevant laws and regulations, etc.

Appendix



Appendix A

Act for Development of Small and Medium Enterprises

Publically announced in accordance with the presidential decree dated February 4, 1991.

Revised in accordance with the presidential decree dated May 21, 1997.

Revised in accordance with the presidential decree dated January 21, 1998.

Revised in accordance with the presidential decree dated December 27, 1990.

Revised in accordance with the presidential decree dated December 21, 2001.

Revised in accordance with the presidential decree dated December 17, 2003.

Revised in accordance with the presidential decree dated November 25, 2009.

Chapter 1 General Principles

Article 1

This Act is enacted for the furtherance of sound development of small and medium enterprises by helping them improve their operation environments, promoting mutual cooperation, and assisting them in striving for growth with their own efforts. With regard to matters not provided for in this Act, the provisions of other relevant acts and regulations shall apply.

Article 2

The term "small and medium enterprises" used in this Act shall refer to the enterprises which have legally completed company registration or commercial registration under the Act and conform to the standards for identifying small and medium enterprises.

The standards referred to in the preceding paragraph shall be drawn up by the central competent authority according to the category, capital stock, amount of operating revenue and the number of regular employees and shall be submitted periodically to the Executive Yuan for approval.

Other government authorities, which administer small and medium enterprise assistance and guidance may, in accordance with their respective operational requirements, formulate separate criteria with loose requirements for objects of assistance and guidance.

Article 3

The term "competent authority" used in this Act shall be the Ministry of Economic Affairs at the central government level, the provincial (municipal) government at the province (municipality) level, and the county (city) government at the county (city) level.

Where any of the matters set forth in this Act involves the functional duties of an authority in charge of a particular enterprise, the competent authority referred to in this Act shall handle such matters in coordination with the said authority in charge of such enterprise.

For enforcement of this Act, government at various levels shall set up or designate a government agency to provide assistance and guidance.

Article 4

For achieving the objectives of this Act, the competent authority concerned shall take appropriate assisting or encouraging measures in respect of the following:

1. Market research and development,
2. Furtherance of rationalization of business operations,
3. Promotion of mutual cooperation,
4. Acquisition and securing of production factors and technology,
5. Education and training of competent personnel, and
6. Other matters relating to the establishment or sound development of small and medium enterprises.

In formulating the policy, acts and regulations, and measures in the preceding paragraph, the competent authority concerned shall aim the contents at the furtherance of improvement and development of the business operations of small-scaled enterprises without unfair treatment in respect of financial and taxation systems and other related matters.

The central competent authority shall publish a white paper, at the end of each fiscal year, on small and medium enterprises given the enforcement status, the review results and the prospective development of the provisions of the preceding two paragraphs.

Article 5

For furthering small and medium enterprises to conduct market research and development activities, the assistance and guidance provided by the competent authority to small and medium enterprises shall be emphasized on the provision of information services, the creation of exclusive brands for their own products, arrangement of marketing channels and/or development of potential market.

Article 6

For furthering small and medium enterprises to rationalize their business operations, the assistance and guidance provided by the competent authority shall be emphasized on the following:

1. Research and development and development of new products,
2. Modernization and renovation of production facilities and improvement of production technology,

3. Improvement of the methods of operational management,
4. Expansion of market and acquisition of necessary information,
5. Conversion and adjustment of the field of business, and
6. Acquisition of resources and technical know-how for business operation.

Article 7

For encouraging mutual cooperation between small and medium enterprises, the assistance and guidance to be provided by the competent authority shall be emphasized on the following:

1. Verticle amalgamation of businesses of the trade and establishment and promotion of the satellite-factory system,
2. Horizontal amalgamation of businesses of the trade and establishment and promotion of joint production and marketing system,
3. Mutual fund or cooperative enterprise,
4. Technical cooperation and development of common technology,
5. Procurement of common equipment, and
6. Establishmant of strategic marketing points.

Article 8

For assisting small and medium enterprises to acquire and secure production resources and technology, the assistance and guidance to be provided by the competent authority shall be emphasized on the following:

1. Formation and accumulation of capital,
2. Capital accommodation,
3. Acquisition of land, plant building, equipment, business site and business information,
4. Personnel training and upgrading of labor productivity,
5. Securing the sources of agricultural and industrial raw materials and technical know-how,
6. Assisting small and medium enterprises to obtain fund from capital market, and
7. Upgrading of the level of services and technical skill.

Article 9

The central competent authority shall set up small and medium enterprise development fund, with the use thereof to be confined to the following:

1. To finance the operating expenses required for carrying out assistance plans,
2. To take part in investment and development projects or provide financing assistance and guaranty jointly with financial institutions under the condition that such financial institutions or credit guarantee institutions can not provide financing or guaranty under normal terms and conditions,

3. To make investment in small and medium enterprise development companies, or to take part in investment in small and medium enterprise with small and medium enterprises development companies, financial institutions and identified investment institutions.
4. To provide financial support to the juridical persons institutions that are incorporated to conduct the activities specified in Article 4 , and
5. Other purposes relating to the furtherance of sound development of small and medium enterprises and as specified in this Act.

For the income-expenditures, safeguarding and utilization of the small and medium enterprise development fund, a small and medium enterprise development fund management committee shall be formed, with its organization structure and the regulations for income and expenditure, safeguarding and utilization of the fund to be stipulated by the Executive Yuan.

Article 10

The small and medium enterprise development fund shall be derived from the following sources:

1. Appropriation from the annual budget programmed by the central government,
2. Appropriation from other special-case funds,
3. Donation from individuals or public and private business organizations or groups,
4. Interests accrued on the fund, and
5. Other associated income.

The donation referred to in item 3 the preceding paragraph may, when certified by the competent authority, be deductible from the total income of the current year, free from any restriction on the amount, in accordance with the Income Tax Act.

Article 11

The provincial (municipal) and the county (city) competent authority (henceforth referred to as “local competent authority”) may, taking into account of the specific development requirements of small and medium enterprises, under its jurisdiction, draw up assistance plan and formulate budget, and shall be responsible for the execution.

To carry out the assistance plan referred to in the preceding paragraph, the local competent authority may apply to the small and medium enterprise development fund for subsidy or assist the small and medium enterprises to obtain capital accommodation under special projects.

Article 12

The competent authority may, taking into account of actual requirements, cooperate with or consign to public and/or private research and service institutions, financial institutions, credit guarantee institutions, trade promotion institutions, industrial and/ or commercial organizations or other agencies for execution of the assistance activities under this Act; and shall set up separate assistance systems in connection with respectively the operations including financial

accommodation, operational management, production technology, research and development information management, industrial safety, pollution control, marketing, mutual cooperation, and quality reinforcement, etc.

The regulations governing establishment up and supervision of the assistance systems shall be drawn up by the central competent authority and submitted to the Executive Yuan for approval.

Article 12-1

In enacting or adjusting acts related to small and medium enterprises, governments at various levels shall review the operation scales or characteristics of small and medium enterprises to facilitate observance by small and medium enterprises.

The central competent authority shall periodically review the acts related to small and medium enterprises on term, and judge the adapt ability of small and medium enterprises, and the influence to small and medium enterprises, and take a review report to the Legislative Yuan yearly.

Chapter 2 Financing Facilities and Guaranty

Article 13

In order to meet the capital requirements for small and medium enterprises, the central competent authority shall coordinate with financial institutions and credit guarantee institutions to enhance their respective functions of providing financing and guaranty to small and medium enterprises.

In order to meet the capital requirements for small and medium credit guarantee institutions, the central competent authority shall allocate budget for donation to such credit guarantee institutions for the maintenance of their guarantee capacity. Financial institutions which contract with such credit guarantee institutions shall also cooperate with the donation whereas and the central competent authority may also solicit donation from private businesses.

The total amount of donation from various financial institutions mentioned in the preceding paragraph, taking into account the actual requirements, may be adjusted upward annually until reaching 35% of the total donation amount and be determined by the central competent authority according to the safekeeping amount, overdue ratio, substitute pay off amount, credit remainder, net value, profit and loss status, and the donated amount.

The central competent authority shall actively help small and medium enterprises get the loan from banks, and report the review results of each fiscal year to the Legislative Yuan.

Article 14

All banks throughout the Republic of China shall, within the scope of their respective business, elevate the ratio of financing facilities provided to small and medium enterprises and shall set up

small and medium enterprises assistance center in order to enhance the provision of relevant services.

