

# **DIRECTIONS FOR INDUSTRIAL RESTRUCTURING IN THE TWENTY-FIRST CENTURY: THE PHILIPPINE CASE**

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Since the 1950s, the Philippines has adopted strategies ranging from import-substitution to export-orientation to bring about fundamental changes in the economic structure. In spite of five decades of effort, the Philippines lags behind its Asian neighbours, which had looked up to it at the start of the industrial development process in the 1950s.

The Asian financial crisis has provided the opportunity for the Philippine government to rethink its strategies for the twenty-first century and to consider the increasing role of the service industries in economic development. Domestic production contracted by only 0.5 percent in 1998, despite the 6.6 percent decline in agricultural value added and the 1.7 percent contraction in industrial output. It was the services sector, accounting for around 45 percent of domestic production, that prevented the economy from plunging into deep recession by posting modest growth of 3.5 percent. The service sector in the Philippines showed the most impressive growth among all service sectors in Southeast Asia during that year (Table 3.1).

As the Philippines moves into the twenty-first century, its economic structure is shifting towards a bigger services sector. The government has realised that the past bias for vertical integration and heavy manufacturing industries only misallocated resources and made downstream producers suffer the high costs of inefficiencies of the upstream players. Under the new administration, restructuring programs now focus on providing infrastructure, technical and manpower development support to those downstream industries in which the Philippines has demonstrated a competitive advantage in resources, manpower skills, and linkages. Service industries have also been identified as a source of competitive advantage. However, data on the performance of the service sector are insufficient and the government lacks a comprehensive policy framework for the development of the service sector (such as Singapore and Hong Kong have adopted).

The objective of this paper is to define and examine the challenges for industrial restructuring in the Philippines in the twenty-first century in the light of the policies, market conditions, and global structural changes. First, we examine the current industrial structure of the Philippine economy and review the historical industrial restructuring experience. Then, we present case studies of four industries to highlight the reasons for success and failure of industrial restructuring efforts. Finally, we identify the key factors shaping the Philippine's industrial structure towards the twenty-first century and the government's agenda for transforming the Philippines into a service-led and knowledge-based economy.

## **INDUSTRIAL RESTRUCTURING EXPERIENCE OF THE PHILIPPINES: AN OVERVIEW**

Industrial restructuring involves the re-allocation of resources between and within industries, usually in response to changes in the pattern of demand, trade, or technological development. Successful restructuring programs increase the efficiency of present operations, improve production methods, and change the organisation of industry. They could be effective only as complements to sound macroeconomic policies that promote efficient, competitive supply responses by industrial enterprises. Success also depends on effective competition policies, regulatory changes, and liberalisation of factor input and final output prices, institutional services, and infrastructure.

### **Philippine Industrial Structure**

The most significant structural change in Philippine industry occurred during the 1950s (Table 3.2). From 1946 to 1960 agriculture's share of GDP fell ten percentage points from 40 to 30 percent, while industry's share increased from 20.9 percent to 31.4 percent of GDP. Moreover, the share of the manufacturing sector more than tripled from 7.1 percent to 24.9 percent. These structural changes are indicators of industrialisation: the agricultural share declines and manufacturing outpaces other parts of the industrial sector such as mining, construction, and utilities as it provides a base for processing raw materials and for absorbing excess agricultural labour. The growth of manufacturing also makes the agricultural sector more efficient by providing it with capital goods.

Industrialisation slowed significantly since the 1970s, however, and the economic structure remained almost stagnant. The decline in the share of agriculture slowed and the shares of industry and manufacturing have decreased since 1980. On the other hand, the share of the services sector increased since 1980 and particularly during the 1990s.

### **Government Policies and Industrial Restructuring**

The lack of competitiveness of Philippine manufacturing industries today is a result of the biases of past macroeconomic, trade, and tariff policies that the government implemented to directly or indirectly influence the allocation of resources within and among industries. The evolution of industrial policy can be divided into three periods according to the major policy biases.

#### **Initial Industrialisation and Import-Substitution Phase: 1950s to mid-1960s**

From the 1950s until the mid-1960s the Philippines can be characterised as having unsound macroeconomic policies on trade and foreign exchange and as a closed economy trying to achieve self-sufficiency in the production of a number of government-identified strategic products. Growth was fuelled by strong government intervention rather than by private initiative and open economic measures. The imposition of exchange and import controls ushered in a period of import-substitution from 1954 to 1961 and completely reversed the outward orientation of Philippine industries.<sup>1</sup>

The two major interrelated objectives of the import-substitution policy were to lay the base for a viable modern manufacturing sector and reduce the role of agriculture and to give Filipinos a larger share of economic activity. A third objective was to enhance Philippine economic independence

especially vis-à-vis the United States, which was the main export market for primary products and the chief source of capital and consumer goods. Along with the bias against foreign influence and the acceptance of heavy government intervention, the overvalued currency and the liberal use of tariff walls supported the import-substitution industries (ISI) strategy. The allocation of scarce foreign exchange was essentially determined by the goals of the ISI strategy. Capital and intermediate goods that favoured the finishing and assembling of imported semi-manufactures for the domestic market were considered essential imports. This practice led to the blossoming of so-called beauty parlour industries that simply add finishing touches to imported semi-processed inputs.

On the positive side, the ISI strategy was a practical entry point for industrialisation. It helped change the economic structure by providing the base for the growth of manufacturing value added. Gross value added in manufacturing increased by 12.9 percent per year on average for the period 1952-56. During this import-substitution phase, the government was on top of the resource allocation process and private sector initiatives were hardly recognised. In the Five-Year Economic and Social Development Program of 1957-61, for instance, the two types of industries to be given priority for national development were import-substituting industries and basic industries that lacked private capital but were needed to complement privately owned and operated industries. These industries included soft drink bottling, vehicle assembly, flour milling, spinning, textile weaving or knitting, and milk canning. Only these “preferred industries” were perceived to contribute to national development and indeed they registered high growth rates during the initial years of the plan.

During the 1950s many underdeveloped Asian countries looked at the Philippines as a model and other Asian economies including Taiwan, Korea, and Singapore followed a similar import-substitution strategy. But the Philippines was slow to take advantage of the momentum imparted by its early start in industrialisation through import substitution. Taiwan, on the other hand, was quick to exploit the skills in manufacturing that it built up, and moved on to export substitution or production for domestic as well as export markets.

Philippine industrial policies in the early 1960s emphasised vertical integration. The government guided investments into the areas of highest priority in its five-year integrated socio-economic program from 1961-1965. In order of investment priority these industries were: basic metals and metal products; basic and other chemicals; pulp and paper, food processing, textiles (integration of cotton textile manufacture and expansion of ramie and synthetic fibre textile manufacture), non-metallic (cement), wood processing, and cottage industries. Such integration did not lead to significant growth in the industrial sector, however. The 5.8 percent annual rate of industrial expansion from 1962 to 1968 was slightly more than half 10 percent annual rate from 1955 to 1961. The slowdown was the result of the saturation of local markets.

In sum, the initial spurt of restructuring in the Philippines was influenced largely by the government, which determined the flow of resources in the economy. Government policies led to a product mix and cost structure that was not competitive and to industrial growth that could not be

sustained in open markets. The import-substituting industries became complacent under government protection and failed to adjust to the demands of changing markets at home and abroad. As the domestic market became saturated, Philippine industries remained inward looking and failed to take advantage of the post-World War II boom in export markets. But even if entrepreneurs had responded to the changing market conditions, macroeconomic policies, and the overvalued exchange rate in particular, did not support the development of the export sector. The overvalued currency and interest rate ceiling encouraged cheap capital imports and led to a bias against labour-intensive industries in the manufacturing sector. As a result, agriculture continued to employ more than 50-percent of the national labour force during the ISI phase.

