Asia-Pacific Logistics Development Report 2008

by

China Economic Indicator

Understanding China's Economic Indicators

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China Economic Indicator

CEI is a research-consulting firm that gathers business intelligence and provides analysis as well as general business services for international organizations working or interested in the Greater China and East Asia markets.

Our researchers and analysts collectively have decades of experience on the ground in Mainland China, both living and working; not just in the developed east, but throughout the vast hinterland that represents the real opportunities in the coming decades. In addition, all our researches and analysts, Western and Chinese, are fluent and literate in both Mandarin Chinese and English.

Our bureaus in Shanghai, Hong Kong, Beijing, and Kunming provide wide geographic coverage and allow us to offer client liaison services nationwide.

Previous clients have included the Royal Dutch Consulate's Netherlands Business Support Office, Transport Intelligence, Airline Cargo Management, Inform Subsidiaries such as Cargo Systems and International Freighting Weekly, and several Fortune 500 companies that wish to remain anonymous.

Assets

- Research and translation teams
- Sales and marketing teams
- Industry and academic analysts
- CEO's in-house library and data sources

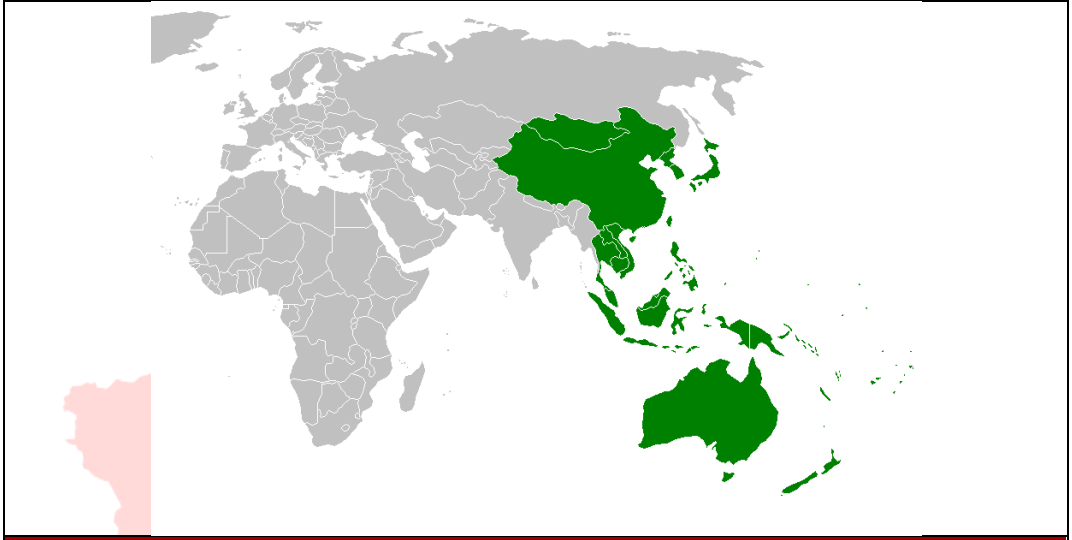
Capabilities

- Provide clients with the ability to operate in the Greater China region
- Primary research conducted in Chinese by native speakers
- Sales and customer relationship management services

3 Executive Summary

When Indian Prime Minister Rajiv Gandhi visited China's Paramount Leader Deng Xiaoping in Beijing in 1988, the two world leaders dubbed the 21st Century the Asian Pacific Century. Based on population and economic growth forecasts, the concept of an Asia Pacific Century is one where Asian markets dominate and set global trends for the next hundred years by eclipsing existing powers. In many ways, this has come to pass and in many ways it has not but the century is still young.

Asia Pacific Map



Source: Public Domain

The logistics market in Asia Pacific is highly complex and fragmented. The region is dominated by China and Japan, one country undeveloped and fast growing, the other mature but stagnating. In addition, an array of up and coming consumer and production markets have emerged: Vietnam, Indonesia, Thailand and Malaysia to name but a few.

Distributing product across such a contrasting mix of markets faces challenges which are unheard of and little understood in North America and Europe. In addition to a variety of barriers to trade, quality of transport infrastructure is often inconsistent or even non-existent. Ports, airports and roads suffer from congestion, leading to additional supply chain costs. Many countries are still unable to provide a stable commercial and legal environment.

Despite these problems, the region presents fantastic opportunities for investors. Rising disposable income has led to the growth of domestic consumer markets; global manufacturers continue to out-source production to the region attracted by lower costs; and the logistics supply side has plenty of potential for consolidation and mergers and acquisitions for major logistics companies to exploit.

Geographically, the Asia Pacific region (APAC) is defined as being littoral East Asian nations (generally excluding Russia), Southeast Asia and Oceania (including Australasia). The region contains some of the

world's most advanced economies as well as some of the poorest. Developed markets with important manufacturing regions, transport transit hubs, or financial centres include the following:

- Japan
- Singapore
- Taiwan
- Hong Kong
- Australia
- New Zealand

The nations listed above have reasonably well developed transport infrastructures, and have a logistics industry engendered through the sophistication of the manufacturing and retail sectors operating in each market.

The Asia Pacific region is also home to a substantial number of 'rising economies', some of which have seen unprecedented growth over the last twenty years and continue to experience extremely high rates of development. These nations include:

- China
- India
- South Korea
- Thailand

Though still hindered by its underdeveloped infrastructure, Vietnam has, in recent years, seen great increases in foreign investment and rapid growth in GDP and can be expected to be added to the list above within ten to twenty years.

In 2006, Asian developing economies grew by about 7.6 percent compared to developed nations in the region, which grew by 2.2 percent. Exports saw impressive growth at 18 percent with the region benefiting from healthy global demand. Developing countries in the region continued to accumulate foreign exchange reserves reaching an unprecedented USD 2.5 trillion.

Many nations in Asia Pacific, both developed and developing, are members of one or both of the two main economic associations in the region namely, the Association of South East Asian Nations (ASEAN) and the Asia-Pacific Economic Cooperation (APEC) organisation.

Established in Bangkok in 1967, ASEAN encompasses ten South East Asian nations and aims to facilitate peace and stability in the region through economic cooperation. Statistics from 2007 put the total population of ASEAN countries at 575.5m. The nations in the association at present enjoy an average economic growth rate of 5.6 percent and an average nominal GDP of USD1231.9bn (per capita USD2227).

APEC is comprised of 21 'member economies' (referred to as 'economies' rather than 'nations' because membership includes regions such as Hong Kong counted separately from, though still under the sovereignty of China, as well as Taiwan, where the sovereignty of the island is a fierce source of

contention). These economies encompass 41 percent of the world's population, 56 percent of the world's GDP and 49 percent of world trade. The APEC forum is held annually in rotating locations and attended by heads of state--Taiwan, or Chinese Taipei on the insistence of Beijing, sends a ministerial level delegation-- and the meetings are designed to draft better integration of trade and to facilitate economic growth and cooperation among members as a whole. Member economies that are not Asia-Pacific countries include the United States, Canada, Mexico, Chile and Peru.

The allure of the emerging region for Western organisations is primarily due to its role as a low-cost operating base, with a workforce that is often skilled and willing to work for a fraction of their Western counterparts driving the creation of strong export based economies. As this region develops, however, and rising costs of living increase wages, many Western organisations are beginning to focus on the region, not only as a production base, but also as a growing end-user consumer base that has the potential of sustaining entire industries on its own. Additionally, the liberalisation of local markets (e.g. China) has provided many opportunities for expanding companies.

In 2007, while the US real effective exchange rate depreciated and contributed to a smaller current account deficit relative to its GDP, the real effective exchange rate of a number of current account surplus economies in East Asia (such as Japan, Taiwan, Hong Kong, China) also decreased, contributing to new peak levels in the ratios of their respective current account surpluses to GDP.

The growth of per capita gross domestic product (GDP) in Asia Pacific has grown over the past 16 years from an average of 1.4 percent in 1990-2000 to 3.1 percent in 2000- 2005 and 4.6 percent in 2006. From 2000, the per capita GDP growth in the region outpaced that of all other regions of the world (with the exception of Africa) by at least a percentage point. The growth has been consistently quicker in low- and middle-income countries than in high-income countries, more than twice the rate of global growth between 1995 and 2005.

Employment in Asia Pacific has grown at an average annual rate of 1.5 percent over the past 15 years. This growth, though impressive, is still much slower than in Africa (2.8 percent) and Latin America and the Caribbean (2.5 percent). The strong long-term increase in labour productivity and the noticeable structural shift in composition of sectors within Asia-Pacific economies are said to be the cause of the region's apparent relative inactivity in dealing with unemployment.

Within the region, employment has increased three times as fast in low-income countries as in high-income countries. The total employment figures in low-income countries may, however, mask a large and persistent underutilisation of labour resources, particularly in the agricultural sector, which represents more than half of their total employment.

The Asia Pacific region has experienced a drop of about 4 percentage points in the employment-to-population ratio. In spite of this decline, in 2006 the region still has the second highest ratio of working age women employed (48.9 percent) surpassed only by North America (53.9 percent). An exception to this is in South Asian countries, where the ratio experienced a gradual annual average decline in recent years, dropping to 33.6 percent in 2006.

Lack of access to gainful employment is one of the causes of migration in the region from poorer to richer income countries. In 2005, 6 percent of the population of high-income countries in the Asia Pacific were not born in the nations in question, compared with 4.7 percent in 1990. The percentages of foreign populations in the total population of low- and middle-income countries saw a decrease over the same period, from 1.4 percent to 0.8 percent and from 1.4 percent to 1.1 percent, respectively.

The region's spectacular growth in GDP per capita has been attributed to punctilious macroeconomic policies, exemplified by lower fiscal deficits and inflation. The current trends stand in stark contrast to figures from as late as 1995 showing huge deficits in the majority of the countries in South Asia; for example India ran a fiscal deficit of 5.1 percent. In 2006, the average fiscal deficit in South Asia had gone down to 3.5 percent of GDP.

A major factor sustaining economic growth in the region has been the increasing integration of the Asia-Pacific region into the global economy. As an indicator of the economy's increasing dependence on export driven growth, exports of goods and services over GDP increased from 19 percent in 1990 to 33 percent in 2005. This rise of 14 percentage points is unmatched by any other region. Additionally the increase of imports over GDP was also substantial, seeing a rise from 19 percent in 1990 to 29 percent in 2005.