Article 15

The competent authority shall coordinate various agencies to make ample budget available for providing special loans to small and medium enterprises, and instruc sponsoring banks to provide special or emergency financing facilities or to extend loans to meet with the requirements of enterprises implementing business converting projects or adapting to the change of economic situation; and to elevate, when necessary, the ceiling of such financing, loans and guaranty.

Article 16

The term "special financing" used in the preceding Article shall refer to the financing provided to small and medium enterprises carrying out any of the following projects:

1. Operational project for reinforcement of competiveness;
2. Research and development, pollution control or market expansion project;
3. Project for creation of new product(s) or upgrading the quality of product(s);
4. Factory relocation project which must be carried out so as to meet with the requirements of environment protection , urban planning, or road construction or other infrastructural projects sponsored by the government;
5. Any other special projects as approved by the competent authority.

Article 17

The term "emergency financing facilities" as used in Article 15 shall refer to the following financing provided to small and medium enterprises:

1. Loan provided as revolving fund in support of production and sales during the period of significant economic crisis;
2. Loan required for recovery of significant natural disaster; or
3. Other loan as required to cope with emergency events.

Article 18

The term "loans to meet with the requirements of enterprises implementing business converting projects or adapting to the change economic situation" used in Article 15 shall refer to any of the following loans extended to small and medium enterprises:

1. Loan provided as revolving fund in support of production and sales during the period of economic recession;
2. Loan required for procurement of replacement or additional machinery and equipment in the course of business conversion; or
3. Loan required for procurement of automation equipment for improvement of productivity.

Article 19

Funds appropriated from the small and medium enterprise development fund for participate in the loans or guaranties sponsored by financial institutions or credit guarantee institutions in accordance with the preceding three Articles; the ratio of such appropriations may be determined by the competent authority in accordance with the actual requirements.

With regard to the bad debts resulted from causes which are not attributable to the intentional act, gross negligence or malpractice of the personnel handing the relevant matters set forth in the preceding paragraph, they shall be fully indemnified from damage liabilities and exmpt from disciplinary measures, according to the provisions of item 1,Article 77 of the Audit Act.

Article 20

The competent authority concerned may coordinate the financial institutions and/or credit guarantee enterprises to give priority to small and medium enterprises, which have sound management, financial and accounting systems and have paid up all taxes due, in providing financing facilities and guaranties.

Article 21

Where the operation of a small or medium enterprise is affected or it has to move to another place in order to meet with the requirements of environmental protection, urban planning, or road construction or other projects sponsored by the government, the competent authority shall assist it to apply for operating revolving loan or relocation loan from financial institution, and assist it to acquire the land required for factory relocation, when it is deemed necessary.

Article 22

Where a small or medium enterprise suffers great damages caused by natural disaster, the competent authority shall coordinate the financial authority for tax exemption or reduction or other remedies.

Article 23

In order to prevent small and medium enterprises from involvement in domino effect resulted from the close-down of their respective related enterprises, the competent authority may coordinate and assist industrial associations to establish, either separately or jointly, mutual guaranty fund(s) for prevention of chain close-down of small and medium enterprises so as to provide credit guarantee in respect of special financing facilities for the small and medium enterprises having financial or operational difficulties in such cases.

The small and medium enterprise development fund may, when necessary, contribute to such mutual guaranty fund(s) at the initial stage upon its (their) establishment.

Chapter 3 Operation Management, Market and Product Development

Article 24

The competent authority may establish or assist the private sector to establish a small and medium enterprise guidance and service center, and may cooperate with relevant public and private institutions to provide small and medium enterprises with the following guidance and services:

1. Business operation diagnosis;
2. Improvement of the marketing and production technology, operation management and financial structure of small and medium enterprises;
3. Training of management or technical personnel of small and medium enterprises;
4. Production and market information and consultation services; and
5. Other relevant businesses activities.

Article 24-1

The competent authority may set up funds to assist in the development of local culture industries for local economic prosperity.

Article 25

For improvement of the operating efficiency and reinforcement of the competitiveness of small and medium enterprises, the competent authority may assist small and medium enterprises to jointly engage in activities such as production, marketing, procurement, transportation, cooperation in technology development, and research and development.

Article 26

The central competent authority may work jointly with relevant institutions, universities and colleges in the training of professionals in the fields of operation diagnosis and business administration so as to provide small and medium enterprises with guidance and services.

Article 27

The competent authorities may provide necessary assistance to various industrial associations or industrial and commercial organizations which have a dedicated service unit responsible for providing services to small and medium enterprises.

Article 28

For encouraging small and medium enterprises to manufacture quality and/or high value-added products or service, and to expand export market, the competent authority shall provide, in conjunction with institutions concerned, technical and marketing guidance and assist medium and small enterprises to participate in overseas exhibition, acquire market information, make joint

advertizing activities, trademark registration, patent application, or establish joint distribution warehouses abroad.

Where the plan of a small or medium enterprise for manufacturing quality and/or high value-added products or service planning has been evaluated and approved by the competent authority in conjunction with authorities concerned, the said small or medium enterprise may apply to the small and medium enterprise development fund to subsidize the expenses incurred in product and market developments.

Article 29

For upgrading the level of production skill of small and medium enterprises, the competent authority may entrust technical service institutions or retain technical experts to make research and development for new products or to acquire advanced technology for providing relevant guidance and services to various industries.

For transfer of new products or advanced technology, the competent authority may collect reasonable charges for amortization of costs incurred; If necessary, these charges may also be partly subsidized by the small and medium enterprise development fund.

Article 30

In order to assist small and medium enterprises for research and development, the competent authority may cooperate with appropriate technology research institutes in the establishment of institutes or places for exclusive use by small and medium enterprise conducting research , testing and development of technical skill and/or new products.

Small and medium enterprises may apply for use, by paying necessary charges, the equipment and facilities of the institutes or places set forth in the preceding to conduct experiment and research activities.

Article 31

The competent authority may, when it deems necessary, negotiate with public or private enterprises for appointment of their respective technical personnel, and support and assistance system to provide guidance in the fields of production skill or service know-how as required by small and medium enterprises.

Article 32

The central competent authority may establish or assist in the establishment of small and medium enterprise development companies to invest directly or indirectly in the small and medium enterprises having development potential and to provide consulting services and other relevant services in connection with domestic and/or overseas technical cooperation, market and product development or investment.

The central competent authority shall provide assistance to the institutes and juridical persons established for carrying out the activities specified in Article 4 of this Act.

The central competent authority may coordinate with the competent authority in charge of banking business under the Banking Act for approval of the participation of banks in the said small and medium enterprise development company so as to enable them to directly provide services referred to in the preceding paragraph.

The small and medium enterprise development fund may take part in the investment for capital formation of small and medium enterprise development companies.

The regulations governing the establishment and operation of the small and medium enterprise development companies and the standard and proportion of investment made by the small and medium enterprise development fund shall be stipulated by the Executive Yuan.

Chapter 4 Tax Remittance

Article 33

Where an investor provides a parcel of land in an industrial zone as his capital investment in a small or medium enterprise, and the said medium or small enterprise agrees to allow the investor to furnish the stock(s) of the said small or medium enterprise acquired by the said investor as the security for his payment of taxes, then the land value increment tax payable by the said investor may be paid in five equal installments in five consecutive years from the year in which the said parcel of land is committed to the investment.

The land to be invested under the preceding paragraph shall be used only by the said small or medium enterprise for its own. If the land is not used by the said small or medium enterprise for its own or is transferred to any other person, the outstanding land value increment tax shall be paid, in a lump sum, by the investor.

Article 34

Where a small or medium enterprise has moved, on account of any of the following causes, its factory or plant into an industrial zone, an industrial zone under an urban plan, or an industrial land designated in accordance with the act for Encouragement of Investment prior to the enforcement of this Act, the land value increment Tax payable on the sale or transfer of its original factory or plant site (land) shall be levied at the lowest tax rate:

1. Where the original factory land does not meet with the zoning requirements upon implementation of the urban planning or zoning plan;
2. Where the relocation of factory or plant is applied by the said small or medium enterprise and is approved by the competent authority due to the difficulties in making necessary improvement to meet with the requirements for pollution control, public safety or maintenance of natural landscape; and

3. Where the relocation of factory or plant implemented under the initiative assistance of the government.

Where the new factory land of a small or medium enterprise is transferred to anther party (or other partied) within three years after the factory relocation made under the preceding paragraph, the reduced portion of land value increment tax reduced while assessing such tax on the original factory land sold or transferred prior to the factory relocation shall be assessed supplementarily in accordance with the act.