### Mid-1960s to 1970s

By the middle of the 1960s, the dismal results of the ISI strategy became evident. As protected local industries struggled with the effects of the foreign exchange decontrols in 1962, the government continued to intervene heavily in the industrial sector. The late 1960s also brought pressure to correct policy biases (such as reliance solely on the domestic market) which were perceived to be major stumbling blocks to economic growth. Although by the middle of 1970s the government had recognised the important role of small and medium-industry development, it continued to emphasise vertically integrated industrial activities, and the shifting of resources from small- to large-scale industries continued.

Toward the end of the 1960s, the government recognised food insufficiency as a national problem. The remedy was to expand and restructure the industrial sector in order to help the agricultural sector to achieve self-sufficiency. The government adopted policies to encourage basic industries, such as iron and steel, and chemicals that had significant applications in agriculture and the backward integration of manufacturing and the forward integration of mining.

Before the imposition of martial law in 1972, the government put in place a number of policies to encourage exports and foreign investment. The Investment Incentives Act of 1967, the Foreign Business Regulation Act of 1968, and the Export Incentives Act of 1970 aimed at streamlining and rationalising foreign investment policies. The Board of Investments (BOI) was set up in 1970 with the mandate to draw up investment priority plans (IPPs) for industries that would receive incentives. These plans favoured heavy and integrated industries. The first IPP, for instance, identified the integrated copper plant as a priority project. Next in priority were transportation equipment manufacturing and shipbuilding. Anti-foreign sentiment was also still evident in the tasks assigned to BOI. The IPPs regulated foreign participation by classifying industries into pioneer and non-pioneer status. Only industries that had pioneer status were subject to more liberal rules of ownership.<sup>2</sup>

Under martial law the government took over the utilities, intervened heavily in sugar and coconut production, and designated strategic industries where it would be the driving force. These policies demonstrated the government's belief in its capability to direct industrialisation. These strategies produced some good results. One was the emergence of "non-traditional export" industries. These

included manufactured goods such as garments and electronics and agricultural products such as bananas. Nevertheless, the Philippines remained predominantly inward looking. The share of non-traditional manufacturing in the volume of Philippine exports was very small compared to the newly industrialising economies. This sector comprised only 4.3 percent of total manufactured exports during the 1970s.

The macroeconomic bias against exchange rate adjustments likewise remained. While import quotas, tariffs, and foreign exchange allocations schemes were the primary instruments in the 1960s, the government relied on foreign loans to keep the exchange rate fixed. Such foreign loans more than offset the loans extended by creditors. The Philippines was missing an important requisite for effective restructuring—a reliance on market mechanisms.

### Economic Crisis and Policy Reform: 1980s to the Present

For the Philippines, the decade of the 1980s was a period of economic crisis and political turbulence but also a time of significant policy reform marked by a shift from inward-looking strategy to export orientation, a more liberal stance toward foreign investment, and a gradual reduction in import tariffs. Up to 1981 tariffs on finished goods were high while they remained low on capital and intermediate goods. Persistent balance of payments problems in the early 1980s again triggered a government program of industrial restructuring. The government was no longer the only influence on resource allocation, however. External pressure from international institutions such as the International Monetary Fund (IMF) and the World Bank became strong forces in transforming the Philippines from an inward-looking economy to an export-oriented one and for financing rehabilitation of such industries as textiles.

The World Bank Structural Adjustment Program (SAP) in 1980 served as a vehicle for adopting a more outward-looking strategy. The program included financial reforms such as interest rate deregulation and uni-banking reforms in the banking sector and fiscal reforms such as tax and non-tax measures to better mobilise domestic resources.

Reduction in tariffs and relaxation of quantitative restrictions were conditions for the strategic adjustment loans. The Tariff Reform and Import Liberalisation Programs (reduction in the list of items that required import-licensing approval from the central bank) that began in 1981 signalled a new era of industrial policy and restructuring. The liberalisation program was temporarily suspended in 1983 due to the economic crisis, but it resumed under the Aquino Administration (1987-91). Between 1981 and 1988 imports subject to restrictions fell from 47 percent of items to 10 percent and from 33 percent of import value to 14.5 percent. Executive Order 470 issued in July 1991 was another important tariff reform program. It reduced the number of commodities with high tariffs and increased the number with low tariffs over a five-year period. The average tariff would decline from 28 to 20 percent.<sup>3</sup>

Investment incentives were also reformed, beginning with the Omnibus Investments Code of 1981. Amendments enacted in 1983 reduced the number of incentives and eliminated some capital-

cheapening measures such as accelerated depreciation and reinvestment expansion allowances. They also gave strong preference to export industries and substituted performance-based benefits for capital investments.

The poor performance of the heavy industries performed poorly during the severe recession of the 1980s called into question the nine IPP projects that the government had initiated in the early 1970s to spur import substitution of intermediate goods. In contrast to these heavy industries, whose contribution to gross value added declined in the 1980s, the relatively labour-intensive industries with a solid export base such as garments, electronics, basic metal products, and electrical machinery enjoyed strong growth in value added (Table 3.3).

Labour market policies were geared to the deployment of new and more efficient machinery and the use of labour-saving devices. Promotion of job and service sub-contracting aided such export industries as garments, footwear, furniture, and other light industries. The government retreated from the direct intervention it followed in the 1950s and 1960s instead taking on a role in such areas as education. The Aquino Administration focused on improving the means of education to meet the needs of the industrial sector.

The overall targets of the Aquino Administration were employment generation, poverty alleviation, and equitable distribution of the benefits of development. The specific objectives of industrial development were to revitalise existing industries that are economically viable and to develop internationally competitive industries that complement growth in agricultural output and rural income. The plan priorities and objectives translated into the following policy thrusts:

- Improving trade and industry linkages with the agricultural and natural resources sector
- Promoting rural-based and labour-intensive micro-, cottage, and small and medium enterprises
- Co-ordinating regional and sectoral planning
- Facilitating the flow of goods and services between production and market centres and between producers and consumers
- Developing and promoting internationally competitive products that utilise indigenous materials and skilled manpower
- Reducing government participation and intervention in business in favour of a promotional and information dissemination role

In 1988 the Department of Trade and Industry formulated Ten-year Industry Sector Plans for agriculture- and forest-based industries, chemical industries, wearing apparel (textile, garments, leather goods, accessories), construction materials, mining/extracting/processing, metals and engineering, electronics, telecommunications, service industries, and gifts, toys, and housewares.

Regional industrial centres were established to put the Countryside Agro-industrial Development Strategy (CAIDS) in operation in 1991. The rationale was to develop the industrial potential of regions lying outside the national capital through investments in infrastructure and utilities. Expansionary fiscal policy, import liberalisation, and privatisation were implemented to raise the

internal efficiency and international competitiveness of the manufacturing sector.

The emphasis of the policy reforms directed towards sustaining industrial recovery shifted

- from inward-looking to more export-oriented industrialisation
- from large-scale projects to small and medium-scale industries
- from government financing to private sector financing
- from urban-biased industrialisation to regionally balanced industrial development

Political turbulence and natural calamities interfered to reduce the effectiveness of the privatisation, liberalisation of trade and foreign investment rules, and opening up of industries to competition that were initiated in the 1980s. Reliance on market mechanisms to restructure the economy became more pronounced in the 1990s, particularly under the Ramos Administration (1992-98). Key and strategic sectors were opened to greater competition. The commitment to free trade was at the core of the administration's agenda. Attaining global competitiveness became a central theme in economic restructuring. Liberalisation and trade reforms of the 1990s changed the structure of output markets. More suppliers—local and foreign—were encouraged to enter industry. The major reforms undertaken since 1991 include:

- Liberalisation of key sectors such as telecommunications, power, insurance, shipping, and the capital market.
- Lifting restrictions on foreign exchange transactions and allowing the peso to move within a wider range consistent with a market-determined exchange rate.
- Redressing the anti-foreign bias of existing investment laws by allowing up to 100-percent foreign equity participation in all areas not specified under the Foreign Investment Negative List (Foreign Investments Act, passed in June 1991)
- Transferring minimum wage setting from the national to the regional level, which introduced some competitive forces into wage determination by allowing differences in regional priorities and exerting discipline on wage setting interventions.