China's export performance has been particularly impressive. In 1990, its exports over GDP were slightly lower than regional average at only 18 percent but had risen to 42 percent by 2005, standing fully 9 percentage points over the regional average. This degree to which exports drive the Chinese economy is unprecedented among populous nations with over 100m people. In comparison, exports over GDP stood at 21 percent in India, 34 percent in Indonesia, and 13 percent in Japan (2004). The ASEAN member economies have distinguished themselves as being highly dependent on export driven manufacturing, with their exports over GDP having reached 88 percent on average.

Another indicator of the increasing role the region is playing in terms of globalization is its receipt of foreign direct investment (FDI), though it is also increasingly becoming an origin of FDI. In the list of the world's top 100 non-financial trans-national corporations (TNCs) in 2005, nine were from Japan, and six out of the seven developing country TNCs were from Asia Pacific (South Korea (2); Hong Kong, China (2); Malaysia (2); and Singapore (2)). In the 2005, the United Nations Conference on Trade and Development (UNCTAD) listed of the top 100 non-financial TNCs from developing countries and 78 of the companies listed were companies headquartered in the Asia Pacific region, with the majority coming from Hong Kong, (25), Taiwan (18), Singapore (11) and the Chinese mainland (10).

One of the factors limiting growth in the region is inflation. Already by August, 2007, inflation had been dubbed "the biggest challenge facing policy makers" by the International Herald Tribune after South Korea saw the liquidity of its financial institutions grow by 10.4 percent in June.

Accelerated by rising oil prices and subsequent increases in global food prices, the inflation rates the region was garlanded for having kept under control for so long, became a problem in 2008. Average inflation in Asia Pacific decreased from 15.6 percent in 1995 to 3.5 percent in 2006. The latter figure compared favourably to those of Africa (8.2 percent) and Latin America and the Caribbean (5.1 percent)

and was only slightly higher than that of North America (3.1 percent). Since 2007, however, signs have been present that the region is having difficulty containing inflation growth.

For 2008, the Asian Development Bank (ADB) forecast a 7.6 percent increase in inflation for the region. This is down from 8.7 percent for 2007, but not all countries are being affected equally. Vietnam has been hit hardest with an inflation rate in excess of 25 percent. Singapore, Thailand, and the Philippines and Indonesia are experiencing inflation rates between 7.5 percent and 11 percent. In March of 2008, the Chinese government reported experiencing an eleven-year high with its own consumer inflation rate reaching 8.7 percent, said to be a result of the rising food prices (particularly pork and rice prices – the mainstay of the traditional Chinese diet) and fuel.

Steps taken by the respective governments to control the emerging potential impediments to growth include regressive taxation policies, price controls (and in some situations, outright freezing of prices) as well as export controls on food commodities such as rice and grain. The effects of these measures are still under scrutiny and seem to have stopped inflationary increases for the time being but have, as yet, failed to decrease inflation.

Another limit that the rapid economic growth of the region has met lies with the strains put on the environment. While the staggering growth has contributed considerably to better economic, social and general living conditions, it also produces a tremendous environmental impact that is creating worldwide repercussions. One major cause is the rapid increase in energy consumption economic growth in the region has created. Though still only a fraction of the energy consumption per capita levels of North America and Europe, energy consumption per capita in Asia Pacific has increased at a rate unparalleled anywhere else in the world as consumption has more than doubled since 1990. In some of the region's middle-income nations, per capita energy use even quadrupled.

Increased energy use is reflected in the region's carbon dioxide (CO2) emissions, which rose from 1.9 tonnes per capita in 1990 to 3.2 tonnes per capita in 2004. High-income countries (10.3 tonnes per capita in 2004) are much worse polluters than low-income (1.1 tonnes per capita) and middle-income (4.1 tonnes per capita) countries. The increase in CO, emissions, however, was fastest in the latter group (doubling between 1990 and 2004). Although CO2 emissions per capita in Asia and the Pacific are low compared with those in North America (20.3 tons in 2004), they are increasing more rapidly than anywhere else in the world. This trend compares poorly to that of Europe, which reduced per capita emissions between 1990 (8.4 tons) and 2004 (7.9 tons).

The environmental strain caused by rapid economic growth is also making the population of Asia Pacific increasingly vulnerable to the impact of natural disasters. The number of people in the region affected by such disasters per 100,000 people rose from 5,542 in 1991-1995 to 6,731 in 2001-2005. This latter number also compares poorly with Africa (2,436), Latin America and the Caribbean (1,002), North America (93) and Europe (72).

Though hit hard by the economic crisis of 1997, the region has since showed great resilience. In spite of the problems stated the overall picture for the region as a whole remains positive and is expected to remain so for the rest of the decade and beyond.

4 The Structure of Freight Transport in Asia Pacific

By providing efficient access to global markets, international transport links are a major pre-condition for growth and development. In this capacity, investments in physical infrastructure are another factor contributing to the acceleration of per capita economic growth in the Asia Pacific region. In China, for example, road density increased from 151 to 201 km per 1,000 km squared between 1990 and 2004. Vietnam and the Lao PDR nearly doubled their road density in the same period, while the Republic of Korea and India nearly doubled their road networks in the 1990s. In addition to increasing total road length, the region has also invested heavily in widening and paving roads within the existing network. Improvements in mobility have contributed to economic growth and access to markets but have also dramatically increased levels of pollution and frequencies of traffic accidents.

Railway density in Asia Pacific remains low when compared to more advanced regions but among developing regions of the world, it is the highest. In 2005, it had a railway density of 7km per 1,000km squared putting the region well above Africa and Latin America and the Caribbean but far below North America and Europe. A little over half of the countries in the region have adequate intercity railway systems. In recent years, with the exception of China and South Korea, only a handful of Asian developing countries have made extensive investments in railways.

There have, in recent years, been greater levels of cooperation in the field of transport infrastructure developments as evidence in the establishment of the Regional Action Plan supported by the Economic and Social Commission of Asia Pacific (ESCAP), the largest of the United Nations five regional commissions in terms of area and population covered. At a ministerial level meeting held in Busan, South Korea in late 2006, representatives of member states set the stage for comprehensive and regionally cohesive transport infrastructure development for a five-year period ending in 2011. Major points of the Regional Action Plan as established are focused on transport infrastructure development through an integrated intermodal approach that incorporates finance and private sector participation and sustainable transport development.

For maritime-based freight movement, the fastest growth occurred in the ports of China and new ports in Malaysia, Thailand, and most recently Vietnam. Increased East Asian freight movements have led liner services to introduce large container ships that require deeper access channels, which can often only be provided by voluminous dredging. Ports in river estuaries (such as Bangkok, Haiphong, Saigon, and Shanghai Waigaoqiao) are likely to become less competitive than coastal deep-water ports (such as Laem Chabang, Hong Kong, Busan New Port, Shanghai Yangshan, etc.). This general dynamic has spurred a burst of investment in deepwater ports across the region in recent years.

As part of this general movement, many existing estuarial ports are already looking for, or currently building, new developments on the coast. Given the limited scope for further reducing costs by increasing vessel size, the next development is likely to be more direct services from what are currently feeder ports thereby decreasing the costs of transhipment at regional hubs.

4.1 Market Dynamics

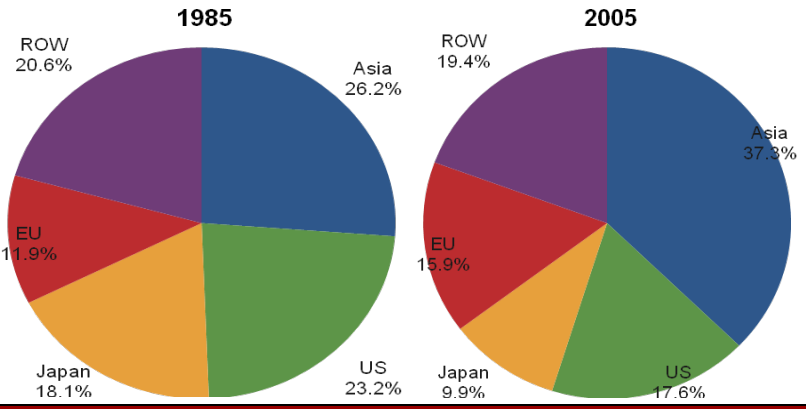
In general, the Asian region has undergone a significant period of expansion in terms of local, regional and intraregional trade. Accompanying this expansion of trade has been a tremendous growth of investment and financial linkages. In particular, since the 1990s, growth in the intra-Asian trade market has been remarkable.

This growth in intra-Asian trade has been seen by some as indication that many Asian nations are strengthening their regional economic ties in an effort to insulate themselves from the cyclical nature of dependence upon traditional international trade models. Conversely, the relative decline in Asia's trade with international partners, i.e., non-Asian states, has also been seen by some of evidence that Asia's reliance on external trading partners is diminishing in real terms.

However, despite the relative decline, the Asia region's dependence on extra regional economies remains strong. Export to GDP ratio has continued its upward trend reaching almost 55 percent of GDP in 2005 compared with a global average of 28.5. In terms of incremental export-to-GDP ratio, measured on a year-on-year basis have also witnessed an upward trend which by implication indicates the increasing importance of the export sector as an engine of growth across the region as a whole.

The general liberalisation of Asia's trading environment has led to a broad diversification of its export base. In addition to this there has been a rapid growth in intra-Asian trade, as exports destined for other Asian nations rose from 26.2 percent in 1985 to 37.3 percent in 2005. The overall general dynamic of this shift has been to diminish the importance of the region's single largest trading partner, the United States, over the twenty-year period from 23.2 percent in 1985 to 17.6 percent in 2005. Japan and the EU-25 now account for 25.8 percent of Asia's total export market, much larger than the US share. But taken together, the G3 economies (the major export destination of global exports, the EU-25, the US and Japan) account for only 43.3 percent of Asia's total exports, down from 53.2 percent in 1985.

Asian Exports by Destination



Source ADB

This diversification of geographic spread implies that the economies of Asia are now slightly better insulated against external demand shock originating from the G3 economies by creating the capacity for mitigating growth in regional non-G3 Asian markets themselves. This said though, most evidence still suggests that demand fluctuations in the G3 economies – especially the US – still play a major role in dictating trade pattern fluctuations in the Asian economies. The chart above illustrates the close relationship between US non-oil imports and Asian growth.