Article 35

The research and development expenses and/or experiment expenses incurred by a small or medium enterprise in the improvement of production skill and/or development of new products may be deductible from the current year taxable income of the said small or medium enterprise. For any instrument and equipment used for research and development, experiment or quality inspection purposes, if its service life is more than two years, the depreciation thereof may be accelerated by one half (1/2) of the number of years applicable as listed in the table of service life of fixed assets annexed to the Income Tax Act. Balance of service life in a length of less than one year after the depreciation acceleration shall not be taken into account.

Article 36

A small and medium-sized enterprise may retain and withhold from distributing a surplus earning in an amount not exceeding double the amount of its paid-in capital. In case the retained and undistributed earnings exceed the aforesaid limit, any additional surplus earning retained in each year thereafter shall be free from the restriction stipulated in the Income Tax Act after as profit seeking enterprise income tax at the rate of 10% has been surcharged.

The retain and withhold from distributing a surplus earning after 1998 until then, shall obey the Income Tax Acts, and not apply to the preceding paragraph.

Article 36-1

Small and medium enterprises development companies may raise the preparation to investment loss, under 20% of the investment amount, so as to compensate for actual loss. If there is no actual loss situation within 5 years, they shall turn the raising preparation to be the benefit of the 5th year.

When corporations calculate the clearing accounts income due to cancellation, rescission, revocation, mergence, or transference with Article 75, of the Income Tax Act, the accumulate remaining amount from the investment loss preparation within the preceding paragraph, shall turn to be the benefit of the same year.

Chapter 5 Public Procurement Projects or Public Works

Article 37

Governments at various levels and government-owned enterprises shall assist small and medium enterprises to acquire business opportunities in making public announcements for procurement projects or construction of public works.

Article 38

For making public announcement for procurement projects, construction of public works or for entrustment of research and development tasks, government at various levels and government-owned enterprises shall, based on actual requirements, establish qualification requirement and registration system in respect of small and medium enterprises eligible for acting as a supplier or bidder.

Chapter 6 Supplementary Provisions

Article 39

The Executive Yuan may form a Small and Medium Enterprise Policy Deliberation Committee to be in charge of planning and reviewing the small and medium enterprise development policy. The organizational rules shall be stipulated by the Executive Yuan.

Article 40

This Statute shall come into force from the date of promulgation.

Appendix B

Standards for Identifying Small and Medium Enterprises

Approved by Executive Yuan Order Tai (80) Jing #33054 on October 19, 1991. Promulgated by Ministry of Economic Affairs Order Jing (80) Chi Tzu #059364 on November 25, 1991.

Revision approved by Executive Yuan Order Tai (84) Jing #32284 on September 4, 1995. Revision promulgated by Ministry of Economic Affairs Order Jing (84) Chi Tzu #84029087 on September 27, 1995.

Revision approved by Executive Yuan Order Tai (89) Jing #10056 on April 8, 2000. Revision promulgated by Ministry of Economic Affairs Order Jing (89) Chi Tzu #89340202 on May 3, 2000.

Revision approved by Executive Yuan Order Yuan Tai Jing #0940022741 on June 14, 2005. Revision promulgated by Ministry of Economic Affairs Order Jing Chi Tzu #09400561550 on July 5, 2005.

Revision approved by Executive Yuan Order Yuan Tai Jing #0980048943 on August 17, 2009. Revision promulgated by Ministry of Economic Affairs Order Jing Chi Tzu #09800639470 on September 2, 2009.

Article 1

The Standards have been drawn up in accordance with the provisions of Paragraph 2, Article 2 of the Small and Medium-sized Enterprise Development Statute (hereinafter referred to as the "Statute").

Article 2

The term "SME" as used in the Standards shall mean an enterprise which has completed company registration or business registration in accordance with the requirements of the laws, and which conforms to the following standards:

1. The enterprise is an enterprise in the manufacturing, construction, mining or quarrying industry with paid-in capital of NT$80 million or less.
2. The enterprise is an enterprise in the industry other than any of those mentioned in the Sub-paragraph immediately above and had its sales revenue of NT$100 million or less in the previous year.

For the purpose of business guidance, each of the government agencies may, in relation to such specific business matters, base their standards for identifying a SME on the number of regular employees as noted below, in which case the restrictions noted in the previous Paragraph shall not apply:

1. The enterprise is an enterprise in the manufacturing, construction, mining or quarrying industry and the number of its regular employees is less than 200.
2. The enterprise is an enterprise in the industry other than any of those mentioned in the Sub-paragraph immediately above and the number of its regular employees is less than 100.

Article 3

The term "small-scale enterprise" as used in Paragraph 2, Article 4 of the Statute shall mean a SME with less than 5 regular employees.

Article 4

The term "sales revenue" as used in the Standards shall be determined based on the figure as approved by the tax authorities in the year immediately prior to the year of determination. If the approval has not been given by the tax authorities, the determination shall be made in accordance with the following provisions:

1. Sales revenue shall be based on the operating revenue noted on the income tax declaration form for the most recent year bearing the "Documents Received" seal of the tax authorities.
2. If the enterprise is unable to obtain the document referred to in the Sub-paragraph immediately above, Sales revenue shall be based on the sales value noted on the sales and tax declaration form for the full year of the most recent year, with commissioned sales and non-operating income deducted.
3. In the case of sale representatives required to pay business tax by the tax authorities according to the laws, sales revenue shall be presumed to be NT$80 million or less.

If the enterprise was established in the previous year and less than one year has elapsed since business registration, or if business registration took place in the current year, sales revenue for the full year shall be calculated on the basis of the conversion from the figure already declared for each period.

Article 5

The "number of regular employee" as used in the Standards shall be based on the average monthly number of insured persons for whom labor insurance registration has been made with the Labor Insurance agency for the Taiwan and Fukien Region in the most recent 12 months.

Article 6

An enterprises shall be deemed to be a SME if any of the following is applicable:

1. In the case of a SME which has received guidance for expansion, where after expansion the size of the enterprise exceeds the standards listed in Article 2, such enterprise shall continue to be deemed to be a SME for two years immediately after the date of expansion.
2. In the case of a SME which has received guidance for merger, where after the merger the size of the enterprise exceeds the standards listed in Article 2, such enterprise shall continue to be deemed to be a SME for three years immediately after the date of the merger.
3. Where a guidance agency, guidance system or relevant agency undertakes the provision of collective guidance for SMEs in a given industry, if some of the enterprises exceed the standards listed in Article 2, and if the guidance agency, guidance system or relevant agency determines that there is good reason for providing joint guidance, such enterprises shall be deemed to be SMEs during the period of collective guidance.

Article 7

These Standards shall come into effect on the date of promulgation.

Appendix C

SME Statistics by Industry

Table C-1 Number of Enterprises by Industry, 2009-2011

Units: Number of enterprises; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Total	**2009**	**1,258,260**	**100.00**	**1,232,025**	**97.91**	**26,235**	**2.09**
	2010	**1,277,585**	**100.00**	**1,247,998**	**97.68**	**29,587**	**2.32**
	2011	**1,310,791**	**100.00**	**1,279,784**	**97.63**	**31,007**	**2.37**
Agriculture, Forestry, Fishing and Animal Husbandry	2009	11,169	100.00	11,129	99.64	40	0.36
	2010	11,386	100.00	11,344	99.63	42	0.37
	2011	11,611	100.00	11,568	99.63	43	0.37
Mining and Quarrying	2009	1,424	100.00	1,403	98.53	21	1.47
	2010	1,391	100.00	1,370	98.49	21	1.51
	2011	1,266	100.00	1,245	98.34	21	1.66
Manufacturing	2009	134,881	100.00	130,017	96.39	4,864	3.61
	2010	134,994	100.00	129,983	96.29	5,011	3.71
	2011	141,103	100.00	135,768	96.22	5,335	3.78
Electricity and Gas Supply	2009	396	100.00	278	70.20	118	29.80
	2010	424	100.00	293	69.10	131	30.90
	2011	425	100.00	294	69.18	131	30.82
Water Supply and Remediation Services	2009	7,019	100.00	6,785	96.67	234	3.33
	2010	7,172	100.00	6,894	96.12	278	3.88
	2011	7,259	100.00	6,930	95.47	329	4.53
Construction	2009	93,735	100.00	92,507	98.69	1,228	1.31
	2010	95,657	100.00	94,415	98.70	1,242	1.30
	2011	100,230	100.00	98,988	98.76	1,242	1.24
Wholesale and Retail Trade	2009	656,076	100.00	642,235	97.89	13,841	2.11
	2010	662,467	100.00	646,101	97.53	16,366	2.47
	2011	668,996	100.00	651,955	97.45	17,041	2.55
Transportation and Storage	2009	31,154	100.00	30,329	97.35	825	2.65
	2010	31,166	100.00	30,181	96.84	985	3.16
	2011	31,420	100.00	30,405	96.77	1,015	3.23
Accommodation and Food Services	2009	113,703	100.00	113,447	99.77	256	0.23
	2010	117,521	100.00	117,207	99.73	314	0.27
	2011	123,237	100.00	122,862	99.70	375	0.30