The key elements of the changing industrial strategy in the Philippines are the twin objectives of privatisation and foreign investment. The government endeavours to sustain industrial recovery through the progressive expansion of the private sector and the effective implementation of a host of incentives to attract investors.

The thrust of the Vision 2000—the Ramos Administration's blueprint for growth and development—for the Philippines are global competitiveness, expanded production of goods and services for domestic and export markets, and stronger links between agriculture and industry. To attain these major goals Vision 2000 posed the following specific objectives:

- modernisation of the production sectors through technology upgrading
- enhancement and adaptation of information technology systems in all sectors
- rural agri-industrialisation including dispersal of industries
- economic empowerment of workers and employers as partners in the development process
- greater contribution of tourism to economic growth and development

In sum, the 1990s brought the creation of a more competitive environment for Philippine industries. Export-oriented industries led the pace of industrial development in the 1990s while the integrated industries suffering from inefficiency, heavy protection, dwindling supply of raw materials, and inability to integrate forward saw large declines in their share of value added (Table 3.3).

## **CASE STUDIES OF INDUSTRIAL RESTRUCTURING PROGRAMS**

Over the last half-century the Philippines has adopted industrial restructuring programs in order to raise competitiveness and to achieve certain political or social goals and broad economic objectives. Import-substitution strategies promote Philippine export industries and protect domestic industries from foreign competition to raise the economy's competitiveness. When the times demand industry programs to provide job security and employment, preserve national pride, or promote economic independence and self-sufficiency, these national interests take priority over international concerns such as trade agreements and investment liberalisation.

Industrial restructuring is the process bringing industry structure and performance in line with requirements of competition or national objectives. Industrial restructuring programs may involve direct or indirect interventions by the government in factor inputs (wages, energy, imported raw materials), processes (technology, skills, knowledge), and outputs (subsidies, export promotion). Such intervention comes in the form of subsidies, tariffs, deregulation, liberalisation, or fiscal incentives. Not all restructuring occurs through active government intervention. Market or competitive forces may compel industry participants to make structural adjustments independent of government support or instigation.

Four key industries, cement, pulp and paper, textiles and garments, and shipping, illustrate the response of Philippine industries various policy- and market-directed restructuring efforts.

### **The Cement Industry**

#### **Industry Development**

The cement industry is one of the oldest manufacturing sectors in the Philippines. The first cement plant put up in 1924 in Binangonan, Rizal by the Ynchausti firm had an annual capacity of 0.6 million bags. As owner of Cebu Portland Cement Company (CEPOC) the government was a major investor in the cement industry even before World War II. By the early 1950s, three cement plants were operating in the Philippines—two of which were owned by government (Table 3.4). Between 1947 and 1953 the addition of three more plants brought annual capacity to almost 30 million bags. Later, CEPOC acquired several plants using Japanese war reparation funds.

Consumption increases until the late 1960s encouraged the entry of new players and the expansion of capacity by existing players. In 1972 the Philippines had 18 cement plants capable of producing 160 million bags annually. The industry experienced a glut following the energy crisis and the slowdown in economic activity. Production capacity increased in the late 1970s and early 1980s with the strong recovery in construction activity. Another glut occurred in 1988 when 32 cement



plants operated with a combined capacity of 384 million bags (Table 3.5).

In the late 1980s it became clear that most Philippine cement plants were out-dated and utilised inefficient technology. In 1988 nearly 50 percent of the plants in operation used the wet or semi-dry processes, which consumed a lot of energy, compared to the situation in Japan and Indonesia, where over 96 percent of cement plants already used the dry production process. The Philippine industry's high energy-intensity made it inefficient and un-competitive. Philippine cement firms began shifting to the new technology by modernising old plants and erecting new ones. By 1999, of the 42 cement plants in operation, at least 70 percent used the dry line production process. Excess supply in the late 1990s also forced the closure of most of the wet lines.

Since the early 1950s the cement industry has primarily heavily on debt, financing expansion with borrowing, particularly from government financial institutions. Calls were made for the private investors, including private financial institutions as well as foreign investors, to take an active role in financing the rehabilitation of the industry during 1980s. In the late 1980s the government began to reduce its financial exposure to the industry and the private sector gradually took over through investments and loans, but debt remained the industry's main financing strategy. With the Asian Crisis of 1997-98 the peso depreciated against the U.S. dollar and lending rates increased, while construction activity slacked and cement consumption plunged. Caught with large debts, most cement firms were close to the brink. The government was not interested in bailing out the industry. Existing investors were forced to sell out to foreign equity partners, including such global players as Cemex, La Farge, Blue Circle, and Holderbank, which now account for over 85 percent of the industry's total capacity (Table 3.6).

### Policy Interventions

The government has long treated the cement industry as a critical economic sector. Cement was needed to build the government infrastructure projects adopted to accelerate economic absorption and growth. The industry has benefited from government regulations and incentives, many of which served to protect the huge stake that the government accumulated over time.

The government jump-started the industry in the early 1950s as part of its import-substitution strategy. Cement imports stopped abruptly in 1949 with the imposition of import and exchange controls.<sup>4</sup> As domestic demand started to recover in the mid-1950s, the government provided incentives and direct financial assistance through guarantees, direct loans, and equity investments to encourage the entry of new cement plants. Government institutions such as the Development Bank of the Philippines and the National Industrial Development Corporation extended guarantees as well as foreign loans. The Government Service Insurance System (GSIS) contributed equity funds in the form of preferred share placements. The government accommodated the industry's expansion in the 1950s and 1960s by extending loans and erecting high tariff barriers. In 1970, aware of an impending glut, the government judged the industry to be overcrowded and discouraged new applications for financing.

In order to ease the impact of the excess supply in the cement industry in the 1970s, the

government extended incentives through BOI to encourage exporting. This was the beginning of the government's outward-oriented industrial strategy. In fact, the government envisioned building a cement terminal in Manila North Harbor to reduce the cost of handling cement exports. The government also instituted regulatory measures and incentives to protect its huge investments in the industry. During the 1970s, the Price Control Council (PCC) regulated cement prices predominantly to protect consumer interests.

Also around this time the Cement Industry Authority (CIA) was formed by Presidential Decree 94 to address the issues confronting the industry. The Cement Association of the Philippines was later transformed from an association of cement companies into a legal entity, the Philippine Cement Corporation (now known as Philippine Cement Manufacturers Corporation), to assist the CIA carry out its mandate.

In the 1980s, the government took steps to address the inefficiency and lack of competitiveness in the cement industry. It actively initiated rehabilitation programs and sponsored energy conversion programs, granting fiscal incentives through the BOI and preferential loan assistance from the Development Bank of the Philippines (DBP). Many of the DBP loans went bad when cement consumption contracted in the economic crisis of the mid-1980s and drastic capacity cuts were implemented. When demand began to recover in the late 1980s and early 1990s, cement imports continued to be regulated though the industry again experienced a supply shortage. Meanwhile, the BOI was still offering incentives to stimulate the rehabilitation and modernisation of the industry.

Drastic changes in government policy in the middle 1990s enabled the cement industry to finally attract private sector financial support. The deregulation of foreign exchange and capital controls and the rehabilitation of the central bank (Bangko Sentral ng Pilipinas) integrated the Philippines with the global financial system and enhanced the government's monetary policy tools. Strong foreign exchange flows and macroeconomic stability led to a decline in the cost of borrowing in both local and foreign currency.