According to data from the Asian Development Bank (ADB), the US accounts for almost 50 percent of the total G3 non-oil imports and there is a strong correlation between non-oil import trends between all three G3 regions. Furthermore, according to analysis of ADB data, whilst the percentage share of Asian exports destined for the G3 has consistently fallen over the period 1980-2008, the correlation between growth in G3 non-oil imports and Asian export growth has in fact risen significantly from a 0.2 decadal average correlation in the 1980s to a 0.8 correlation on average for the first seven years of the twenty first century.

Despite the G3's decreasing share of Asian exports as a whole, the increasing correlation between these two factors is due in large part to the emergence of new dynamic driving inter-Asia trade. Namely, the vertical integration of production processes spread geographically across the Asia region whose final products are destined for countries outside the Asia region. In short, much of the growth in inter-Asia trade has been in intermediate products shipped from one country to another for processing or assembly.

Indeed, analysis based data from the Global Trade Analysis Project database confirms in decomposition more than 70 percent of intra-Asia trade consists of intermediate goods used in the production cycle, and of this half is driven by demand outside the Asia region. Consequently, around 61.3 percent of total Asian exports in terms of finished goods are consumed in G3 countries.

Within Asia, the PRC is the largest driver of regional exports, but its final demand accounts for only 6.4 percent of total Asian trade, just half the contribution from Japan and slightly below a quarter of the US.

The results show that the G3 economies are still the main ultimate export destinations for finished goods leaving Asia, when taking into account the share of intermediate goods trade that is for assembly and production within the region, but that is eventually shipped out of the region.

Based on these data, CEI estimates that of the total volume of finished goods leaving Asian countries as exports, around 20 percent are destined for Asian markets, around 60 percent are absorbed by G3 countries, and the remainder headed for the rest of the world (ROW).

4.2 Freight Movements- Intra-regional

The 1997 financial crisis brought about a radical restructuring of policy and defined key issues with a shift into more concrete sectors of the material economy – such as manufacturing - and away from speculative markets such as real estate as viable long-term sources of capital for development. The basic tenets of macroeconomic development have been reinforced as a result - namely, stability, high savings and investment, expansions in education and training, and a stronger orientation toward exports.

As a result of the renewed focus on export, transport and developments in the flow of freight have seen monumental improvements in the APAC region as a whole. In spite of vast improvements on interconnectivity between nations within the APAC region, several problems still persist, and they are numerous. These bottlenecks include:

- A lack of simplified, standardised and harmonised documentation and procedures
- A lack of transparency in application of procedures
- Differing freight tariffs between nations
- Poor infrastructure and complex paperwork
- Poor freight tracking
- Outright denial of access to foreign vehicles
- An incompatibility of vehicle weights and dimensions, insurance and driver's licensing qualifications
- Operational difficulties from differences in the capacity of vehicles used in cross-border traffic
- Inadequacy of transport and cargo handling and storage facilities both at, and in the vicinity of border regions
- Lack of multimodal transport and logistics services

Even with these impediments to trade, intra-regional freight movements in APAC are growing faster than any region in the world. While the bulk of freight movements are still being conducted by the larger players such as China, Japan and Korea, the regional average growth in freight movement terms stands at 7.2 percent of global trade.

The region does however still need to address intra-regional boundaries as a means of ensuring continued dynamism in regional trade and investment flows. As a means of addressing these issues, the APAC forum has stated that nations should take advantage of complementarities and build on existing strengths in order to achieve more efficient and competitive freight movement rates collectively. Among the regional agreements set into play include, for example, the Greater Mekong Sub-region (GMS) which holds as its mandate, among others, a need to go beyond tariff and non-tariff barriers on freight transport and into trade facilitation measures such as conformity of standards and procedures across borders in the APAC region as well as the GMS.

Another such measure is the China-ASEAN Free Trade Agreement (FTA). In November 2002, the Chinese and ASEAN leaders signed the Framework Agreement on Comprehensive Economic Cooperation between China and ASEAN declaring that a China-ASEAN FTA would be set up in 10 years. The process of establishing the China-ASEAN FTA was thus set in motion.

Starting on January 1, 2004, the two parties began implementing an Early Harvest Plan (EHP), cutting tariffs on more than 500 products, as part of the effort to facilitate the birth of the FTA. At the Eighth China-ASEAN Summit convened on November 29, 2004 in Vientiane, capital of Laos, the two parties signed a package of agreements on trade in goods and dispute settlement, laying down foundations for standardizing tariff cutting and resolving disputes.

The Framework Agreement on Comprehensive Economic Cooperation between China and ASEAN helped advance bilateral trade, with the China-ASEAN trade volume crossing the threshold of USD100bn for the first time in 2004 and hit USD130.37bn in 2005.

Starting from July 20, 2005, China and ASEAN began to cut tariffs on more than 7,000 products, marking the beginning of the phase of substantial tariff reduction between China and ASEAN in the run-up to the establishment of the FTA. Upon full implementation, the China-ASEAN FTA will be the largest FTA in Asia, the most populous FTA in the world.

4.3 Freight Movements- International

By and large, most international or global freight movements from APAC are maritime based and while the fleet sizes of the region as a whole increased by 20 percent in the two decades from 1980 to 2000, handling capacity only increased by 8 percent, thus sparking a shift in focus to developing more berths and increased efficiency in handling methods.

As a result, ports throughout the region continue to add berths and change general cargo berths to container handling ones, which has spawned massive growth in port and terminal development. However, numerous difficulties and inefficiencies remain within the region, witnessed by the fact that international logistics costs for products produced within the Chinese mainland can still escalate as high as 30 percent of total production costs, the bulk of which is accumulated between the point of production and the container terminal gate.

Alternate measures for freight movement have received a lot of attention in recent years, namely by rail. One recent example is the ‘New Silk Road’ or the Eurasian Land Bridge designed to facilitate freight

movement by rail on a line that begins in Lianyungang Port and ends in Rotterdam. In addition to the intra-regional difficulties, previous to recent improvements the time required to send goods over this land bridge was too long to be considered economical.

Recently though, large steps have been taken toward improving the time taken and currently the Lianyungang to Rotterdam line, in earlier tests conducted by Deutsche Bahn (DB), successfully saw a trip from Beijing to Hamburg completed in less than twenty days. In addition, DB estimates that they may be able to reduce the travel to time to as little as 15 days. This would greatly reduce transport time for freight movement compared to conventional shipping methods currently employed, but would remain more costly. It is still cheaper than airfreight, though slower so that the decision as to which mode to choose depends on the nature of the freight itself. It has been proposed that for many agricultural products and small to medium intermediate and finished manufactured goods, rail exists as a viable time and cost effective alternative.

However, taking into account recent estimates by Goldman Sachs predicting the arrival of USD200 a barrel oil in the foreseeable future – especially given the current instability in the Middle East – it is possible that there may be a renaissance of interest in land routes out of Asia. Furthermore, given the current vulnerability of supply chain lines to acts of terrorism, governments may in future feel the need to secure alternate lines of supply in the event that, for instance, one of the major global traffic choke points becomes closed – I.e. the Panama Canal, the Straits of Malacca the Suez Canal etc.

4.4 Modal Split (Road, Air, Sea, Rail)

With mountain ranges like the Himalayas and bodies of water such as the Pacific Ocean separating trading partners in the region, shipping is the natural choice for the majority of regional trade. Major inland waterways such as the Mekong, the Yangtze, and the Pearl River extend waterborne cargo into the hinterland of the Asia.

The rest of inland traffic falls primarily to road and rail. The intermodal business between the two has had ups and downs since the introduction of the double-stack cars into APAC over a decade ago. Shippers have been drawn to rail's natural economies, yet put off by service problems and congestion over the mode and much of the volumes has been shunted to road.

These days, intermodal transport seems poised to turn away from trucking based on inefficiencies in the industry. Pressures on the trucking industry—particularly the issues of fuel, driver availability and road quality—have increased the favourable posture of intermodal rail terminals relative to long-haul trucking over recent years. It appears as though this trend in the APAC region is expected to continue.

The most comprehensive plan for the development of intermodal transport in APAC was laid down in November of 2006 at the Ministerial Conference on Transport held in Busan, South Korea. The Group's efforts are focused on the facilitation of domestic policy regulations, development of intermodal supply chain and secure transport activity, including building the capacity of all economies in the region to help them reach the eventual goal of free and open trade and investment in the APAC region. At the same

time, parallel measures are being undertaken by economies to strengthen security in all transport modes, namely land, sea and air transport.

Most recently, the Ministerial level meetings have focussed on the important role of “dry ports” and their potential to become centres for development. Consequently, there has been an increased focus on intermodal nodes developed at inland locations as centres of growth designed to create economic stimulus by attracting manufacturing, agricultural processing and other associated services.

Member economies of the APEC Forum met in Lima in August of 2008 to promote intelligent and secure transport systems inside the region. The meeting concluded with a plan to strengthen effective intermodal transport by development of technology and intelligent transport systems. It highlighted an interest in satellite navigation systems at the global level with the objective of unifying the international norms of these technologies and, consequently, making its implementation easier. In addition, other approved points included sustainability in intermodal expansion and scalability as well as moves toward energy conservation and environmental protection.

Air garners a significant share of high-value / low-weight and time sensitive freight volumes, with Asian airlines leading the industry in freight tonne-kilometres on both domestic and international routes. This trend that is likely to continue as developing economies begin exploiting cash crops such as cut flowers and more developed nations continue to produce semiconductors and other electronic components. Boeing projects that Asia's freight market will continue lead the world in average annual growth rates and forecasts that domestic Chinese and intra-Asia markets will expand 10.8 percent and 8.6 percent per year respectively.

4.5 Infrastructure

4.5.1 Roads

Road density and access to effective networks remains much lower in most Asian countries compared to European and North American areas with similar settlement patterns. While Singapore, Macau, Hong Kong and Japan have road densities that rank among the highest in the world, other nations in Asia Pacific rank among the lowest. Singapore, with the highest road density in the region has 4,627 km per 1,000 square km Kazakhstan, on the lower end of the spectrum in the region, has but 33 km per 1,000 square km. As low as many of the nations place in these rankings, the region has also seen some of the highest growth rates in road densities. From 1990-2004, Bhutan, Nepal, Vietnam and Lao PDR more than doubled their road density rates.