Table C-1 Number of Enterprises by Industry, 2009-2011 (continued)

Units: Number of enterprises; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Information and Communication	2009	15,985	100.00	15,360	96.09	625	3.91
	2010	16,555	100.00	15,862	95.81	693	4.19
	2011	16,906	100.00	16,201	95.83	705	4.17
Finance and Insurance	2009	16,058	100.00	14,102	87.82	1,956	12.18
	2010	16,100	100.00	14.035	87.17	2,065	12.83
	2011	16,131	100.00	13,918	86.28	2,213	13.72
Real Estate	2009	21,214	100.00	20,092	94.71	1,122	5.29
	2010	23,176	100.00	21,975	94.82	1,201	5.18
	2011	26,300	100.00	25,108	95.47	1,192	4.53
Professional, Scientific and Technical Services	2009	35,966	100.00	35,397	98.42	569	1.58
	2010	37,146	100.00	36,505	98.27	641	1.73
	2011	38,752	100.00	38,054	98.20	698	1.80
Support Services	2009	27,423	100.00	27,147	98.99	276	1.01
	2010	27,999	100.00	27,683	98.87	316	1.13
	2011	29,115	100.00	28,750	98.75	365	1.25
Education	2009	933	100.00	927	99.36	6	0.64
	2010	1,137	100.00	1,130	99.38	7	0.62
	2011	1,275	100.00	1,267	99.37	8	0.63
Human Health and Social Work Services	2009	352	100.00	344	97.73	8	2.27
	2010	394	100.00	386	97.97	8	2.03
	2011	391	100.00	382	97.70	9	2.30
Arts, Entertainment and Recreation	2009	22,578	100.00	22,487	99.60	91	0.40
	2010	22,397	100.00	22,301	99.57	96	0.43
	2011	22,682	100.00	22,579	99.55	103	0.45
Other Services	2009	68,194	100.00	68,039	99.77	155	0.23
	2010	70,503	100.00	70,333	99.76	170	0.24
	2011	73,692	100.00	73,510	99.75	182	0.25

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. For the purposes of this table, SMEs are defined as enterprises in the manufacturing, construction and mining and quarrying industries with paid-in capital of NT$80 million or less, and enterprises in other industries which posted annual sales revenue of NT$100 million or less in the previous fiscal year.

Source: Ministry of Finance Tax Data Center, VAT data, 2009-2011.

Table C-2 Total Sales Value by Industry, 2009-2011

Units: NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Total	**2009**	**780,409**	**100.00**	**90,962**	**11.66**	**689,448**	**88.34**
	2010	**853,621**	**100.00**	**97,102**	**11.38**	**756,519**	**88.62**
	2011	**906,897**	**100.00**	**100,770**	**11.11**	**806,127**	**88.89**
Agriculture, Forestry, Fishing and Animal Husbandry	2009	2,140,811	100.00	192,787	9.01	1,948,023	90.99
	2010	2,268,459	100.00	197,876	8.72	2,070,583	91.28
	2011	2,451,486	100.00	195,036	7.96	2,256,450	92.04
Mining and Quarrying	2009	745,093	100.00	143,520	19.26	601,574	80.74
	2010	867,849	100.00	157,187	18.11	710,662	81.89
	2011	825,421	100.00	175,783	21.30	649,638	78.70
Manufacturing	2009	556,988	100.00	156,592	28.11	400,396	71.89
	2010	640,896	100.00	175,298	27.35	465,598	72.65
	2011	618,877	100.00	181,488	29.33	437,389	70.67
Electricity and Gas Supply	2009	246,748	100.00	102,544	41.56	144,204	58.44
	2010	294,066	100.00	113,018	38.43	181,048	61.57
	2011	341,936	100.00	121,455	35.52	220,481	64.48
Water Supply and Remediation Services	2009	6,241	100.00	4,186	67.06	2,056	32.94
	2010	6,902	100.00	4,965	71.93	1,937	28.07
	2011	8,138	100.00	6,057	74.42	2,082	25.58
Construction	2009	3,749	100.00	1,653	44.10	2,096	55.90
	2010	4,366	100.00	1,842	42.19	2,524	57.81
	2011	4,728	100.00	1,920	40.62	2,807	59.38
Wholesale and Retail Trade	2009	75,548	100.00	42,642	56.44	32,906	43.56
	2010	72,341	100.00	43,624	60.30	28,717	39.70
	2011	73,876	100.00	46,376	62.78	27,500	37.22
Transportation and Storage	2009	162,729	100.00	95,815	58.88	66,914	41.12
	2010	179,217	100.00	102,249	57.05	76,968	42.95
	2011	193,900	100.00	107,008	55.19	86,891	44.81
Accommodation and Food Services	2009	780,409	100.00	90,962	11.66	689,448	88.34
	2010	853,621	100.00	97,102	11.38	756,519	88.62
	2011	906,897	100.00	100,770	11.11	806,127	88.89

Table C-2 Total Sales Value by Industry, 2009-2011 (continued)

Units: NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Information and Communication	2009	780,409	100.00	90,962	11.66	689,448	88.34
	2010	853,621	100.00	97,102	11.38	756,519	88.62
	2011	906,897	100.00	100,770	11.11	806,127	88.89
Finance and Insurance	2009	2,140,811	100.00	192,787	9.01	1,948,023	90.99
	2010	2,268,459	100.00	197,876	8.72	2,070,583	91.28
	2011	2,451,486	100.00	195,036	7.96	2,256,450	92.04
Real Estate	2009	745,093	100.00	143,520	19.26	601,574	80.74
	2010	867,849	100.00	157,187	18.11	710,662	81.89
	2011	825,421	100.00	175,783	21.30	649,638	78.70
Professional, Scientific and Technical Services	2009	556,988	100.00	156,592	28.11	400,396	71.89
	2010	640,896	100.00	175,298	27.35	465,598	72.65
	2011	618,877	100.00	181,488	29.33	437,389	70.67
Support Services	2009	246,748	100.00	102,544	41.56	144,204	58.44
	2010	294,066	100.00	113,018	38.43	181,048	61.57
	2011	341,936	100.00	121,455	35.52	220,481	64.48
Education	2009	6,241	100.00	4,186	67.06	2,056	32.94
	2010	6,902	100.00	4,965	71.93	1,937	28.07
	2011	8,138	100.00	6,057	74.42	2,082	25.58
Human Health and Social Work Services	2009	3,749	100.00	1,653	44.10	2,096	55.90
	2010	4,366	100.00	1,842	42.19	2,524	57.81
	2011	4,728	100.00	1,920	40.62	2,807	59.38
Arts, Entertainment and Recreation	2009	75,548	100.00	42,642	56.44	32,906	43.56
	2010	72,341	100.00	43,624	60.30	28,717	39.70
	2011	73,876	100.00	46,376	62.78	27,500	37.22
Other Services	2009	162,729	100.00	95,815	58.88	66,914	41.12
	2010	179,217	100.00	102,249	57.05	76,968	42.95
	2011	193,900	100.00	107,008	55.19	86,891	44.81

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. For the purposes of this table, SMEs are defined as enterprises in the manufacturing, construction and mining and quarrying industries with paid-in capital of NT$80 million or less, and enterprises in other industries which posted annual sales revenue of NT$100 million or less in the previous fiscal year.

Source: Ministry of Finance Tax Data Center, VAT data, 2009-2011.