Two policy changes that took place in the 1990s will have a significant impact on the future of the industry. First, in 1999, the BOI removed cement firms from eligibility for fiscal incentives, except for projects located in Mindanao. Second, trade agreements under the AFTA and the World Trade Organisation are gradually liberalising the industry. Tariffs barriers began to fall in 1997 with the implementation of the CEPT among ASEAN members. By 2002, the domestic cement market will largely be open to foreign trade. Trade liberalisation does not appear to be an immediate threat to the domestic industry because high transport costs create a natural barrier against imports and because the price of imported cement is higher than the prevailing domestic price since the peso depreciated in 1997.

### **Current Structural Issues**

Issues currently facing the cement industry are:

- Price controls. There are renewed calls for price controls based on the perception that the industry follows non-competitive pricing practices. After falling for two years in the aftermath of the Asian crisis, cement prices began to recover in 1999, jumping over 50-percent (from P65 per bag to over P100 per bag) in October 1999. The industry's current average break-even point, including financing charges, is around P85 per bag.
- Incentives. Most cement companies incurred losses in the aftermath of the Asian crisis. Those firms that had received BOI fiscal incentives before they were terminated in 1999 have proposed reinstating them.
- Consolidation. The cement industry is becoming more concentrated as domestic players consolidate their operations or merge with foreign cement companies in order to attain economies of scale.

## **Pulp and Paper Industry**

### **Structural Changes: 1950s to the 1990s**

The pulp and paper industry includes non-integrated and integrated producers of pulp and paper. Non-integrated mills produce either pulp or paper, while integrated mills manufacture both.<sup>5</sup> Under the present classification the industry also includes paper converters, which manufacture paper products such as envelopes or notebooks.

Pulp and paper production in the Philippines started in 1948 when the Compania de Cellulosa de Filipinas established an integrated pulp and paper mill in Bais, Negros Occidental. This mill is still in operation. Paper Industries Corporation of the Philippines (PICOP), the largest integrated pulp and paper company in ASEAN, was established in 1971 and utilises hardwood from its own timber concessions in the eastern coast of Mindanao.

Capacity utilisation in the pulp and paper industry averaged under 70 percent throughout the 1980s. At its lowest in 1985, capacity utilisation was under 30 percent. Only two integrated mills operating at full capacity could have supplied the industry's total output. Most local demand was actually met by imports, which entered the market under declarations and through outright smuggling.

The domestic industry has been stymied by a persistent shortage of raw materials. The Philippines' inflexible agrarian reform program and the huge capital outlays discouraged the development of industrial plantations to supply domestic wood for the paper mills. The number of pulping facilities increased in the 1960s and 1970s, but many did not survive because of the shortage of raw materials and the high cost of imported wood. To get around the shortage of domestic raw materials, many mills utilised cheaper imported pulp and most of the non-integrated paper mills put up during the 1970s and 1980s relied on imported or recycled waste paper.

By the late 1970s and early 1980s, it was becoming clear that the Philippines had too many mills and that fewer and larger producers were needed to exploit economies of scale. Most mills expanded using second-hand equipment. Now most of this equipment is obsolete and these old machines have long downtime because of the difficulty of obtaining replacement parts and the lack of consulting engineers.

Private investors shunned the under-utilised, import-dependent pulp and paper industry and the

technology became out-dated. The industry fails miserably in meeting environmental protection standards. Effluents and pollutants from the mills are unchecked and contaminate the water supply of areas where they operate. The currency devaluations in the 1980s further eroded the already sorry plight of most firms due to the higher cost of imported inputs.

### Policy Initiatives

The Philippine pulp and paper industry existed under a prolonged import-substitution type industrial policy. Government incentives and direct investments led to a rapid increase in the number of new paper mills during the 1950s and 1960s. Concern over the Philippines' lack of a modern integrated pulp and paper mill led the government to encourage the establishment of PICOP. Despite the low rate of capacity utilisation the government continued to support the industry with incentives and high tariff protection until the early 1990s. Indeed, the pulp and paper industry is still eligible for four- to six-year fiscal incentives under the BOI's Investment Priority Plan.

Tax and customs duty exemptions as well as tax credits introduced during the 1950s became counter-productive in the 1980s. Tariffs on imported finished paper and paper products in the 1950s were intended to protect Philippine papermakers from lower cost, higher quality international competition. The high tariffs on finished products, which varied from 30 to 50 percent, kept the industry above water.<sup>6</sup> Effective rates of protection ranged from 8 percent to as high as 102 percent. On the other hand, the high tariff rates for finished and branded products and the low tariff rates on raw materials actually discouraged the setting up of domestic pulping facilities.

Tariffs designed to protect the wood and processed wood industry from imports in the 1950s made the cost of the paper industry's most basic raw material, industrial wood, onerously high. The tariff structure also led to under-declaration of import values and smuggling. In the 1960s and 1970s the government instituted measures to address the inadequate supply of domestic wood by encouraging paper mills to use alternative indigenous raw materials, such as bamboo (used by Bataan Pulp and Paper Mill to produce printing and writing paper), tropical hardwoods (used by Rustan Pulp and Paper Mills to produce container board), and bagasse (used by United Pulp and Paper Co. to produce sack kraft).

Government incentives to encourage for equipment imports were not limited to new equipment and thus encouraged paper mills to purchase less-expensive second-hand machines.

The government failed to attract foreign investors and financiers in the middle 1980s. Initially Philippine pulp and paper industry survived liberalisation in 1987. High international paper prices and the tight supply of paper and board from exporting countries gave the Philippine industry some breathing space to adjust to the new environment. The industry was laden with debt, however, and the Aquino Administration eventually had to take over PICOP, the largest paper manufacturer. The government plans to convert its debt to equity, turn around the bottom line, and dispose of it through the Asset Privatisation Trust.

Measures proposed and adopted by the government in the early 1990s partly address the factors

that discourage investments in the industry:

- Amend certain policies on foreign ownership of property and marketing of foreign products;
- Tap long-term credit facilities from international financial institutions;
- Provide fiscal incentives to encourage long-term export-oriented industries;
- Foster co-ordination with ASEAN member countries to regionalise the pulp and paper industry;
- Privatise and de-control government-owned mills;
- Undertake an extensive industrial tree plantation program to ensure ample supply of fibre;
- Encourage the consolidation of pulp and paper companies; and,
- Encourage the development of export markets

#### Current Status and Prospects

- The Philippines is among the world's lowest per capita consumers of paper and paperboard. Consumption of paper is increasing at a steady rate due to the constant increase in population and economic activity. Strong demand for paper and paperboard is reflected in the constant increase in paper production.
- The industry depends largely on imported inputs such as long fibres, chemicals, and waste papers. The devaluation of the peso in 1997 further increased the cost of these imported raw materials, which already comprised more than 40 percent of the industry's costs.
- Many paper and pulp mills will suffer with the tearing down of tariff barriers. With its present cost structure the Philippine industry is not likely to be able to compete with its ASEAN counterparts such as Thailand and Indonesia as liberalisation in AFTA speeds up after the year 2000. Over 10,000 Philippine employees will likely lose their jobs.
- Consumer and industrial demand for paper has already shifted to imports as a result of trade liberalisation such as the regional agreements under AFTA.

### **Garment Industry**

#### Industry Profile and Structure.

The garment industry has thrived with little government protection. From a group of small, cottage-based enterprises in the late 1950s the industry has evolved into a technology-based industry that has generated significant foreign exchange earnings for the Philippines and competes with semiconductors as the country's top dollar earner. Over 65 percent of domestic garment production is exported.