In addition to road lengths, Asian nations have also seen an estimated USD170bn that have gone into road widening investments. This figure would account for fully one-third of all logistics infrastructure investments made in the region. There have also been large expenditures made into road improvement reflected in the increase in km of paved road throughout the region.

In Asia, there is a great need for further development and expansion of road infrastructure. Both the World Bank and the ADB are actively involved in several projects throughout the region. The ADB

currently is involved in a USD18.7bn project to rebuild and pave the ancient routes of the Silk Road linking Asia to Europe though a series of land routes.

Asian Highway Network

Source:UN

In July of 2005, the Intergovernmental Agreement on the Asian Highway Network came into force. Participation and implementation of the Agreement by member states is supported by institutions such as ADB and the Economic and Social Commission of Asia Pacific (ESCAP). The total number of signatory states on the agreement now stands at 28 of which 20 are full parties to the agreement.

A major requirement of the Agreement is to meet the Asian Highway Classification and Design Standards, which require the upgrading and improvement of 16 percent of the 141,000 km of Asian highway routes. Another agreement stipulates placing Asian highway route signs at access points. Additional funding will be required to meet these standards and in response, ESCAP has continued to promote investment in the Asian Highway Project and has facilitated summits between member countries and potential donors and international financial institutions.

Asia Pacific Road Network (km) - 2007					
	Total Roads (km)	Paved (km)	Unpaved (km)	Motorway (km)	
China	1，930,544	1,575,571	354.973	41.005	
South Korea	102,293	78,581	23.712	3,060	
Japan	1,193,000	942,000	251,000	7,383	
Taiwan	40.262	38.171	2,091	976	
Hong Kong	2.009	2.009	—		
India	3,383,344	1,603,705	1,779,639		
Singapore	3,262	3,262		150	
Indonesia	391,009	216,714	174,295		
Australia	812,972	341,448	471,524		

Source: World Fact Book (CIA)

4.5.2 Rail

As a means of facilitating the movement of goods and people both nationally and internationally, the importance of rail in Asia as a whole has witnessed a growing level of attention in recent years. Several features of Asia as a landmass naturally promote greater utilisation of rail. For instance, Asia has 30 landlocked nations of which twelve are located thousands of kilometres from the nearest port, leaving rail as a the most cost efficient mode for connecting the nations to international markets. Since many of these nations are major producers and exporters of minerals, expanding rail provides a much needed logistic solutions for these land locked nations.

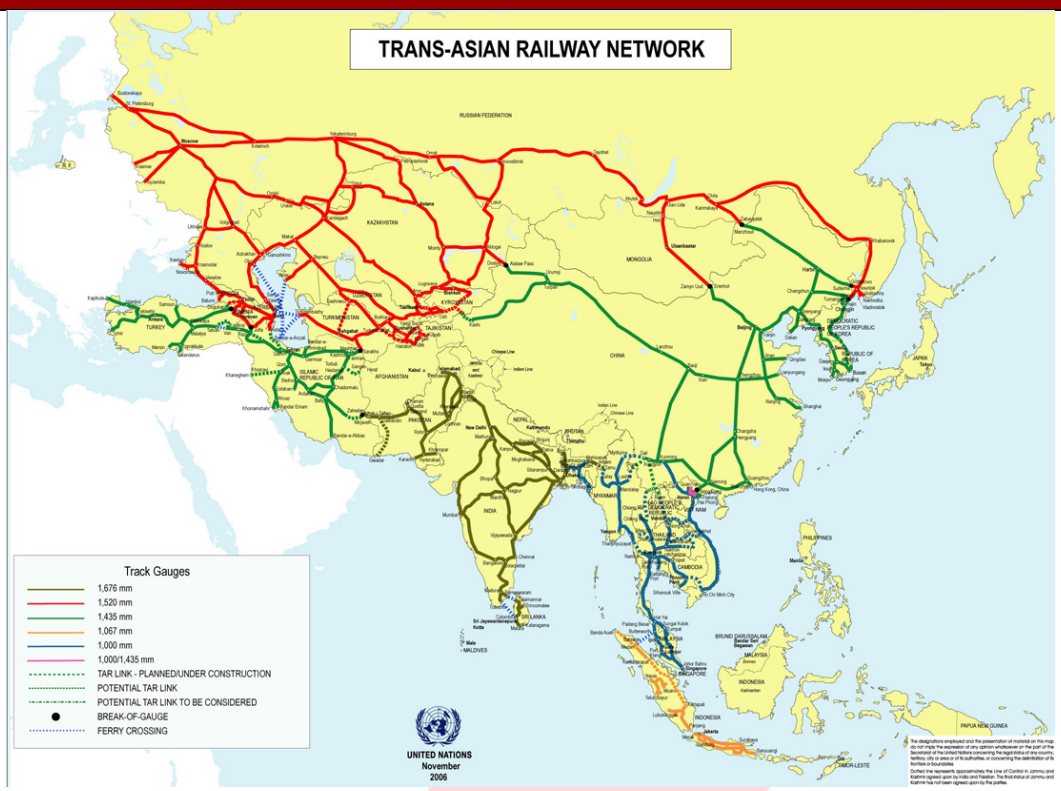
The distances favour economic investments in rail over road both within nations and between them. Globalisation has resulted in intensification of trade facilitating increased intermodal transport and standardisation through containerisation of rail shipments. However, thus far, development of this mode has been unequally distributed with nearly all significant investments into rail on the continent having occurred in China and, to a lesser extent, South Korea.

Given the extent of the territory covered, the differences in gauges and in the levels of technical development between railways in the region, the network can be roughly sub-divided into four sub-networks. These are:

- a north-eastern network that links China, Kazakhstan, Mongolia, the Russian Federation and the Korean Peninsula;
- a south-western network that connects Thailand, Vietnam, Cambodia, the southern Chinese province of Yunnan, Myanmar, Bangladesh, Malaysia, and Singapore. By ferry it also links lines that connect the islands of Sumatra and Java in Indonesia.
- an Indian sub-continent network that links India and Pakistan to Iran.

International events during the 1960s, 1970s and early 1980s saw the shelving of the Intergovernmental Agreement on the Trans-Asian Railway (TAR) Network. However, recent political and economic changes have taken place in the region, and have seen a revival of the development of the TAR as a result.

Asian Rail Network



Source:UN

Signed by 18 member states on 10 November 2006 at the MCT in Busan, the final adoption of resolution 62/4 for the TAR network was set at the 62nd session of the Commission in April 2006 in Jakarta. The United Nations is still actively liaising with member States to encourage them to sign and ratify the Agreement so as to ensure its early entry into force. The TAR Network comprises 81,000km of railway lines selected by 28 countries as vital arteries for the development of their international trade.

With the objective of providing a continuous 14,000 km rail link between Singapore and Istanbul (Turkey), The Trans-Asian Railway (TAR) was initiated in the 1960s. Also under proposal are onward connections to Europe and Africa. By using international transport as a means of expanding trade, encouraging economic growth and facilitating cultural exchange, the links offer the potential to greatly reduce travel time and shorten distances between regions and nations.

The implementation of the TAR project has required a number of factors to be taken in to consideration. First, it has been necessary to identify the major links of international importance. Second, a degree of conformity that exists between various rail systems has been assessed and technical requirements--e.g. loading gauges, axle-load, speed-- compared. Third, the compatibility of operational practices as the lines has been evaluated to determine difference cross-border practices. Fourth, two crucial infrastructure-related elements were considered, namely: the existence of break-of-gauge points along specific linkages with a review of proposed solutions designed to overcome apparent technical incompatibilities; and the existence of 'missing links' that make end-to-end movements on some of the linkages impossible.

In moving towards joint coordination between various financial, operational and commercial actors in the region, institutional and technical bottlenecks will need to be identified and solutions designed and implemented before the sub-networks will function as a cohesive unit. In addition to developing physical compatibility of the rail networks of the project, the information systems that facilitate the movement of cargo along the lines will require standardisation as well.

Additionally, the project has necessitated a review of tariff-related issues and institutional frameworks regarding the passage of goods across borders. In the longer term, authorities along the corridors must be able to act on behalf of their respective railway administrations in areas such as tariff-setting, service-definition, and marketing. While maintaining these administrative roles, many of the region's state run rail authorities will need to grant the private sector the ability to engage in bulk purchasing and sales of cargo space.

Currently, intercontinental rail transport faces a number of obstacles in moving towards efficient operations, but developments have seen steady improvement in recent years.

Asia Pacific Rail Network (km) 2007

	Total Rail	Electrified
China	75.438	20.151
South Korea	3.472	1.342
Japan	23.474	16.626
Taiwan	1.588	
Hong Kong		
India	63.221	17.508
Singapore		
Indonesia	6.458	125
Australia	38.550	4.330

Source: World Fact Book (CIA)

4.5.3 Shipping

During the 1990s, Asia Pacific saw a decline in its share of world total shipping volume. This was almost entirely due to the reduction in the tonnage registered under the flags of Japan and the Russian Federation. Since the turn of the century, the regional fleet has once again increased at about 3.7 percent per annum compared to the world growth rate of 1.2 percent. Already by the end of 2003, the aggregate capacity of vessels registered under the flags of Asia Pacific back to its pre 1990s level of 28 percent of the world total at 169m gross tonnes.

Today, nearly a quarter of the world's bulk carriers and general cargo vessels fly an Asian flag. Of all vessels above 100 GT, twenty-one percent are registered in Asia. The bulk of these registries are sailing out of either Hong Kong or Singapore, with both harbours having registered in excess of 32m GT in 2006. Other major fleets in the region include mainland China at 23m GT, South Korea at 10m, India at 8m and Malaysia at 6m, closely followed by Indonesia at 5m. Viet Nam, whilst still small in relative terms, has seen tremendous growth in recent years in terms of commercial shipping and looks set to continue well into the future.

In terms of gross tonnage, more than 88 percent of new shipping capacity is built at shipyards in the region. China makes up approximately 14 percent of the world total, making it the third largest shipbuilding country in the world after Japan and Korea.