Table C-3 Domestic Sales Value by Industry, 2009-2011

Units: NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Total	**2009**	**22,179,910**	**100.00**	**7,873,111**	**35.50**	**14,306,799**	**64.50**
	2010	**26,216,138**	**100.00**	**9,088,972**	**34.67**	**17,127,166**	**65.33**
	2011	**27,754,779**	**100.00**	**9,576,948**	**34.51**	**18,177,832**	**65.49**
Agriculture, Forestry, Fishing and Animal Husbandry	2009	28,241	100.00	14,856	52.60	13,385	47.40
	2010	33,769	100.00	16,016	47.43	17,752	52.57
	2011	29,567	100.00	16,339	55.26	13,228	44.74
Mining and Quarrying	2009	43,520	100.00	34,796	79.95	8,724	20.05
	2010	47,718	100.00	37,500	78.59	10,219	21.41
	2011	46,182	100.00	37,259	80.68	8,923	19.32
Manufacturing	2009	5,540,738	100.00	2,263,079	40.84	3,277,659	59.16
	2010	7,183,762	100.00	2,928,313	40.76	4,255,449	59.24
	2011	7,795,202	100.00	3,157,153	40.50	4,638,049	59.50
Electricity and Gas Supply	2009	658,770	100.00	3,784	0.57	654,986	99.43
	2010	758,789	100.00	3,422	0.45	755,367	99.55
	2011	817,410	100.00	3,329	0.41	814,081	99.59
Water Supply and Remediation Services	2009	134,125	100.00	47,338	35.29	86,787	64.71
	2010	168,561	100.00	54,632	32.41	113,929	67.59
	2011	178,826	100.00	53,599	29.97	125,228	70.03
Construction	2009	1,635,776	100.00	984,966	60.21	650,810	39.79
	2010	1,801,239	100.00	1,108,468	61.54	692,771	38.46
	2011	1,905,758	100.00	1,180,816	61.96	724,942	38.04
Wholesale and Retail Trade	2009	8,646,425	100.00	3,243,563	37.51	5,402,862	62.49
	2010	10,160,204	100.00	3,552,451	34.96	6,607,753	65.04
	2011	10,655,208	100.00	3,657,554	34.33	6,997,654	65.67
Transportation and Storage	2009	662,590	100.00	220,630	33.30	441,959	66.70
	2010	754,294	100.00	241,349	32.00	512,945	68.00
	2011	724,199	100.00	252,593	34.88	471,606	65.12
Accommodation and Food Services	2009	322,875	100.00	243,448	75.40	79,427	24.60
	2010	367,833	100.00	269,379	73.23	98,454	26.77
	2011	419,940	100.00	297,013	70.73	122,927	29.27

Table C-3 Domestic Sales Value by Industry, 2009-2011 (continued)

Units: NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Information and Communication	2009	697,871	100.00	84,549	12.12	613,322	87.88
	2010	759,262	100.00	91,159	12.01	668,103	87.99
	2011	807,960	100.00	94,949	11.75	713,011	88.25
Finance and Insurance	2009	2,136,177	100.00	192,353	9.00	1,943,824	91.00
	2010	2,266,254	100.00	197,233	8.70	2,069,021	91.30
	2011	2,449,468	100.00	194,508	7.94	2,254,960	92.06
Real Estate	2009	736,622	100.00	143,797	19.52	592,825	80.48
	2010	859,734	100.00	156,609	18.22	703,125	81.78
	2011	821,829	100.00	175,189	21.32	646,640	78.68
Professional, Scientific and Technical Services	2009	451,111	100.00	150,464	33.35	300,647	66.65
	2010	510,715	100.00	168,598	33.01	342,117	66.99
	2011	495,441	100.00	175,335	35.39	320,106	64.61
Support Services	2009	243,319	100.00	101,656	41.78	141,663	58.22
	2010	288,708	100.00	111,759	38.71	176,949	61.29
	2011	334,531	100.00	120,445	36.00	214,086	64.00
Education	2009	6,154	100.00	4,171	67.78	1,983	32.22
	2010	6,836	100.00	4,957	72.51	1,879	27.49
	2011	8,070	100.00	6,050	74.97	2,020	25.03
Human Health and Social Work Services	2009	3,414	100.00	1,557	45.60	1,857	54.40
	2010	4,255	100.00	1,779	41.81	2,476	58.19
	2011	4,567	100.00	1,847	40.44	2,720	59.56
Arts, Entertainment and Recreation	2009	75,433	100.00	42,538	56.39	32,895	43.61
	2010	72,078	100.00	43,453	60.29	28,625	39.71
	2011	73,705	100.00	46,264	62.77	27,441	37.23
Other Services	2009	156,751	100.00	95,566	60.97	61,185	39.03
	2010	172,126	100.00	101,894	59.20	70,231	40.80
	2011	186,915	100.00	106,705	57.09	80,210	42.91

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. For the purposes of this table, SMEs are defined as enterprises in the manufacturing, construction and mining and quarrying industries with paid-in capital of NT$80 million or less, and enterprises in other industries which posted annual sales revenue of NT$100 million or less in the previous fiscal year.

Source: Ministry of Finance Tax Data Center, VAT data, 2009-2011.

Table C-4 Export Sales Value by Industry, 2009-2011

Units: NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Total	**2009**	**7,801,893**	**100.00**	**1,316,352**	**16.87**	**6,485,541**	**83.13**
	2010	**10,023,499**	**100.00**	**1,620,033**	**16.16**	**8,403,466**	**83.84**
	2011	**10,126,901**	**100.00**	**1,649,985**	**16.29**	**8,476,916**	**83.71**
Agriculture, Forestry, Fishing and Animal Husbandry	2009	4,195	100.00	1,969	46.94	2,225	53.06
	2010	5,115	100.00	2,309	45.14	2,806	54.86
	2011	4,276	100.00	1,981	46.34	2,294	53.66
Mining and Quarrying	2009	431	100.00	238	55.36	192	44.64
	2010	594	100.00	314	52.76	281	47.24
	2011	771	100.00	309	40.03	462	59.97
Manufacturing	2009	4,915,530	100.00	868,061	17.66	4,047,470	82.34
	2010	6,298,987	100.00	1,144,314	18.17	5,154,673	81.83
	2011	6,326,933	100.00	1,181,721	18.68	5,145,212	81.32
Electricity and Gas Supply	2009	13,168	100.00	105	0.79	13,064	99.21
	2010	14,284	100.00	93	0.65	14,190	99.35
	2011	16,105	100.00	43	0.26	16,062	99.74
Water Supply and Remediation Services	2009	5,452	100.00	1,549	28.42	3,903	71.58
	2010	9,798	100.00	1,627	16.60	8,171	83.40
	2011	12,064	100.00	1,422	11.79	10,642	88.21
Construction	2009	136,887	100.00	9,679	7.07	127,208	92.93
	2010	161,400	100.00	12,255	7.59	149,145	92.41
	2011	173,944	100.00	12,768	7.34	161,176	92.66
Wholesale and Retail Trade	2009	2,291,787	100.00	411,286	17.95	1,880,501	82.05
	2010	2,978,957	100.00	434,105	14.57	2,544,852	85.43
	2011	3,067,880	100.00	428,278	13.96	2,639,602	86.04
Transportation and Storage	2009	221,700	100.00	9,305	4.20	212,395	95.80
	2010	304,972	100.00	9,169	3.01	295,802	96.99
	2011	281,570	100.00	8,744	3.11	272,826	96.89
Accommodation and Food Services	2009	1,277	100.00	110	8.58	1,167	91.42
	2010	1,643	100.00	128	7.78	1,515	92.22
	2011	587	100.00	119	20.21	468	79.79

Table C-4 Export Sales Value by Industry, 2009-2011 (continued)

Units: NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Information and Communication	2009	82,539	100.00	6,413	7.77	76,125	92.23
	2010	94,359	100.00	5,942	6.30	88,417	93.70
	2011	98,937	100.00	5,822	5.88	93,116	94.12
Finance and Insurance	2009	4,634	100.00	434	9.37	4,200	90.63
	2010	2,204	100.00	643	29.16	1,561	70.84
	2011	2,018	100.00	528	26.16	1,490	73.84
Real Estate	2009	8,471	100.00	-277	-	8,748	-
	2010	8,115	100.00	578	7.12	7,538	92.88
	2011	3,592	100.00	594	16.53	2,998	83.47
Professional, Scientific and Technical Services	2009	105,877	100.00	6,128	5.79	99,749	94.21
	2010	130,181	100.00	6,700	5.15	123,481	94.85
	2011	123,436	100.00	6,153	4.98	117,283	95.02
Support Services	2009	3,429	100.00	888	25.90	2,541	74.10
	2010	5,358	100.00	1,259	23.50	4,099	76.50
	2011	7,405	100.00	1,010	13.64	6,395	86.36
Education	2009	87	100.00	14	16.43	73	83.57
	2010	65	100.00	8	11.56	58	88.44
	2011	69	100.00	7	9.67	62	90.33
Human Health and Social Work Services	2009	335	100.00	96	28.78	239	71.22
	2010	111	100.00	63	56.82	48	43.18
	2011	160	100.00	73	45.68	87	54.32
Arts, Entertainment and Recreation	2009	115	100.00	104	90.22	11	9.78
	2010	263	100.00	171	65.20	91	34.80
	2011	170	100.00	112	65.57	59	34.43
Other Services	2009	5,977	100.00	248	4.16	5,729	95.84
	2010	7,092	100.00	355	5.00	6,737	95.00
	2011	6,985	100.00	304	4.35	6,681	95.65

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. For the purposes of this table, SMEs are defined as enterprises in the manufacturing, construction and mining and quarrying industries with paid-in capital of NT$80 million or less, and enterprises in other industries which posted annual sales revenue of NT$100 million or less in the previous fiscal year.