The garment industry's lack of linkages with the domestic textile industry proved to be a blessing. Despite many periods of peso devaluation, the industry continued to exploit the lower-priced, higher-quality textiles produced abroad. The government's role was limited to allowing the industry to import textiles duty-free. At present the garment industry imports more than 90 percent of its textile requirements.

The garment industry includes not only the manufacture of clothing and wearing apparel, such as hats, gloves, handkerchiefs, but also support services such as embroidery, printing, dyeing, knitting, laundering, finishing, and pattern and design-making. The present industry structure, technology, and performance have evolved substantially from the small, cottage-based industry that earlier replaced

traditional home sewing, dressmaking and tailoring. During the 1980s direct foreign competition led to an increase in the number of firms in the industry and a decrease in industry concentration. Many of the new entrants were small but highly competitive firms. The industry cost structure improved significantly because of high labour- and capital-productivity. The industry upgraded from traditional low value added tailoring to high value embroidery and ready-made garment manufacturing.

The export earning potential of the industry attracted new garment manufacturers. The change in international demand to ready-made and high-end garments caused a shift in the type of garment firms and their export-composition. In the latter part of the 1970s the industry was primarily engaged in custom tailoring. In the 1980s, manufacture of women's, girls' and babies' garments gradually rose to dominate the industry. There was also a rise in the ready-made, embroidery, hat, and handkerchief segments in the industry. In the 1990s economies of scale and rising capital intensity led to a rapid increase in the number of medium-scale (100-199 workers) and large-scale (over 200 workers) firms.

Since the 1950s the industry has been labour-dependent, relying on the skills of Filipino workers in garment manufacturing. With the competitive cost of skilled labour in the 1950s up to the late 1980s, many U.S.-based companies invested in the Philippine garment industry. The garment industry's share of manufacturing employment declined with the shift to technology-based operations in the early 1990s (Table 3.7).

The importance of garments as an export product reflects the Philippines "growing dependence on non-traditional products for foreign exchange" (Austria 1996). The growth of export receipts slowed in the 1980s and early 1990s due to competition from lower cost garment-producing countries and more attractive duty benefits in Mexico and Caribbean Basin countries and shorter turn-around time. The largest share of garment exports, close to 80 percent on average, goes to quota countries, including the United States, the major export destination, the EU (particularly Great Britain), and Canada. The remaining 20 percent of garment exports goes to non-quota countries including Japan, the UAE, Singapore, and Hong Kong.

#### Industrial Policy.

The garment industry went through three stages of industrial policy evolution, import-substitution (1950s-1979), trade reform (1980-1989) and trade liberalisation and industrial deregulation (1990-present). The industry started to grow rapidly following the 1961 passage of the Embroidery Act (RA 3137), which permitted garment manufacturers to import textiles duty free. Garment manufacturers also benefited from tax exemptions, credit, and deductions as a critical industry under the Basic Industries Act (RA 3127) and the Investment Incentives Act (RA 5186).

In the 1970s the government began to encourage exports because of the foreign exchange crisis in the late 1960s, weak domestic consumption, and the general industry glut. The strategy was made explicit with the passage of the Export Incentives Act (RA 6135) and the Export Processing Act (PD 1966). The former granted exporters more fiscal incentives in addition to those specified in RA 5186.

The Garments and Textile Export Board (GTEB) was created in 1979. GTEB plays a major role

in industry regulation, undertaking multi-faceted functions to support the objectives of the industry and to optimise foreign exchange earnings. The GTEB provides procedural guidelines to prospective exporters and importers of raw materials. The Centre for International Exhibitions and Missions (CITEM) handles marketing of garment industry exports and the Board of Investments (BOI) administers incentive schemes for exporters. Garment exporters who locate in designated export processing zones enjoy special incentives such as income tax holidays.

From the 1950s to the 1970s, tariff rates on machinery and raw material inputs for the textile industry were lower than rates on finished textiles. This form of industry incentive was part of the government's plan to develop an integrated textile industry to support the input requirements of garment producers. However, garment exporters preferred imported textiles because the quality of locally produced textile goods paled compared with the imported products. Thus, the government's protection of the local textile industry forced the domestic garment industry to pay higher input costs.

The Tariff Reform Program and the Import Liberalisation Program that began in the early 1980s signalled the beginning of the trade reform period. The implicit tariff rate on garment industry output went down from 10 percent in 1983 to 0 percent in 1988 while tariffs on garment industry inputs declined from 52 to 38 percent. In 1982 import restrictions on undergarments, clothing accessories, apparel, and textile fabric were removed. With the liberalisation of imports, domestic garment manufacturers began to suffer because of their high-cost structure, and the government implemented a tax credit scheme in 1985. Under the scheme, the BOI issued tax credit certificates to local textile millers who supplied tax-and duty-free textiles to garment exporters with bonded manufacturing warehouses.

During the globalisation period of the 1990s the garment industry became ready for more international competition. The additional incentives provided in the Export Development Act (RA 7844) greatly benefited garment exporters. Government incentives supported the adoption of Electronic Data Interchange (EDI) technology and garment manufacturers in the Philippines became the first in Asia to adopt this technology to speed processing of export documents.

### Industrial Structure Issues

Under the World Trade Organisation the quota system of the garment and textile industries will gradually be phased out. The Multi-fibre Arrangement (MFA) will be replaced with the Agreement on Textiles and Clothing (ATC) which will provide guidelines for administering existing quotas and establishing constraints while phasing out the quotas over ten years. This new world order will subject Philippine garment makers to more intense global competition.

A 1996 study by Acuna and Brown identified seven areas of structural weakness in the Philippine garment industry in light of global trade liberalisation.

- Increasing wages vis-à-vis productivity levels
- Government bureaucracy

- Dependence on quota markets and weak foreign market demand
- Inefficiency of manufacturers and lack of service support
- Continuing entry of new competitors
- Rapidly changing retail trends
- Lack of coherent industry strategy

The GTEB drafted a long-term export development plan to address these issues by improving productivity; raising value-added through investments in dyeing, finishing, printing and the development of tropical fabric; enhancing design capability; expanding markets by adding high value items and brand image, and; developing and opening the domestic market to garment exporters.

## **Textile Industry**

### **Industry Structure.**

Begun in the 1950s, the textile industry immediately rose to national prominence because of its potential to reduce dependence on imports to meet domestic demand.

The textile industry includes the production of fibre and yarn, fabric, and manufacture of made-up textile articles such as ropes, carpets, and rugs. Primary processing includes spinning, weaving, knitting, and finishing and secondary processing includes manufacture of made-up textile articles. Processing that involves three or more stages is classified as integrated, while non-integrated textile processing involves only one or two stages.

The textile industry developed before the garment industry. The number of textile firms increased dramatically during the 1950s because of government protection and incentives, but the growth was not sustained into the 1960s when over-expansion and entry of new textile firms led to an industry glut. With a large share of production going to the domestic market, the textile industry was susceptible to the ups and downs of the Philippine economy. In the 1970s, the industry lost the incentive to produce innovative designs and create new textiles because of the profitability of producing for the domestic market, which was protected from foreign competitors.

From the 1980s growth in the number of textile industry establishments began to decelerate. The industry remained small throughout the 1980s with almost 70 percent of textile firms in 1988 classified as small-scale. Over sixty percent of the textile firms operating in the late 1980s were primary processors.

Philippine textile producers were practically confined to the domestic market because their costs were high relative to international textile prices. Textile exports occurred indirectly when Philippine garment exports began to pick-up in the middle 1980s. High tariffs on imported textiles from the 1950s to the 1980s kept the industry afloat. Many textile makers shut down as domestic consumers, including garment makers, turned to cheaper imported textiles when the market was liberalised in the 1980s.