Mainline container ship sizes have increased steadily over the last twenty-five years. From 4,000 TEU in 1991, the size of the largest vessel in operation rose to 6,800 TEU in early 2000 and 9,200 TEU in 2005. At present, the world's largest container ship is the Emma Maersk with a capacity of 11,000 TEU. In October 2006, it called at Hong Kong, Shenzhen and Guangzhou as part of its maiden voyage.

Presently, nearly all vessels in the world fleet over 5,000TEU operate on one of two routes – the trans-Pacific route between Asia and North America and the Asia-Europe route. Also, feeder vessels of up to 2,000 TEU are now common. As a result of the large increases in tonnage and absolute numbers of ships in service in 2006, fleet size expansion relative to cargo transported the industry as a whole saw a decrease in the tonne-miles performed per deadweight tonne of 29.4 percent. But even with this decrease, the world shipping fleet still saw a global surplus tonnage of only 1 percent of world fleet in 2006 (up from 0.7 percent in both 2004 and 2005 but still lower than 2003 rates at 1.2 percent considerably lower than 1990 at 9.7 percent).

The oil tanker fleet owned by APAC countries in January 2004 accounted for 38 percent of the total global capacity – significantly up from 23 percent in 2000. Dry bulk fleet owned by APAC countries reached 60 percent of the global capacity by 2004.

Twelve of the world's top 20 container shipping operators are based in the APAC region, and represent 31 percent of the world cellular capacity.

The trend has been towards carrier alliances on a global basis, where carriers enter into partnerships that covered their operations worldwide or at least on the main East-West routes, rather than on a single trade route. Major carriers have entered into groupings by integrating their service structures with those of their main competitors. Also, there has been a recent resurgence in mergers and acquisition activity

Growth Forecasts For Asia's Maritime Industry				
	Global		Asia Pacific	
	USDbn	CAGR 2006-2010 (percent)	USDbn (percent Global)	CAGR 2006-2010 (percent)
Merchant Shipping	379	6	148 (39 percent)	8
Maritime Engineering	98	4	61 (63 percent)	4
Ports and Terminals	101	5	43 (42 percent)	6
Services	34	6	9 (28 percent)	10
Freight Forwarding	7	6	3 (37 percent)	8
Offshore	136	4	31 (23 percent)	8
Total Maritime	755	5	295 (39 percent)	7
Source Fusion, Hong Kong				

4.5.4 Ports

Asian Pacific ports in recent years have continued to grow at an unprecedented pace, with Yantai, China, leading growth with a 112 percent increase, followed by Yingkou, China, with 59 percent, and Guangzhou, China, with 40 percent. On average, mainland Chinese ports grew by 35 percent in 2006 compared with about 29 percent in 2005. Ports in other developing countries that made double-digit gains include: Jawaharlar up 23 percent, Gwangyang up 22 percent, Ambarli up 21 percent, Incheon and Ho Chi Minh up 19 percent, Dubai 17 up percent, Tanjung Pelepas up 14 percent, Port Klang up 14 percent, Chittagong up 12 percent and Laem Chabang up 11 percent, and Bangkok up 10 percent.

Across the Asia Pacific region there is widespread expectation that this level of growth in port operation and services is likely to continue. At present the Asia Pacific region accounts for 42 percent of the global market value of port operations worldwide and is expected to reach 44 percent or USD54bn by 2010, an overall regional CAGR of 6 percent.

Numerous factors are contributing to the tremendous growth in the port sector. These include the liberalisation of trade, growth of global GDP and the rise of China and India. Between 2000 and 2005 we have the container trade business grew by 10 percent globally; this is expected to continue at least until 2010, far outstripping global GDP growth figures of around 4 percent. In part, this growth has been generated by the general growth of containerisation which is increasingly used for non-traditional containerised products. It is this growth that has attracted a huge amount of interest and investment in the sector over recent years, and has driven the industry toward a far more collaborative, and some would say, monopolistic structure.

Within the market segment, the primary driver of growth in the 21st century has been the rapid emergence of China as a maritime nation. In the future, the primary areas of growth are likely to be China, India, and Korea. By 2011, it is estimated that the Asia Pacific region will handle 206m TEUs of throughput, among which 65m will be transhipment consignments.

Global terminal operators headquartered in Asia include, COSCO Pacific, DP World, Evergreen, Hanjin, Hutchison Port Holdings (HPH), ICTSI, NYK/Ceres and PSA International. Together they have a throughput of over 220m TEUs and about half of the world's total throughput of containers.

Major Ports	
China	Dalian, Fuzhou, Guangzhou, Haikou, Huangpu, Lianyungang, Nanjing, Nantong, Ningbo, Qingdao, Qinhuangdao, Shanghai, Shantou, Shenzhen, Tianjin, Wenzhou, Xiamen, Xingang, Yantai, Zhanjiang
South Korea	Chinhae, Inch'on, Kunsan, Masan, Mokp'o, P'ohang, Busan, Tonghae-hang, Ulsan, Yosu
Japan	Akita, Amagasaki, Chiba, Hachinohe, Hakodate, Higashi-Harima, Himeji, Hiroshima, Kawasaki, Kinuura, Kobe, Kushiro, Mizushima, Moji, Nagoya, Osaka, Sakai, Sakaide, Shimizu, Tokyo, Tomakomai
Taiwan	Chi-lung (Keelung), Hua-lien, Kao-hsiung, Su-ao, T'ai-chung
Hong Kong	Hong Kong
India	Chennai (Madras), Cochin, Jawaharal Nehru, Kandla, Kolkata (Calcutta), Mumbai (Bombay), Vishakhapatnam
Singapore	Singapore
Indonesia	Cilacap, Cirebon, Jakarta, Kupang, Makassar, Palembang, Semarang, Surabaya
Austrailia	Adelaide, Brisbane, Cairns, Darwin, Devonport (Tasmania), Fremantle, Geelong, Hobart (Tasmania), Launceston (Tasmania), Mackay, Melbourne, Sydney, Townsville

Source:World Factbook

Of the Top 100 Container Terminals Worldwide, 45 Are In The Asia Pacific Region			
	Port	2007 throughput in TEU	percent change over previous year
1	Singapore	27,900,000	12.50
2	Shanghai	26,152,000	20.50
3	Hong Kong	23,998,000	1.90
4	Shenzhen	21,099,000	14.20
5	Busan	13,260,477	10.10
6	Kaohsiung	10,256,829	4.90
7	Qingdao	9,462,000	22.90
8	Ningbo-Zhoushan	9,430,000	33.40
9	Guangzhou	9,260,000	40.30
10	Port Klang	7,118,714	12.50
11	Tianjin	7,103,000	19.40
12	Tanjung Pelepas	5,470,000	14.60
13	Laem Chabang	4,848,478	15.00
14	Xiamen	4,627,000	15.70
15	Jawaharlal Nehru	4,060,000	23.10
16	Jakarta	3,900,000	17.50
17	Dalian	3,813,000	18.70
18	Tokyo	3,720,682	0.60
19	Yokohama	3,428,112	7.10
20	Ho Chi Minh	3,200,000	23.10
21	Nagoya	2,896,221	5.30
22	Manila	2,800,000	6.10
23	Salalah	2,639,000	10.40
24	Kobe	2,472,808	2.50
25	Osaka	2,309,820	3.50
26	Keelung	2,215,482	4.10
27	Melbourne	2,188,610	9.50
28	Shajah	2,173,867	8
29	Surabaya	2,109,677	13.40
30	Lianyungang	2,003,000	54.10
31	Suzhou	1,900,000	53.20
32	Gwangyang	1,723,000	-1.90
33	Sydney	1,696,282	10.90
34	Incheon	1,663,800	20.80
35	Bangkok	1,558,511	7.40
36	Yingkou	1,371,000	35.70
37	Zhongshan	1,270,000	8.20
38	Yantai	1,250,000	19
39	Taichung	1,247,750	4.10
40	Fuzhou	1,202,000	19
41	Nanjing	1,060,000	32.20

42	Chennai	1,052,993	27
43	Callao	1,022,246	0
44	Quanzhou	1,020,000	21.60
45	Johor	927,288	5.30

Source: Cargo Systems

4.5.5 Inland Waterway Transport

Although used less now than historically, inland waterway navigation can still be a relatively effective and cheap means of transportation depending on the waterway. While advances in inland waterway systems in Asia Pacific, particularly in China and the Mekong basin, have made headway, as a mode of transport, it is limited in the following aspects:

- road transport is already much more developed and requires a relatively lower investment threshold on the part of the logistics providers to enter the market
- rail transport in many aspects is more advanced
- inland navigation never works alone, pre- and post haulage is needed, but due to the logistics problems of internal loading/unloading and the administrative work related to this, it is often not cost-effective enough for logistics service providers
- inland waterways are often difficult to navigate due to shallows

Despite these limitations, there has been a push to develop inland waterway transport in Southeast Asia. Using the Europe as example, nations such as Vietnam are working to create integrated inland waterway systems to promote economic activity in the hinterland.

Different river tributaries are being connected to create what some have referred to a "water highway" for economic prosperity. The hope is to link up rivers such as the Mekong in Vietnam, the Rajang in Malaysia, the Chao Phraya in Thailand, and the Mahakam in Indonesia to create a large network of water based highways for cargo movement and passenger transport. While these rivers already carry substantial "back roads" traffic, upgrading them to a "highway" will likely prove difficult. Rivers such as the Mekong are relatively shallow and would require massive dredging to achieve substantial cargo movements.

India's prospects are somewhat brighter. The country has an extensive river system with over 14,000 km of navigable waterways, out of which 5,700 km are navigable by motorized craft. The Indian government estimated that development of the water way would prove 5 to 10 percent cheaper than the equivalent cost of developing similar length express highways or rail lines. Though the country is working to develop these channels with help from the ADB, it still lacks sufficient infrastructure. Furthermore, though companies in the sector turn a profit, others such as The Central Inland Waterway Transport Corporation (CIWTC), India’s largest IWW operator have been losing money year after year and rely on government support to continue operating.

China similarly has potential, but faces obstacles. The major of inland water ways in China consist of four rivers and one canal that carry 80percent of all IWW traffic. The Yangtze River system is by far the largest IWW.