Source: Ministry of Finance Tax Data Center, VAT data, 2009-2011.

Table C-5 Total Employment by Industry, 2009-2011

Units: Thousand persons; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share	Govern-ment	Share
Total	**2009**	**10,279**	**100.00**	**8,066**	**78.47**	**1,173**	**11.41**	**1,040**	**10.11**
	2010	**10,493**	**100.00**	**8,191**	**78.06**	**1,253**	**11.94**	**1,049**	**10.00**
	2011	**10,709**	**100.00**	**8,337**	**77.85**	**1,334**	**12.46**	**1,038**	**9.69**
Agriculture, Forestry, Fishing and Animal Husbandry	2009	543	100.00	537	98.97	1	0.12	5	0.91
	2010	550	100.00	545	99.08	1	0.10	5	0.83
	2011	542	100.00	536	98.88	1	0.15	5	0.97
Mining and Quarrying	2009	5	100.00	4	85.24	0	0.88	1	13.88
	2010	4	100.00	4	86.59	0	0.65	1	12.76
	2011	4	100.00	3	86.50	0	0	1	13.50
Manufacturing	2009	2,790	100.00	2,111	75.65	651	23.33	28	1.02
	2010	2,861	100.00	2,127	74.34	705	24.63	29	1.03
	2011	2,949	100.00	2,158	73.19	762	25.85	28	0.96
Electricity and Gas Supply	2009	29	100.00	3	10.67	2	7.19	24	82.15
	2010	29	100.00	3	10.88	3	8.78	23	80.34
	2011	29	100.00	3	10.41	3	10.47	23	79.12
Water Supply and Remediation Services	2009	73	100.00	27	36.72	0	0.68	46	62.60
	2010	78	100.00	29	37.79	1	1.36	47	60.86
	2011	79	100.00	32	41.12	1	1.89	45	56.99
Construction	2009	788	100.00	769	97.64	8	1.05	10	1.31
	2010	797	100.00	779	97.73	9	1.10	9	1.17
	2011	831	100.00	813	97.85	9	1.10	9	1.05
Wholesale and Retail Trade	2009	1,735	100.00	1,669	96.20	55	3.19	11	0.61
	2010	1,747	100.00	1,682	96.26	54	3.11	11	0.63
	2011	1,763	100.00	1,696	96.20	57	3.26	10	0.54
Transportation and Storage	2009	402	100.00	289	71.83	55	13.68	58	14.49
	2010	404	100.00	295	73.11	53	13.11	56	13.78
	2011	411	100.00	296	72.04	60	14.57	55	13.38
Accommodation and Food Services	2009	693	100.00	677	97.62	16	2.27	1	0.11
	2010	727	100.00	708	97.37	19	2.56	1	0.08
	2011	728	100.00	709	97.43	18	2.53	0	0.04

Table C-5 Total Employment by Industry, 2009-2011 (continued)

Units: Thousand persons; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share	Govern-ment	Share
Information and Communication	2009	207	100.00	147	71.16	59	28.38	1	0.46
	2010	208	100.00	148	71.34	58	27.14	1	0.52
	2011	218	100.00	156	71.67	61	27.97	1	0.37
Finance and Insurance	2009	413	100.00	310	75.01	86	20.80	17	4.19
	2010	428	100.00	315	73.69	96	22.34	17	3.97
	2011	428	100.00	321	75.08	92	21.47	15	3.45
Real Estate	2009	68	100.00	64	94.35	2	3.27	2	2.38
	2010	75	100.00	70	93.75	3	3.39	2	2.86
	2011	87	100.00	83	95.50	2	2.74	2	1.76
Professional, Scientific and Technical Services	2009	315	100.00	248	78.55	37	11.77	31	9.68
	2010	325	100.00	258	79.36	38	11.58	29	9.07
	2011	339	100.00	270	79.70	43	12.69	26	7.61
Support Services	2009	232	100.00	212	91.55	19	8.14	1	0.31
	2010	236	100.00	217	91.81	19	7.98	0	0.21
	2011	247	100.00	227	91.99	19	7.62	1	0.39
Public Administration and Defence; Compulsory Social Security	2009	382	100.00	1	0.16	0	0.03	381	99.82
	2010	389	100.00	0	0.00	0	0.00	389	100.00
	2011	388	100.00	0	0.00	0	0.00	388	100.00
Education	2009	613	100.00	217	35.38	65	10.62	331	54.00
	2010	619	100.00	218	35.27	69	11.20	331	53.53
	2011	629	100.00	226	36.00	71	11.26	332	52.74
Human Health and Social Work Services	2009	368	100.00	185	50.31	107	29.18	75	20.51
	2010	386	100.00	192	49.56	116	30.09	79	20.35
	2011	408	100.00	203	49.67	124	30.37	82	19.97
Arts, Entertainment and Recreation	2009	96	100.00	76	79.28	5	4.93	15	15.79
	2010	98	100.00	76	77.62	6	5.64	16	16.74
	2011	94	100.00	75	79.38	4	4.51	15	16.11
Other Services	2009	527	100.00	519	98.66	5	0.87	2	0.47
	2010	532	100.00	525	98.59	5	0.91	3	0.49
	2011	536	100.00	528	98.40	6	1.03	3	0.57

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. For the purposes of this Table, SMEs are defined as firms in the manufacturing, construction and mining and quarrying industries with less than 200 regular employees, and firms in other industries with less than 100 regular employees.

Source: DGBAS, Monthly Bulletin of Manpower, 2009-2011.

Table C-6 Number of Paid Employees by Industry, 2009-2011

Units: Thousand persons; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share	Govern-ment	Share
Total	**2009**	**7,889**	**100.00**	**5,679**	**71.98**	**1,171**	**14.84**	**1,040**	**13.18**
	2010	**8,104**	**100.00**	**5,805**	**71.63**	**1,250**	**15.42**	**1,049**	**12.95**
	2011	**8,328**	**100.00**	**5,958**	**71.54**	**1,332**	**15.99**	**1,039**	**12.46**
Agriculture, Forestry, Fishing and Animal Husbandry	2009	84	100.00	79	93.36	1	0.75	5	5.89
	2010	83	100.00	78	93.92	1	0.64	5	5.44
	2011	84	100.00	78	92.77	1	0.99	5	6.23
Mining and Quarrying	2009	4	100.00	4	84.13	0	0.95	1	14.92
	2010	4	100.00	4	86.16	0	0.67	1	13.17
	2011	4	100.00	3	86.36	0	0.00	1	13.64
Manufacturing	2009	2,522	100.00	1,843	73.10	650	25.77	28	1.13
	2010	2,600	100.00	1,867	71.82	703	27.05	29	1.13
	2011	2,684	100.00	1,895	70.60	761	28.35	28	1.06
Electricity and Gas Supply	2009	29	100.00	3	10.67	2	6.88	24	82.44
	2010	29	100.00	3	10.38	3	8.83	23	80.79
	2011	29	100.00	3	10.13	3	10.51	23	79.36
Water Supply and Remediation Services	2009	66	100.00	20	30.09	0	0.75	46	69.16
	2010	70	100.00	21	30.62	1	1.51	47	67.86
	2011	70	100.00	23	33.35	1	2.14	45	64.51
Construction	2009	658	100.00	640	97.21	8	1.22	10	1.57
	2010	668	100.00	650	97.31	9	1.29	9	1.40
	2011	694	100.00	676	97.43	9	1.32	9	1.25
Wholesale and Retail Trade	2009	1,008	100.00	942	93.47	55	5.48	11	1.05
	2010	1,028	100.00	962	93.66	54	5.27	11	1.07
	2011	1,059	100.00	992	93.67	57	5.43	10	0.90
Transportation and Storage	2009	309	100.00	196	63.40	55	17.77	58	18.83
	2010	310	100.00	202	65.00	53	17.06	56	17.93
	2011	319	100.00	204	64.02	60	18.76	55	17.22
Accommodation and Food Services	2009	395	100.00	379	95.83	16	3.97	1	0.20
	2010	418	100.00	399	95.43	19	4.44	1	0.13
	2011	428	100.00	409	95.64	18	4.29	0	0.07