## Industrial Policy

Textiles never became a major export commodity for the Philippines because of excessive government protection. The textile industry was one of the first industries given pioneer status under the import substitution regime in the 1950s. The government protected the textile industry by import and foreign exchange controls, provided liberal access to dollar allocations for the importation of machinery and raw materials, and readily granted loans and tax concessions.

In the 1960s, the government removed the quotas on textile imports, but retained high tariffs to protect domestic producers. It also maintained low tariff rates on imports of machinery and raw materials, increasing the effective rate of protection for the textile industry. Meanwhile, the Basic Industries Act and the Investment Incentives Act of the 1960s provided fiscal incentives such as tax credits and tax exemptions for the textile industry. Smuggling was rampant because of the differential between international and domestic textile prices.

Export incentives introduced by the government in the 1970s were not effective because of the distorted tariff structure and import restrictions. For instance, most of raw material inputs of the textile industry were on the list of regulated commodities and could not be imported without government clearance.

By the end of the 1970s the government recognised that the textile industry was not internationally competitive. Studies had revealed severe operating and structural problems because of obsolete machines and equipment, lack of specialisation, poor technical processes and high cost of production. World Bank funds were made available to the industry through the Textile Rehabilitation Program in 1982-85. With only 11 textile mills availing themselves of the loans in the depressed local and foreign markets of 1982 and 1983, the program did not succeed and the funds were returned to the World Bank.

## Lessons from the Case Studies

Today the Philippine cement and garment industries are internationally competitive, with the former attracting foreign investment and the latter contributing significantly to export earnings. On the other hand, the pulp and paper and textile industries are unable to compete in the global competitive environment of the twenty-first century. These different outcomes along with the different experiences outlined in these four case studies suggest that successful restructuring of target industries includes not merely rehabilitation, modernisation, integration, and product promotion. Certain conditions must be met before restructuring programs are formulated and implemented. Industrial programs should complement general policies that promote competitiveness and efficiency. This means that successful restructuring depends on education, politics, infrastructure, and other national systems and institutions.

An effective industrial restructuring program requires

- Macroeconomic stability supported by sound macroeconomic policies (especially with respect to exchange rates).

- Removal of serious distortions in support sectors such as capital and financial markets. Government should ensure the existence of and promote solvent and sound savings, banking, and non-bank financial institutions.
- Exposure to competition through free entry and exit and tearing down barriers to trade. Competition policies should be pursued under a program of trade liberalisation and export promotion.
- Exit of government from direct investment and policy-induced industrial projects. Open markets should be complemented by the elimination of government subsidies, guarantees, and tax concessions. Private financial institutions should become channels for financing restructuring programs.
- Market determination of prices. Price controls breed inefficiency and promote rent-seeking and monopolistic behaviour. They send the wrong market signals leading to the misallocation of resources.
- Continual upgrading and new construction of physical infrastructure such as roads, power generation plants, transportation facilities, and ports.
- Access to and institutional support of information services (industry and economic statistics, trade information and data), human resource services (education, training, management), and consultancy services (legal, financial, accounting, and tax).
- Strong corporate incentives through appropriate regulation of disclosure, accounting standards and practices, bankruptcy, licensing, intellectual property rights, and fiduciary and prudential investment standards.

## **STRATEGIES FOR INDUSTRIAL RESTRUCTURING IN THE TWENTY-FIRST CENTURY**

### **Developing a High Value Added Service Economy**

The rapid growth of the service sector in economies around the world is attributed to the liberalisation and deregulation of service industries, technological advances, outsourcing, and the unbundling of services by the manufacturing sector. The Philippine government aims to sustain and accelerate the growth of the service sector by improving productivity and implementing reforms that effectively and efficiently meet the needs of the modern agriculture and industry sectors.

Data on the economic performance of the service sector are inadequate and it is difficult to measure the sector's contribution, particularly with the increasing tradability of services and technological advancements. National income accounts do not capture the contributions of knowledge-based industries and data on trade in services omit services delivered via IT networks or subsidiaries and affiliates in foreign markets.<sup>7</sup>

While the service sector has been growing rapidly as a share of total output, it has generally lagged behind the goods sector in aggregate productivity growth (Table 3.8). This situation is observed widely in both developed and developing countries. One explanation for the lag in the growth of productivity in the service sector is the measurement problem mentioned above. It is likely that productivity growth in the finance, insurance, and real estate industry as well as in private services has been under-estimated. Also, there may be less competition in service industries compared with goods-producing industries, but it is hard to quantify this impact.

Pursuing the goal of a high value added service economy requires a policy framework that

recognises the role of services, particularly service exports, in Philippine economic growth. The Ramos Administration undertook regulatory reforms such as deregulation and privatisation that contributed to the rapid growth in the value added of such service industries as telecommunications and financial institutions. The liberalisation of domestic and international air transport helped improve access both within the archipelago and between the Philippines and the rest of the world. Almost 70 percent of the country's total exports, by value, was shipped by air in 1998, a marked increase over the 20 percent in 1992. The government has also provided incentives for the development of service-based industries, for instance in the 1994 Export Development Act (RA 7844).

In 1999, the Department of Trade and Industry identified certain service industries as “in-need services,” priority industries in which the Philippines enjoys a competitive advantage. These include aircraft maintenance and ground services, health services, tourism services (particularly the development of retirement villages), information technology niching, and construction services. For in-need services that are capital-intensive policy should focus on reducing the cost of capital equipment. On the other hand, those that are labour-intensive may require incentives to reduce labour costs and training expenses. The easy entry of foreign firms to provide technology is also needed

### **Export Development through Industrial Clustering**

The Department of Trade and Industry's past action plans for the export sector took two tracks: creating a favourable environment for exports and investment and assisting the marketing, production, and financing of exports. As part of the second track, the DTI encouraged diversification of exports by identifying products that are selling well overseas but whose market potential has not yet been fully exploited. It has identified 14 such so-called ‘product winners’ for the Philippines, including consumer and industrial products, agricultural and resource-based items, as well as international services. The Philippines has specific advantages in the production of these winners due to its labour skills, unique raw materials, and design capabilities. Service industries that present future opportunities in terms of skilled employment, essential business support for export, and use of the improving infrastructure for telecommunications include: professional services, construction services, film animation, data conversion, software development, and multi-media content development.

The Philippine Export Development Plan (PEDP) of 1999-2001 identifies industry clustering as a key medium-term strategy for export promotion, recognising that successful export development depends on both fostering the growth of export industries and promoting and marketing export products. The PEDP focuses on development of industry clusters in each of the Philippines' fourteen geographical regions. A cluster chart was prepared for the Philippines based on data from the United Nations International Trade Centre (Figure 3.1). The initial clusters were chosen on the basis the performance of Philippine products in the world market in the past five years, industry priorities for each region, and such national objectives as regional dispersal, increased value added, product diversification, and productivity improvement. To develop strategies, the clusters were grouped in four categories based on common characteristics: factor-driven, investment-driven, innovation-driven,

and trend-driven industries (Figure 3.2).

The success of these export programs depends on a number of factors in addition to the commitment of government institutions. It requires strengthening existing firms through technology transfer (including expert advice and regular industrial extension services), attracting foreign and domestic investors to upgrade local suppliers and subcontractors and link to sophisticated buyers, and providing support programs such as common training facilities and productivity improvement measures.

### **Manpower Development**

An abundant supply of skilled workers has helped the Philippines attract foreign direct investment in the production of high value commodities such as electronics and software development. The Philippines now ranks just behind India as a centre for information technology in Asia. The government has recognised the need to continuously upgrade the quality of education in order to preserve this competitive edge in service exports. It must raise the quality of education in rural areas in particular if it is to attract FDI to generate employment and income opportunities there.