Significant under-funding in the sector has caused infrastructure and floating equipment to deteriorate badly and reduced the net size of navigable network. The lack of a multipurpose infrastructure development approach or coordination between the ministries has contributed to the rapid decline. Moreover, many hydropower and irrigation projects have left some stretches of rivers unnavigable.

This said though, there are concerted efforts, primarily on the part of the Chinese government, to utilise this under used resource. As an integral part of the Chinese government efforts to open the interior to investment, massive investments are currently being made to open the upper reaches of the Yangtze River and develop the handling capacity of the inland ports along its shores. A project which some have dubbed 'China's third coast'. Over the next 20 years, though, a comprehensive river transport system that links the sea and all major rivers in the western region will be developed. The Yangtze River will be the main regional navigation channel. With completion of the Three Gorges Dam Project, vessels of up to 10,000 tons will be able to sail directly from Shanghai to Chongqing.

4.5.6 Air Transport and Airports

The APAC region has been the leading global air freight growth sector in recent years and now accounts for 35 percent of the world's freight and mail shipments by air (in terms of tonne-km performed). Freight carried, in terms of ton-km, is expected to increase at a rate of 6.4 percent annually up to 2015, compared to 5.5 percent for the world.

Since 1994 there have been major airport projects at Guangzhou; Hong Kong; Kuala Lumpur; Nagoya; Osaka; Seoul and Shanghai and more recently Bangkok and Beijing. These developments in new airport construction as well as major terminal expansions on existing airports such as that at Singapore, has brought considerable airport congestion relief at these major Asia Pacific hubs. Combined investments in these and other new mega-airports in the APAC region has accounted for more than USD 50bn. New airports are being constructed at Bangalore and Hyderabad in India. Development plans are to continue the on these new facilities, to upgrade existing hub airports and to construct completely new airports requiring at least another USD20bn funding by 2010.

More than half the national airlines in the Asia Pacific region continue to be state-owned to varying extents. Full government control over airlines still exits among the Pacific islands and in South and South-East Asia. The government of Malaysia recently raised its shareholdings and took majority ownership of their national carriers to avoid their imminent collapse. In 2004, 40 government-owned carriers around the world were reported to be in various stages of preparation for partial or full privatization. Airlines in Australia, Japan, Hong Kong, and South Korea are privately owned. Many countries are steadily

liberalising foreign ownership regulations, some rather radically, and ten Asia-Pacific carriers have shares in foreign airlines.

The global commitment to greater liberalisation of air transport services was reaffirmed at ICAO's Fifth Worldwide Conference on Air Transport in Montreal in March 2003. As a result, nations and carriers are relaxing the provisions of the 4,000 bilateral air services agreements in existence today. Of the 100 open skies agreements concluded from 1992 to 2004, 34 involve at least one Asia Pacific nation. Of these, 11 were between an Asia Pacific region and the United States and 12 were between nations from within the region.

Since 1995, there has been a dramatic increase in interest in regional or sub-regional initiatives to liberalise among groups of countries. Of the dozen new initiatives, many are being actively implemented in the Asia Pacific region resulting in new technological developments and new route structures introduced. Since 2001, these have had positive effects in terms of increasing traffic flow and enhancing safety provisions in the very busy routes over the South China Sea and between Pacific Rim countries and Southeast Asian airports. Long-range versions of new aircraft have resulted in airlines developing direct services connecting a far greater number of cities than was previously possible.

APAC Regional Composition of Airport Facilities				
Country	Total Airports	Airports With Paved Runways	Airports With Paved Runways	Paved Runways
China	467	403	64	over 3,047 m: 58; 2,438 to 3,047 m: 128; 1,524 to 2,437 m: 130; 914 to 1,523 m: 20; under 914 m: 67 (2007)
South Korea	105	68	37	over 3,047 m: 3; 2,438 to 3,047 m: 21; 1,524 to 2,437 m: 14; 914 to 1,523 m: 11; under 914 m: 19
Japan	176	145	31	over 3,047 m: 7; 2,438 to 3,047 m: 41; 1,524 to 2,437 m: 40; 914 to 1,523 m: 28; under 914 m: 29
Taiwan	41	38	3	over 3,047 m: 8; 2,438 to 3,047 m: 9; 1,524 to 2,437 m: 11; 914 to 1,523 m: 7; under 914 m: 3
Hong Kong	2	2		over 3,047 m: 1; 1,524 to 2,437 m: 1 (2007)
India	346	250	96	over 3,047 m: 1; 2,438 to 3,047 m: 52; 1,524 to 2,437 m: 75; 914 to 1,523 m: 84; under 914 m: 21 (2007)
Singapore	8	8		over 3,047 m: 2; 2,438 to 3,047 m: 1; 1,524 to 2,437 m: 4; 914 to 1,523 m: 1
Indonesia	652	158	494	over 3,047 m: 4; 2,438 to 3,047 m: 15; 1,524 to 2,437 m: 51; 914 to 1,523 m: 49; under 914 m: 39 (2007)
Australia	461	317	144	over 3,047 m: 11; 2,438 to 3,047 m: 12; 1,524 to 2,437 m: 138; 914 to 1,523 m: 143; under 914 m: 13
Source: ESCAP				

4.5.7 Multimodal Transport

Recent years have seen an increased demand for intermodal transport that integrates different transport modes, i.e., rail, roads, sea, and air. As national economies become increasingly interconnected,

advanced logistics systems have had a significant effect on the competitiveness of enterprises. The development of intermodal systems play a key role in permitting the most appropriate mode for different stages of the journey, combining the ability of sea and inland water transport to move large quantities of freight over greater and more complex distances with the line haul efficiency of rail transport and the last-mile flexibility of road operations.

Countries within the Asia Pacific region have varying levels of intermodal infrastructure and face different geophysical and institutional challenges in upgrading existing infrastructure or in the creation of new intermodal terminals. Promoting the use of these systems is an additional challenge for a region that has become accustomed to more traditional methods of transport. The APAC countries are at differing stages in devising solutions for removing inefficiencies and competition between companies operating different modes. The respective governments and industry groups, however, recognize the benefits attained by establishing intermodal freight systems that can deliver improved economic performance.

Issues which continue to offset the development and use of multimodal systems within the region include substandard infrastructure (e.g., poor rail and road access to ports); poor coordination of loading and unloading activities; different rail gauges (resulting in costly and time intensive methods of moving freight from one rail gauge to another); lack of land available in proximity to major ports, poorly planned intersections between highway and rail routes; conflicting customs and immigration procedures. Furthermore, in many of the nations there has been a general lack of coordination on institutional levels, creating bottlenecks, delays, and that prevent freight movement from one nation to another.

The establishment of investment environments in intermodal transport infrastructure to support effective multimodal transport operations have been made China, India, and Thailand, setting positive benchmarks for what can be done in the realm of inland container depots (ICDs). For example, the ICD facility at Lard Krabang in Thailand shows the effectiveness of policy implementation, combined with financial incentives in new infrastructure implementation. Also vital are improved interfaces at seaports and a range of initiatives in (among other places) Australia; Hong Kong, China; Japan; Malaysia and South Korea.

4.6 Asia Pacific Distribution Strategies

4.6.1 Distribution Centres

The European ‘freight village’ concept takes the concept of the clustering related logistics activities to a new level. Within the Asia Pacific region there are well-established logistics centres and distribution parks that share many features with the European model. Many ports of the APAC region have shifted, or are shifting, their emphasis from traditional cargo-handling services to value-added logistics services as a means of remaining competitive in the regional and international markets.

"Logistics centre" and "distripark" are widely used and oft times interchangeably. Both provide value added services necessary facilitate transport activity in addition to providing the necessary infrastructure

lay-outs. Logistics centres in Asia Pacific are generally large-scale, advanced, value-added centres that focus on consolidation and deconsolidation of containerised goods for distribution.

The government of Singapore is credited with having initiated the concept of the first logistic centre in the 1980s when it embarked on a campaign to develop the city-state into a transhipment hub for products originating in South East Asia (specifically Malaysia, Indonesia, Thailand, and Singapore itself). Beyond developing the concept itself, the government of Singapore initiated a range of incentive schemes including tax exemptions to actively encourage multinationals and international logistics service providers to set up shop in Singapore by establishing their regional or global distribution centres there.

Logistic centres are typically located close to container terminals and multimodal transport facilities so that transport between the facilities is quick and inexpensive. In addition to these benefits, customers are often able to choose among intermodal transport options with the possibility of further reducing delivery time and costs. Logistic centres are often located in Free Trade Zones.

Common features of Logistic centres within the Asia Pacific often include:

- implementation of value added services
- on-site customs clearance service facilities
- facilities for distribution operations
- located close to cargo terminals so that empty containers are easily and cheaply taken back into the system
- located close to various inland transport facilities

Selected Logistics Centres and Free Trade Zones in the APAC Region	
Singapore	**Keppel Distripark** Keppel Distripark (KD) is a cargo distribution complex that provides extensive warehousing facilities. It is connected to PSA's container terminals via a flyway that allows cargo to be speedily delivered to and from the port. It is located on a 23-hectare site along Singapore's Southern Seafront. There are 41 warehousing modules in KD totalling 113,000 square metres, including four blocks of storage space, a five-storey office block, and open storage yards. KD has a 14 metre-high ceiling to support high rack automated storage and retrieval systems. The distripark provides not only conventional warehousing services such as storage and regional redistribution of cargo, but also value-added services such as bar-coding, online tracking, fumigation, sampling, surveying, topping-up of cargo, quality assurance and control, pick-and-pack, and repackaging-and-re-labeling of goods to be carried out, without the requirement for customs formalities. It is home for many major shipping lines, international freight forwarders, and domestic IT firms.
	Pasir Panjang Distripark Pasir Panjang Distripark, located next to the main conventional terminal and new container terminal, comprises nine single-storey warehouses, and has a total warehouse area of 144,000 square metres. Its single-storey warehouse offers tenants exclusivity in operations. It is ideal for those dealing in odd-size cargo or cargo with a very fast turnover. The warehouse is supported with an ample open storage yard for heavy machinery storage and heavy lift operations. Also located in the distripark is the three-storey Pasir Panjang Districentre, which is specially designed for high value goods that require good security, clean environment and facilities for a quick turnover. The distripark provides some 250,000 square metres of warehousing and office space.
Hong Kong	**ATL Logistics Centre Hong Kong Ltd. – Logistics Centre** Logistics Centre is the world's first and largest intelligent multi-storey drive-in cargo logistics centre designed for fast turnaround of cargo. Conveniently located in the heart of Kwai Chung Container Terminals and within near reach of Hong Kong's commercial and population centres, airport, as well as the Mainland border, the Centre offers warehouse and leasing as well as a full range of cargo handling, a container freight station (CFS) and distribution services. ATL Logistics Centre is comprised of 7 floors at Centre A and 13 floors at Centre B providing over 9.3m square feet total floor area and over 6million square feet leasable area to CFS, Logistics, Air-freight and all kind of business operators under one single roof. It has a 3 lane ramp (2 lanes up and I lane down) for vehicular access and its traffic throughput averages 8,000vehicles a day.