Table C-6 Number of Paid Employees by Industry, 2009-2011 (continued)

Units: Thousand persons; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share	Govern-ment	Share
Information and Communication	2009	196	100.00	136	69.58	59	29.94	1	0.48
	2010	196	100.00	136	69.66	58	29.79	1	0.55
	2011	204	100.00	142	69.71	61	29.90	1	0.39
Finance and Insurance	2009	409	100.00	306	74.83	86	20.94	17	4.23
	2010	424	100.00	312	73.49	95	22.50	17	4.01
	2011	423	100.00	317	74.83	92	21.69	15	3.48
Real Estate	2009	60	100.00	56	93.60	2	3.71	2	2.70
	2010	66	100.00	61	93.03	2	3.72	2	3.24
	2011	78	100.00	74	94.98	2	3.06	2	1.96
Professional, Scientific and Technical Services	2009	247	100.00	180	72.66	37	15.01	31	12.33
	2010	255	100.00	188	73.69	38	14.74	29	11.56
	2011	268	100.00	199	74.30	43	16.06	26	9.64
Support Services	2009	210	100.00	191	90.77	19	8.89	1	0.34
	2010	216	100.00	197	91.12	19	8.65	0	0.23
	2011	224	100.00	204	91.23	19	8.34	1	0.43
Public Administration and Defence; Compulsory Social Security	2009	382	100.00	1	0.16	0	0.03	381	99.82
	2010	389	100.00	0	0.00	0	0.00	389	100.00
	2011	388	100.00	1	0.20	0	0.04	388	100.00
Education	2009	582	100.00	186	31.95	65	11.18	331	56.87
	2010	588	100.00	187	31.87	69	11.78	331	56.35
	2010	598	100.00	195	32.69	71	11.82	332	55.49
Human Health and Social Work Services	2011	598	100.00	195	32.69	71	11.82	332	55.49
	2010	354	100.00	159	44.99	116	32.81	79	22.20
	2011	377	100.00	171	45.46	124	32.89	82	21.65
Arts, Entertainment and Recreation	2009	76	100.00	56	74.00	5	6.08	15	19.92
	2010	80	100.00	58	72.61	5	6.82	16	20.57
	2011	73	100.00	53	73.42	4	5.81	15	20.77
Other Services	2009	317	100.00	310	97.77	5	1.45	2	0.78
	2010	327	100.00	319	97.74	5	1.45	3	0.80
	2011	328	100.00	319	97.38	6	1.68	3	0.94

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. For the purposes of this Table, SMEs are defined as firms in the manufacturing, construction and mining and quarrying industries with less than 200 regular employees, and firms in other industries with less than 100 regular employees.

Source: DGBAS, Monthly Bulletin of Manpower, 2009-2011.

Table C-7 Overview of Newly-established Enterprises in 2011 – by Industry

Units: Number of enterprises; NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Total	**Number of enterprises**	**99,827**	**100.00**	**99,584**	**99.76**	**243**	**0.24**
	Sales value	**281,236**	**100.00**	**180,937**	**64.34**	**100,298**	**35.66**
	Domestic value	**211,400**	**100.00**	**172,362**	**81.53**	**39,038**	**18.47**
	Export value	**69,835**	**100.00**	**8,575**	**12.28**	**61,260**	**87.72**
Agriculture, Forestry, Fishing and Animal Husbandry	Number of enterprises	618	100.00	618	100.00	0	0.00
	Sales value	460	100.00	460	100.00	0	0.00
	Domestic value	438	100.00	438	100.00	0	0.00
	Export value	22	100.00	22	100.00	0	0.00
Mining and Quarrying	Number of enterprises	72	100.00	70	97.22	2	2.78
	Sales value	271	100.00	270	99.75	1	0.25
	Domestic value	271	100.00	270	99.75	1	0.25
	Export value	0	100.00	0	0.00	0	0.00
Manufacturing	Number of enterprises	5,551	100.00	5,478	98.68	73	1.32
	Sales value	31,463	100.00	22,241	70.69	9,221	29.31
	Domestic value	26,946	100.00	20,216	75.02	6,730	24.98
	Export value	4,517	100.00	2,025	44.84	2,491	55.16
Electricity and Gas Supply	Number of enterprises	16	100.00	16	100.00	0	0.00
	Sales value	47	100.00	47	100.00	0	0.00
	Domestic value	47	100.00	47	100.00	0	0.00
	Export value	0	100.00	0	0.00	0	0.00
Water Supply and Remediation Services	Number of enterprises	584	100.00	581	99.49	3	0.51
	Sales value	1,769	100.00	1,391	78.64	378	21.36
	Domestic value	1,742	100.00	1,364	78.31	378	21.69
	Export value	27	100.00	27	100.00	0	0.00
Construction	Number of enterprises	7,765	100.00	7,756	99.88	9	0.12
	Sales value	19,470	100.00	19,222	98.73	248	1.27
	Domestic value	19,358	100.00	19,111	98.72	248	1.28
	Export value	112	100.00	112	100.00	0	0.00
Wholesale and Retail Trade	Number of enterprises	46,152	100.00	46,034	99.74	118	0.26
	Sales value	171,628	100.00	91,900	53.55	79,728	46.45
	Domestic value	107,143	100.00	85,996	80.26	21,147	19.74
	Export value	64,485	100.00	5,904	9.16	58,581	90.84
Transportation and Storage	Number of enterprises	1,185	100.00	1,180	99.58	5	0.42
	Sales value	3,747	100.00	3,105	82.85	643	17.15
	Domestic value	3,422	100.00	2,942	85.96	481	14.04
	Export value	325	100.00	163	50.13	162	49.87
Accommodation and Food Services	Number of enterprises	16,312	100.00	16,310	99.99	2	0.01
	Sales value	17,111	100.00	16,786	98.10	325	1.90
	Domestic value	17,111	100.00	16,786	98.10	325	1.90
	Export value	0	100.00	0	100.00	0	0.00

Table C-7 Overview of Newly-established Enterprises in 2011– by Industry (continued)

Units: Number of enterprises; NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Information and Communication	Number of enterprises	1,724	100.00	1,720	99.77	4	0.23
	Sales value	5,297	100.00	3,027	57.15	2,270	42.85
	Domestic value	5,145	100.00	2,875	55.88	2,270	44.12
	Export value	152	100.00	152	100.00	0	0.00
Finance and Insurance	Number of enterprises	743	100.00	742	99.87	1	0.13
	Sales value	2,505	100.00	1,984	79.19	521	20.81
	Domestic value	2,484	100.00	1,962	79.01	522	20.99
	Export value	22	100.00	22	100.00	0	0.00
Real Estate	Number of enterprises	3,751	100.00	3,731	99.47	20	0.53
	Sales value	13,633	100.00	7,742	56.79	5,891	43.21
	Domestic value	13,632	100.00	7,740	56.78	5,891	43.22
	Export value	2	100.00	2	98.24	0	1.76
Professional, Scientific and Technical Services	Number of enterprises	3,771	100.00	3,768	99.92	3	0.08
	Sales value	5,387	100.00	4,728	87.76	659	12.24
	Domestic value	7,041	100.00	6,407	91.00	634	9.00
	Export value	147	100.00	121	82.60	26	17.40
Support Services	Number of enterprises	2,597	100.00	2,596	99.96	1	0.04
	Sales value	2,775	100.00	2,644	95.27	131	4.73
	Domestic value	2,760	100.00	2,629	95.24	262	4.76
	Export value	15	100.00	15	100.00	0	0.00
Education	Number of enterprises	232	100.00	232	100.00	0	0.00
	Sales value	263	100.00	263	100.00	0	0.00
	Domestic value	262	100.00	262	100.00	0	0.00
	Export value	1	100.00	1	100.00	0	0.00
Human Health and Social Work Services	Number of enterprises	32	100.00	32	100.00	0	0.00
	Sales value	39	100.00	39	100.00	0	0.00
	Domestic value	39	100.00	39	100.00	0	0.00
	Export value	0	100.00	0	0.00	0	0.00
Arts, Entertainment and Recreation	Number of enterprises	2,202	100.00	2,202	100.00	0	0.00
	Sales value	1,715	100.00	1,715	100.00	0	0.00
	Domestic value	1,705	100.00	1,705	100.00	0	0.00
	Export value	10	100.00	10	100.00	0	0.00
Other Services	Number of enterprises	6,520	100.00	6,518	99.97	2	0.03
	Sales value	3,655	100.00	3,372	92.28	283	7.72
	Domestic value	3,655	100.00	3,372	92.28	283	7.72
	Export value	0	100.00	0	100.00	0	0.00

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. For the purposes of this table, SMEs are defined as enterprises in the manufacturing, construction and mining and quarrying industries with paid-in capital of NT$80 million or less, and enterprises in other industries which posted annual sales revenue of NT$100 million or less in the previous fiscal year.
Source: Ministry of Finance Tax Data Center, VAT data, 2011.