The Commission on Higher Education and the United Nations report that the present curriculum in the Philippines is not geared to graduate a substantial number of workers suited for dynamic industrial sectors. Enrolment in the sciences and technical subjects is too low and there are minimal linkages between educational institutions and the industries that help develop student capabilities with industry requirements (Table 3.9).

The unsatisfactory quality of basic education in the Philippines was revealed by the results of the Third International Mathematics and Science Test (IMST3) administered in 1995 to 13-year old children in different countries. On the math portion of the test, Filipino students averaged only 31 percent correct. On the science, the scores of Filipino children were 77 percent below the international median for lower secondary school students and 80 percent below the international median for upper secondary school students.

### **Research and Development**

If technology is to be the foundation of the export structure, then the Philippines must have a technology-oriented system and culture, but the country currently lags behind its Asian neighbours not only in technical education but also in emphasis on R&D. It compares poorly with Taiwan, Korea, Singapore, and even China in terms of scientists and engineers engaged in R&D or in R&D expenditures as a share of GDP (Table 3.10).

The Science and Technology Agenda for National Development is a comprehensive plan adopted in 1998 but it is meaningless because of a lack of genuine commitment and funding. The government is promoting ISO 9000, but the program have not been effective in getting companies to adopt the standards because it lacks incentives (Table 3.11).

The failure of Philippine institutions to focus on technology development and enhancement will

impair the country's overall competitiveness. Productivity will fall if wages continue to climb and human resources cannot adapt to the high-technology, high-value activities of the future. Technological support and know-how will enhance value by preparing the manufacturing sector to upgrade from assembly and parts manufacturing to product design and testing.

### **Regulatory Reforms**

The government has launched a plan to support the development of globally competitive industries. It will continue liberalisation of the trade and investment environment, provide infrastructure, develop science- and technology-based human resources, and put priority regional growth networks/centres, special economic zones, and provincial agro-industrial enterprises on a fast-track. The plan aims to make the country internationally competitive as a service provider and to develop a high-quality and high value-added service economy that effectively and efficiently meets the needs of modern agriculture and industry. Market opening measures such as the liberalisation of the domestic and international airline and the telecommunications markets and the deregulation of inter-island shipping and the banking industry have already been adopted.

The government also plans to revise the Productivity Incentives Act and to pass new measures to promote electronic data interchange (EDI) and electronic commerce in trade transactions by utilising electronics, fibre-optics, and similar media and by fostering the convergence of various sectors, such as telecommunications and media and entertainment, to provide business and residential consumers with a broad array of new information services and to provide more efficient and innovative services.

### **Notes**

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1. These policies combined with other forms of government intervention, including a usury law that capped interest rates and made capital cheap, a legislated minimum wage, credit allocation schemes that directed financial resources to areas the government identified as crucial to economic development, and rules on foreign participation in economic activities that kept them out of government-designated areas.
2. In their study on the impact of industrial policy reforms for the period 1983 to 1988, Medalla et al (1995) found that the effective rates of protection for activities within the IPP were higher than the average for the manufacturing industry as a whole.
3. E.S. Tan, "Trade Reform in the 1990s: Effects of E.O. 470 and the Import Liberalization Programme," in Medalla et al., 1995.
4. The government allowed occasional imports in order to curb price increases and cover shortages as cement consumption continued to rise during the 1950s and 1960s while foreign exchange controls remained in place.
5. Pulp is a fibrous material derived from wood species and used in papermaking.
6. In the 1950s duty was 10-percent on imported kraft pulp, 30-percent on newsprint, 50-percent on kraft liners, 40-percent on fluting, and 30-percent on wood fibre/ tree printing paper.
7. Accounting and monitoring the services rendered by overseas contract workers have become a priority as a result of the relatively good performance of the service sector during the Asian crisis

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and the growth of small and medium enterprises engaged in subcontracting activities such as software and solutions development.

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**TABLE 3.1**  
**Growth of the Service Sector Value Added in ASEAN Economies**  
(Percent change)

	1993	1994	1995	1996	1997	1998
Indonesia	7.4	7.1	7.6	6.8	5.7	-16.6
Malaysia	9.7	9.5	9.2	9.5	7.7	1.2
Philippines	2.5	4.2	5.0	6.4	5.5	3.5
Thailand	9.3	8.9	9.0	4.6	-1.1	-6.8

Source: Asian Development Outlook, 1999

**TABLE 3.2**  
**Composition of Philippine GDP by Industrial Origin, 1946-98**  
(Percent share of output in 1985 prices)

	1946	1950	1960	1970	1980	1990	1998
Agriculture	40.4	34.5	30.0	28.2	23.5	22.3	19.4
Industry	20.9	28.7	31.4	33.7	40.5	35.5	35.5
Manufacturing	7.1	18.1	24.9	27.1	27.6	25.5	24.9
Services	38.7	36.8	38.6	38.1	36.0	42.2	45.1

Source: National Statistical Coordination Board (NSCB)

**TABLE 3.3**  
**Industries with Highest and Lowest Growth in Gross Value Added, 1990-99**

High Growth Industries	1990-99 Growth Rate	Low Growth Industries	1990-99 Growth Rate
Electrical machinery	13.7	Transport equipment	1.2
Machinery except electrical	7.0	Basic metals	0.3
Leather and leather products	5.6	Metal Products	-0.4
Non-metallic minerals	5.3	Textile Manufactures	-3.2
Miscellaneous manufactures	5.1	Wood and Cork products	-4.4
		Rubber Products	-4.9

Source: NSCB

**TABLE 3.4**  
**Cement Industry Production Capacity, 1952-99**

	1952	1972	1988	1999
Number of plants	3	18	32	42
Annual capacity (million bags)	8.7	160	384	1,024

Source: Philcemcorp

**TABLE 3.5**  
**Clinker Capacity and Composition by Type of Process, 1988 and 1998**  
(Percent share)

	1988	1998
Dry	51	72
Wet	15	23
Semi-dry	34	5
Total capacity (metric tons)	7,408	21,368

Source: Philcemcop

**TABLE 3.6**  
**Ownership Structure of the Cement Industry, 1989 and 1998**  
(Metric tons)

1989		1998	
	Clinker capacity		Clinker capacity
Phinma Group		Holderbank	
Bacnotan	231	Alsons-Iligan	2,247
Hi-Cement	409	Hi-Cement	
Davao Union	455	Davao	2,460
		Bacnotan	1,742
			1,254
Alcantara		Cemex	
Alson Cement	429	JG-Apo	1,800
Iligan Cement	399	Solid Rizal	2,235
Madrigal-		Blue Circle	
Gokongwei		Fortune	1,260
Rizal Cement	404	Mindanao	450
Solid Cement	537	Republic	1,575
Apo Cement	190		
Seacem / Lim		La Farge	
FR Cement	515	FR-Lloyd's	2,121
Lloyd's	-	Continental	1,470
Sy			
Mindanao	128		
Fortune Cement	309		
Others	2,119	Others	2,754
Total	6,125	Total	21,368

Source: Philcemcorp.

**TABLE 3.7**  
**Garment Industry Share of**  
**Manufacturing Employment,**  
**1970-98**  
(Percent)

	Share
1970-1974	5.8
1975-1979	10.5
1980-1984	11.8
1985-1990	15.2
1990-1994	16.0
1994-1998	16.5

Source: Bureau of Labor and Employment Statistics.