Malaysia	**North Port – Port Klang** Established in 1993 as Malaysia's pioneer distribution centre within the Free Commercial Zone (FCZ) of Port Klang. Currently it offers a wide range of services, which include warehousing, pre-shipment activities such as documentation, internal haulage, packing and relabeling, minor assembly and other value-added activities to complement the core business activities at Northport. Contents of containers are stored here, processed if necessary and then distributed further. The centre has a total land area of 296,594.11m2 and a covered warehouse area of 44,296.17m2
South Korea	**Masan and Iksan Export Processing Zones** were established as Export Processing Zones with special incentives such as preferential tariffs and taxes to attract foreign direct investment for promoting export, employment and technology transfer. In 2000, the name of Export Processing Zone was changed to Free Trade Zone (FTZ). In January 2002, Busan and Gwangyang ports were designated as Customs Free Zones. In January 2003, Incheon Port and Incheon International Airport were also designated as Customs Free Zones to promote the international logistic industry. There were differences between Free Trade Zone (former Free Export Zone) and Customs Free Zones at first. Free Trade Zone was a manufacturing oriented special zone while Customs Free Zone was a logistics related zone where manufacturing was not allowed. However, in 2003 the two concepts were integrated with the establishment of a law named 'FTZ Act.' Under the 'FTZ Act', the areas able to be designated as FTZ may be industrial complexes, adjacent hinterlands of airports and seaports, distribution complexes and freight terminals. Currently the Republic of Korea has placed a great amount of effort into developing FTZs by exploring various policies such as simple regulations, strengthening marketing strategies and improving administrative efficiencies and by developing large logistics land areas around ports. For example, the FTZ at Incheon Port has a land area of 2,167,000 m2 with a planned expansion area of 117,000 m2.
Singapore	**FTZs in Singapore** were first established in 1 September 1969. Their aim was to facilitate inter-port trade in dutiable goods. Presently, Singapore has seven FTZs, six for seaborne cargo and one for air cargo. A wide range of facilities and services are provided for storage and re-export of dutiable and controlled goods. Goods may be stored within the zones without any customs documentation until they are released in the market. They can also be processed and re-exported with minimum customs formalities. However, the FTZs in Singapore are primarily for transhipment cargoes. The FTZs are located at the Port of Singapore, Jurong Port, Sembawang Wharves, Pasir Panjang Wharves and Changi Airport. The FTZ offer 72 hour free storage for import/export of conventional and containerised cargo and 14day free storage for transhipment/re-export cargo.

China	**Shanghai Waigaoqiao FTZ** Approved by the State Council in 1990 the Shanghai Waigaoqiao Free Trade Zone is one of China's earliest and largest free-trade zones. The free-trade zone encourages investment in international trading, export processing, distribution, cargo forwarding and commodity exhibition. The Waigaoqiao FTZ is at the north-east corner of the city and is next to the Waigaoqiao Container Port at the estuary of Yangtze River. It lies at the intersection of China's eastern coastline and the golden waterway. It is around 20 km from Pudong International Airport. The FTZ can also be accessed from city downtown through a dedicated road system. Overall capital investment in the zone has reached USD4.63bn. The zone currently accommodates 3,582 enterprises producing an annual output of around CNY 6.32bn. The planned area of the zone is around 10 square kilometres and is divided into four areas. Besides the division of the port area, the other three areas are managed and developed by three different entities. They are: 1) Shanghai Waigaoqiao Free Trade Zone United Development Co., Ltd. managing and developing around 4 square kilometres; 2) Shanghai Waigaoqiao Free Trade Zone 3-United Development Co., Ltd. managing and developing around 3square kilometres; and 3) Shanghai Waigaoqiao Free Trade Zone Xin Development Co., Ltd. managing and developing around 3 square metres. All three companies are within the same group named Shanghai Waigaoqiao Free Trade Zone (Group) Co., Ltd.
Source: China Development Zone Association	

4.6.2 Issues in Regional Distribution

Over the past two decades, the global contract logistics sector has been at the vanguard of many changes experienced in the logistics industry. Aside from the traditional outsourcing of warehousing and distribution services, manufacturers and retailers are increasingly outsourcing more diverse value added logistics functions. This trend has become increasingly important in Asia Pacific. A typical strategy has also been using client bases outside the APAC region as leverage to lure new clientele and keep existing ones loyal.

Opportunities abound for logistics companies for widening the range and breadth of outsourced services that can be provided and is a trend expected to accelerate growth of the contract logistics market further into the future.

The industry continues to experience pressures from a variety of sources including congested infrastructure, rising fuel prices, labour shortages and environmental protection laws.

A 2006 study published by the Supply Chain Management Review involving a survey of CEOs of major contract logistics providers and freight forwarders serving the APAC region identified some of the issues that are broadly experienced as challenges for collaboration in the Asia Pacific market. Of the eleven CEOs interviewed, nine acknowledged greater efforts in customer management as a strategy for

facilitating growth. This has been accomplished by establishing higher levels of collaboration with their customers.

Greater collaboration between manufacturers and retailers and the logistics service providers seems to be the solution to responding to ever increasing demands from logistics service users. Collaboration involves the cooperation of manufacturers, retailers, and their suppliers and logistics providers - parties that have not always acted cohesively in the past. Typically, collaboration has been reliant on a number of factors.

- intimate knowledge of customer business, anticipating their requirements and acting upon them in such a way as to function as an extension of the customer's business.
- a need for standard operational culture, processes, and measurements
- IT integration to reduce costs and improve services by enabling an information-driven supply chain through the development of global visibility and knowledge management services
- Industry specific solutions by geography within the APAC region
- Establishment of dedicated account management teams with points of contact at national, regional and global levels

CEOs in the survey claimed a difficulty in reaching top management within the client's organisation and when contact was possible, achieving the 'face time' required to establish the relationship with the individual in question was difficult. Other problems cited included constant shifts in management personnel that required constant updating and a lack of continuity in relationships. Additionally, many of the retail and manufacturing clients had extremely complex organisational structures that made collaboration difficult and required several points of contact between the service providers and the client.

4.6.3 Contract Logistics Market Size and Forecasts

In line with global trends, businesses in the APAC region continue to increase their focus on operational efficiency and profitability by outsourcing more and more of their logistics operations to 3PL providers. Progressively larger shares of enterprise expenditures on logistics are going from in-house to outside 3PL operations. This results in larger market opportunity for global logistics service providers, and organised 3PL providers are therefore expected to increase their market penetration as customers look for supply chain integration through one-stop integrated logistics service providers, and hence are more likely to use a major 3PL. The industry will thus continue to see further consolidation as players aspire to serve all of their clients' needs.

Globally, the contract logistics market is highly fragmented as shown by the fact that the industry's top twelve providers are account for only about one-sixth of total revenues. As larger providers have distinct advantages in terms of their network capacity, smaller logistics providers are being forced to rely on larger players with broader shipping and carrying resources to better meet customer demands.

The APAC region is expected to account for 20 percent of 3PL revenues by 2010. As the industry on a global scale is expected to see only single figure growth between now and 2010, the largest growth is expected to occur in Asia Pacific though in absolute terms, the EU will continue to see the largest levels of expenditures in the industry globally. Customers are looking for supply chain integration through one-stop integrated logistics service providers, and hence are more likely to use a major 3PL. The industry will thus continue to see further consolidation as players aspire to serve all of their clients' needs.

Emerging markets are expected to drive global GDP growth to about 4 percent per year over the next five years and this should also increase expenditures on logistics. This is good news for the Asia Pacific markets especially when taken with the fact that the region's emerging markets are benefiting from the eastward shift in manufacturing.

However, the cost pressures are likely to continue in the form of increasing fuel prices, infrastructure congestion, labour shortages and environment protection laws. Only players that can efficiently provide multimodal services across various geographies and varied supply and demand are expected to turn over the highest revenues.

In the aforementioned survey of CEOs of APAC logistics providers, the industries that were seen to provide the greatest growth in the region included those in high technology sectors, automotive, consumer goods and retailing and pharmaceutical and health care sectors. Regionally, China and India are expected to see the largest growth but other nations in the region may see larger growth as well as other governments try to stimulate greater growth in general.

The most important industry dynamics mentioned are expected to be the ongoing downward pressure on pricing. Also anticipated are the large mergers of smaller 3PL providers as a result of the increasing pressure to internationalise services offered. Opportunities related to the a lack of reliable ground level transport facilities in the region are also existent and are likely to be capitalised on by larger foreign providers being able to extend their networks through working with locally based providers and possible mergers and acquisitions.

4.6.4 Freight Forwarding Market Size and Forecasts

Unlike the deeply fragmented 3PL industry, sea based freight forwarding is strongly consolidated with the top ten freight forwarders taking up to nearly half of the revenues for the industry as a whole.

With more economies moving towards globalization and product life cycles increasingly getting shorter, air cargo becomes more important in the global supply chain. This is especially true in the Asia Pacific region where it is projected to have the biggest share of airfreight traffic in the next decade.

The integrators such as UPS, DHL, FedEx, etc, have a simpler process flow since there are fewer players involved in the process. As the integrator may own aircraft, the problem of space availability is less of an issue. Moreover, the integrator often uses the unit load device (ULD) to store its cargo and therefore does not spend much time to palletize the cargo. This practice speeds up the process although a higher cost may be incurred due to the rigidity of the ULD.

Information flow for the integrator is very efficient compared to the traditional air cargo information flow. Currently, much of the shared information within the traditional air cargo industry is transferred from one document to another or from one independent in-house system to another independent in-house system manually so that developments in integrated IT systems are an area for growth in the freight forwarding market.