Table C-8 Female Owned Enterprises in 2011 – Number of Enterprises and Sales Value by Industry

Units: NT$ millions; %

Item / Industry/Size		Number of Enterprises			Sales Value		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Total	**Total**	**1,300,559**	**468,553**	**36.03**	**34,182,204**	**5,057,364**	**14.80**
	SMEs	**1,271,506**	**463,061**	**36.42**	**10,873,920**	**2,595,187**	**23.87**
	Large enterprises	**29,053**	**5,492**	**18.90**	**23,308,284**	**2,462,176**	**10.56**
Agriculture, Forestry, Fishing and Animal Husbandry	SMEs	11,563	2,638	22.81	18,310	3,691	20.16
	Large enterprises	43	9	20.93	15,522	3,980	25.64
Mining and Quarrying	SMEs	1,243	283	22.77	37,248	4,921	13.21
	Large enterprises	21	1	4.76	9,386	48	0.51
Manufacturing	SMEs	135,137	36,682	27.14	4,139,265	666,861	16.11
	Large enterprises	4,576	505	11.04	8,207,836	309,684	3.77
Electricity and Gas Supply	SMEs	285	67	23.51	3,286	904	27.52
	Large enterprises	126	12	9.52	816,234	5,221	0.64
Water Supply and Remediation Services	SMEs	6,921	2,077	30.01	54,837	16,436	29.97
	Large enterprises	324	78	24.07	133,655	23,442	17.54
Construction	SMEs	98,818	24,782	25.08	1,158,777	269,931	23.29
	Large enterprises	1,049	223	21.26	776,596	89,441	11.52
Wholesale and Retail Trade	SMEs	647,452	246,099	38.01	1,475,943	1,194,783	80.95
	Large enterprises	15,966	3,535	22.14	8,149,014	1,482,126	18.19
Transportation and Storage	SMEs	30,165	7,714	25.57	258,954	72,236	27.90
	Large enterprises	916	144	15.72	591,312	47,818	8.09
Accommodation and Food Services	SMEs	121,847	59,227	48.61	275,173	102,275	37.17
	Large enterprises	352	74	21.02	106,901	15,808	14.79

Table C-8 Female Owned Enterprises in 2011 – Number of Enterprises and Sales Value by Industry (continued)

Units: NT$ millions; %

Industry/Size \ Item		Number of Enterprises			Sales Value		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Information and Communication	SMEs	15,836	4,771	30.13	95,567	25,524	26.71
	Large enterprises	614	89	14.50	733,680	81,495	11.11
Finance and Insurance	SMEs	13,701	4,368	31.88	192,797	45,454	23.58
	Large enterprises	2,137	374	17.50	2,160,203	206,696	9.57
Real Estate	SMEs	24,974	7,435	29.77	174,767	44,806	25.64
	Large enterprises	1,175	248	21.11	641,934	117,224	18.26
Professional, Scientific and Technical Services	SMEs	37,454	13,312	35.54	175,374	55,011	31.37
	Large enterprises	594	102	17.17	348,045	46,633	13.40
Support Services	SMEs	28,629	11,343	39.62	119,351	40,096	33.60
	Large enterprises	324	65	20.06	173,209	18,575	10.72
Education	SMEs	1,239	427	34.46	5,952	1,207	20.27
	Large enterprises	7	0	0.00	1,962	0	0.00
Human Health and Social Work Services	SMEs	376	131	34.84	1,887	698	36.98
	Large enterprises	8	0	0.00	2,394	0	0.00
Arts, Entertainment and Recreation	SMEs	22,518	8,013	35.58	45,370	12,485	27.52
	Large enterprises	99	15	15.15	27,008	3,348	12.40
Other Services	SMEs	73,348	33,692	45.93	106,059	37,867	35.70
	Large enterprises	170	18	10.59	76,709	10,637	13.87

Note: The figure in total do not include those enterprises that owners are legal perons or foreigners for which gender cannot be identified.
Source: Ministry of Finance Tax Data Center,VAT tax data, 2011.

Table C-9 Female Owned Enterprises in 2011 – Domestic Sales Value and Export Sales Value by Industry

Units: NT$ millions; %

Item / Industry/Size		Domestic Sales			Export Sales		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Total	**Total**	**25,700,249**	**4,062,436**	**15.81**	**8,481,955**	**994,928**	**11.73**
	SMEs	**9,367,829**	**2,325,972**	**24.83**	**1,506,092**	**269,215**	**17.88**
	Large enterprises	**16,332,421**	**1,736,464**	**10.63**	**6,975,863**	**725,713**	**10.40**
Agriculture, Forestry, Fishing and Animal Husbandry	SMEs	16,331	3,389	20.75	1,979	302	15.24
	Large enterprises	13,228	3,564	26.95	2,294	416	18.12
Mining and Quarrying	SMEs	37,177	4,889	13.15	72	32	45.10
	Large enterprises	8,923	48	0.54	462	0	0.00
Manufacturing	SMEs	3,081,232	537,130	17.43	1,058,034	129,731	12.26
	Large enterprises	4,147,202	171,981	4.15	4,060,634	137,703	3.39
Electricity and Gas Supply	SMEs	3,274	902	27.55	12	2	20.91
	Large enterprises	802,713	5,221	0.65	13,521	0	0.00
Water Supply and Remediation Services	SMEs	53,415	15,996	29.95	1,422	440	30.93
	Large enterprises	123,696	22,310	18.04	9,960	1,132	11.37
Construction	SMEs	1,150,173	268,105	23.31	8,604	1,826	21.23
	Large enterprises	616,249	89,260	14.48	160,347	182	0.11
Wholesale and Retail Trade	SMEs	3,596,203	1,063,923	29.58	414,741	130,860	31.55
	Large enterprises	5,939,661	920,790	15.50	2,209,353	561,335	25.41
Transportation and Storage	SMEs	250,949	70,072	27.92	8,006	2,164	27.03
	Large enterprises	388,495	38,136	9.82	202,816	9,682	4.77
Accommodation and Food Services	SMEs	275,057	102,223	37.16	116	53	45.28
	Large enterprises	106,440	15,808	14.85	460	1	0.18

Table C-9 Female Owned Enterprises in 2011 – Domestic Sales Value and Export Sales Value by Industry (continued)

Units: NT$ millions; %

Industry/Size \ Item		Domestic Sales			Export Sales		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Information and Communication	SMEs	90,086	24,200	26.86	5,481	1,324	24.15
	Large enterprises	649,382	70,342	10.83	84,299	11,153	13.23
Finance and Insurance	SMEs	192,308	45,242	23.53	489	212	43.44
	Large enterprises	2,158,908	206,422	9.56	1,295	274	21.17
Real Estate	SMEs	174,189	44,575	25.59	578	232	40.08
	Large enterprises	639,011	115,512	18.08	2,923	1,712	58.57
Professional, Scientific and Technical Services	SMEs	170,126	53,286	31.32	5,248	1,725	32.87
	Large enterprises	259,062	45,039	17.39	88,983	1,593	1.79
Support Services	SMEs	118,502	39,902	33.67	848	194	22.89
	Large enterprises	172,178	18,306	10.63	1,031	269	26.08
Education	SMEs	5,946	1,206	20.28	6	0	7.81
	Large enterprises	1,900	0	0.00	62	0	0.00
Human Health and Social Work Services	SMEs	1,828	698	38.18	59	0	0.00
	Large enterprises	2,307	0	0.00	87	0	0.00
Arts, Entertainment and Recreation	SMEs	45,274	12,432	27.46	96	53	55.68
	Large enterprises	26,950	3,344	12.41	58	4	7.22
Other Services	SMEs	105,758	37,803	35.74	301	64	21.34
	Large enterprises	75,722	10,380	13.71	986	257	26.06

Note: The figure in total do not include those enterprises that owners are legal perons or foreigners for which gender cannot be identified.

Source: Ministry of Finance Tax Data Center,VAT tax data, 2011.

Index

L

M

N

P

S

T