**TABLE 3.8**  
**Annual Growth in Labour Productivity by Industry, 1993-96**  
(Percent)

	1993	1994	1995	1996
Agriculture	-1.66	1.26	2.11	-1.34
Mining	9.61	13.13	2.95	-6.72
Manufacturing	3.45	1.62	3.59	2.49
Utilities	-8.18	3.69	11.02	3.83
Construction	1.17	1.88	-2.9	-4.0
Wholesale and retail	-0.96	0.08	-1.36	-0.95
Transportation and communications	-4.35	-3.32	-0.28	-2.67
Finance, insurance, business services	-9.91	8.01	-2.16	-2.30
Community and personal services	2.06	1.31	-0.86	0.23

Source: NSCB

**TABLE 3.9**  
**Tertiary Technical Education Enrolments in East Asia,**  
**Number and Share of Population**

	Natural Sciences		Mathematics and Computing		Engineering		Total	
	Number	%	Number	%	Number	%	Number	%
	Philippines	27,200	0.040	121,000	0.178	225,700	0.333	373,900
China	167,700	0.014	99,400	0.008	971,000	0.080	1,238,100	0.102
Hong Kong	13,400	0.219	-	0.000	16,600	0.271	30,000	0.490
Indonesia	25,100	0.013	128,000	0.065	293,900	0.149	447,000	0.227
Korea	163,700	0.365	-	0.000	577,400	1.286	741,100	1.651
Malaysia	8,800	0.044	4,600	0.023	12,700	0.063	26,100	0.130
Singapore	1,300	0.039	1,400	0.042	13,000	0.391	15,700	0.472
Taiwan	16,800	0.078	32,800	0.153	179,100	0.834	228,700	1.065
Thailand	22,500	0.039	27,100	0.047	58,700	0.101	08,300	0.187

*Source: UNESCO, 1997*

**TABLE 3.10**  
**R&D Employment and Expenditures in East Asia**

	Scientists & Engineers in R&D		R&D Expenditures
	Number per million pop		% of GNP
		Total	
Philippines (1992)	157	9,960	0.20
China (1995)	350	422,700	0.50
Hong Kong (1995)	98	574	0.30
Indonesia (1995)	0	0	0.10
Korea (1994)	2,636	117,486	2.80
Malaysia (1992)	87	1,633	0.40
Singapore (1995)	2,728	7,695	1.10
Taiwan (1995)	3,022	63,457	1.80
Thailand (1995)	119	6,899	0.10

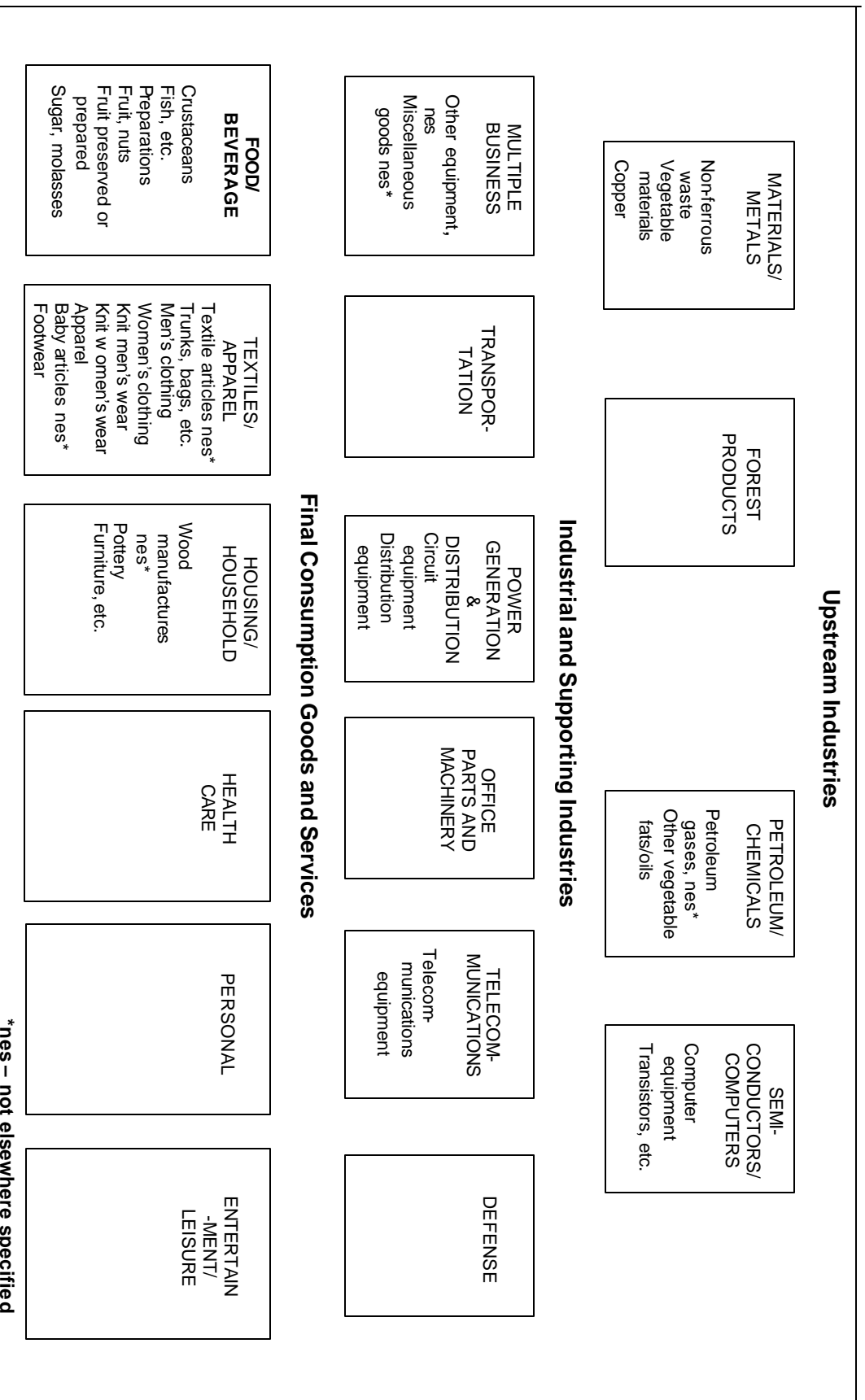
*Source: UNESCO 1997*

**TABLE 3.11**  
**ISO 9000 Certificates in Selected Asian Countries**  
**(Number of Companies)**

	1993	1998
Thailand	9	1,236
Malaysia	224	1,707
Hong Kong	161	1,940
Philippines	4	668
Singapore	523	3,000
Indonesia	8	1,442
Taiwan	96	3,173

*Source: ISO 1998.*

**FIGURE 3.1**  
**Philippine Industry Clusters**





**FIGURE 3.2**  
**Categorisation of Industry Clusters for Export Promotion**

<b>Factor-Driven Industries</b>		<b>Innovation-Driven Industries</b>	
Traditional resource base, High labour intensity Semi-skilled to highly skilled workers Existing technology base Stable or growing markets	<ul style="list-style-type: none"> <li>• Furniture</li> <li>• Processed foods</li> <li>• Processed wood</li> <li>• Basketry and holiday décor</li> <li>• Jewellery</li> <li>• Tropical fruit</li> </ul>	Utilise knowledge– intensive technologies High capital intensity Highly skilled labour Growing to new/emerging markets	<ul style="list-style-type: none"> <li>• Professional services</li> <li>• Film animation</li> <li>• Information technology services</li> </ul>
<b>Investment-Driven Industries</b>		<b>Trend/Opportunity-Driven Industries</b>	
Utilise second wave technologies Medium to high labour intensity Semi-skilled workers Stable or growing markets	<ul style="list-style-type: none"> <li>• Electronics</li> <li>• Automotive parts and components</li> <li>• Footwear</li> <li>• Oleo-chemicals</li> <li>• Mining and mineral products</li> <li>• Metals and engineering</li> </ul>	Emerge following a trend Tremendous world demand Event-driven opportunities	<ul style="list-style-type: none"> <li>• Hardware/software solutions for computer systems</li> <li>• Costume jewellery</li> </ul>