Generally, airlines offer cargo space in two stages. Freight forwarders are invited to bid for required space or 'allotments' over the next season during the first stage. The remaining space, termed 'ad-hoc space', is open for booking in the second stage, within a few weeks before the flight departs.

Identified issues in the air cargo industry have been and continue to be:

- difficulties in improving accurate space booking on airlines
- spot pricing and revenue management
- shipment re-accommodation
- shipment tracking
- manpower shortages
- pallet circulation and imbalance
- airport terminal space limitation
- operation efficiency using ASRS (Automated Storage/Retrieval System)
- cargo damages and terminal environment
- air cargo close-out time
- paperwork and duplication
- information accuracy

Further problems in freight forwarding fall into three major areas:

- Airport terminal operations.
- Booking and yield management.
- Air cargo network analysis.

Problems in these areas include developing new methodologies or new processes that will help to increase the productivity and operations efficiency of the air cargo systems. Limits to growth are likely to increase over the coming years due to rising fuel, labour and environmental costs.

5 Australia

Humans first settled on Australia over forty thousand years ago and lived by hunter gatherer subsistence until the arrival of the first Europeans in the 18th Century. When James Cook arrived in 1770, he made the first formal claims of the land southeast of Asia in the name of the King of Great Britain. During the 18th to 19th centuries, six colonies were established and these colonies were confederated into the Commonwealth of Australia in 1901.

Rich in resources and with enormous agricultural potentials that were exploited by a prison population, with the advent of the industrial revolution manufacturing took hold on the continent and were major contributors to Britain's efforts during both World Wars. Since the end of the Second World War, the US has replaced Britain as Australia's main military ally. A mass immigration programme that started in 1947 resulted in sweeping demographic, cultural and social change—and stronger ties with Asian neighbours. Since then, Australia has become an internationally competitive, advanced market economy. Economic reforms of the 1980s culminated in the former colony becoming one of the world's fastest growing economies during the 1990s. Climate change, depleting atmospheric protection in the form of the ozone layer, conservation efforts of the continents unique natural environment, and chronic water shortages are long-term concerns for Australia.

The Commonwealth of Australia is a democratic federal state within the Commonwealth of Nations. As a result of a recent referendum on whether to retain the monarchy's role in Australia or to become a republic, formal executive powers are still vested in the governor-general, the representative of Queen Elizabeth II in Australia. The legislature consists of a federal parliament with its 76-member Senate (upper house) and a 150-member House of Representatives (lower house). Elections are held at maximum intervals of three years, when one-half of the senators (who serve six-year terms) and all the representatives are elected by compulsory ballot. Each of the six states in the federation has its own government, with a governor and a bicameral legislature, apart from Queensland, which has a unicameral legislature.

In recent years, issues that have dominated Australian politics include its labour market and taxation reform. Foreign relations and defence are being accorded a high priority, and various free-trade agreements are being pursued with Australia and China having recently reopened negations on freer trade terms (a move initiated by a more China friendly government elected earlier in 2008). Of greater importance to regional development include reform of the public health system; higher-education and welfare systems; and a voluntary public pension contribution scheme

5.1 Economy and Trade

Australia has a strong economy with a per capita GDP comparable to any of the dominant West European economies. Its economy is strongly reliant on the export of raw materials, mining and agricultural products have resulted in strong business and a high level of consumer confidence. Australia has attained a solid level of growth over the last sixteen years through an emphasis on reforms, low inflation, a

housing market boom, and growing ties with China. Growth has been constrained by drought, high demand for imports, and a strong currency have pushed the trade deficit up in recent years, while infrastructure bottlenecks and a tight labour market are constraining growth in export volumes and stoking inflation. Australia's budget has been in surplus since 2002 due to strong revenue growth.

However, high levels of taxation are an issue in Australia. A 30 percent corporate tax rate applies to both retained earnings and to dividends. Credits for corporation tax already paid on dividends are granted to shareholders. Personal income tax is progressive, with the top marginal rate of earners over AUD150,000 experiencing a 45percent tax levied on their earnings. In addition, the federal government also collects a 1.5percent taxation of personal taxable income tat are allocated toward the countries healthcare system.

Export revenues grew to USD169.9bn in 2007 (IMF data, balance-of-payments basis); but was not enough to offset growth in goods imports, which rose to a total of USD191.3bn, greatly widening the trade deficit to USD21.4bn, from USD12.7bn in 2006

Key Economic Indicators 2007	
Population (m):	20.4
GDP (USD bn; market exchange rate):	908.5
GDP (USD bn; PPP):	759.9
GDP per head (USD; market exchange rate):	44.455
GDP per head (USD; PPP):	37,184
Real GDP growth:	3.3
Inflation:	2.7
Exchange Rate:	1.20 (b)
Source: Economist	

Geographical Facts	
Land area (sq km):	7,617,930 sq km
Water area (sq km):	68,920 sq km
Total area (sq km):	7,686,850 sq km
Source: World Factbook	

Major Exports percent 2007	
Metalliferous ores/metal scrap	21.1
Coal, coke and briquettes	12.4
Non-ferrous metals	8.1
Petroleum/petroleum products	6.7
Source: Economist	

Major Imports percent 2007	
Road vehicles	12.9
Petroleum/Petroleum products	12.5
Telecommunications equipment	5.4
Industrial machinery	5.3
Source: Economist	

Exports Partners percent 2007	
Japan	18.7
China	14.3
South Korea	7.9
India	5.8
US	5.2
Source: Economist	

Import Partners percent	
China	15.6
US	14
Japan	9.9
Singapore	6.6
Germany	5.6
Source: Economist	

5.2 Transport Infrastructure

Transport Data	
Total Road Length (km)	812,972 km
Motorways (km)	paved: 341,448 km
Railways (km)	
Total	38,550 km
Airports	
Total	461
Sea Ports	
Total	11
Source: World Factbook	

5.2.1 Road Network

Australia is a vast land with little population, especially in the arid interior of the nation. However, roads of varying quality exist and need to be maintained at exonerated costs in order to keep otherwise isolated parts of the country inside the transport network. The costs of maintaining its vast network usually falls on the Australian taxpayer as roads are generally funded and owned by the government sector, although construction is almost universally contracted out to private companies.

Several factors have been identified as relevant to road administrations in terms of enhancing organisational effectiveness and decreasing maintenance costs. For example, Australia hopes to be able to reduce the cost of maintaining its vast road network by 40 percent through contracting out its maintenance works to the public sector. The private sector's role in road ownership is also growing with a growing number of new road systems being privately owned and operated. Intra-state highways were previously owned and operated by state governments (with costs being covered by state revenue), but many of these operations have become privatised since the 1990s. With a road network growth of only 0.05 percent, Australia stands last in the ranking of APAC nations in terms of growth of its road network.

5.2.2 Rail Network

Developments in rail systems were an early strategy used in Australia for purposes of developing the interior and providing a cost effective way of getting unexploited resources from the interior to ports and harbours along the coast.

A locomotive fleet of over 1,000 railcars are dedicated to the transport of minerals, most of which operate in remote, sparsely populated areas, and unlike roads, the construction, operation and maintenance thereof has long been privately funded. The interior of Australia features large tracts of 'missing links' of rails that do not connect directly to the national network and additionally, Australia suffers from a domestic discontinuity of track gauges.

5.2.3 Airports

Australia's airports are many and vary greatly in terms of runway quality and frequency of flights. With larger centres such as Sydney and Melbourne boasting some of the most modern facilities in the world, 'bush' destinations in many areas in the interior have clay runways and are equipped to only handle the occasional single propeller plane with infrequent take-offs and arrivals. Australia's airlines, including its flag line, Qantas, are privately owned and in recent years budget airlines have captured a major share of the traffic in Australia, a trend that is receiving active support from governments and airport operators.

5.2.4 Sea Ports

Reform of Australia's ports has until recently been slow in spite of major concerns brought about by Australia's natural lack of physical infrastructure at ports creating problems for the country to handle freight volumes, containers and its raw material exports. Bottlenecks in some major ports, particularly those serving the rapidly expanding coal mining industry were further hampered by a lack of investment in new infrastructure. At times, decisions by competition regulators contributed to the lack of investment. These infrastructure crunches have led in recent years to massive shipping backlogs at raw material export points like Newcastle.

For example, Prime Infrastructure, the owner of Dalrymple Bay Coal Terminal in Queensland was reluctant to expand capacity, stating that the coal loading price caps (a decision by the Queensland Competition Authority (QCA)) made further investment in the port economically unfeasible. QCA

eventually reversed its decision in April 2005, after coming under intense fire from the Queensland state government, the Productivity Commission and Prime Infrastructure. The reversal of the decision granted Prime the right to charge higher fees and cleared the way for a three-stage expansion of Dalrymple Bay. The first stage of the expansion will lift capacity from 59m tonnes/year (t/y) to 68m t/y cost approximately AUD530m, was close to completion in early 2008. The QCA approved the second and third stages of the expansion in October 2006, at a cost of UAD639m. When this stage sees completion by the end of 2008 it will take capacity to 85m t/y.

5.3 Australian Logistics Market

5.3.1 Overview

As a consequence of the country's substantial landmass, its scattered population and the large distances to export markets, transport plays a vital role in the Australian economy. Development in transport and developments in the logistics market are now firmly based on integration with the Asia Pacific community and Australia was one of the key players in formation of the Asia Pacific Economic Cooperation (APEC) forum and established the first international container service was introduced on India-Australia corridor in September 1978. These moves have actually been better news for Australia's APAC trading partners than for Australia itself as Australian logistics industry revenues are predicted to decline to an average of 12 percent, while average revenues generated in India will more than double to 13 percent by 2008. The balance, 24 percent of the revenues, will originate in other APAC countries.

Australia has recently engaged in a major program toward increased intermodal transport methods to move freight interstate and internationally. Several State Governments have set targets for moving freight to rail (typically 30 to 40 percent of port-related container movements). In pursuit of these targets, the States, in conjunction with the Australian Federal Government's new 'Auslink' funding programme and the private sector, have fostered a significant amount of investment into intermodal facilities. As a result, Australia has an advanced intermodal framework of planning and infrastructure. All of this equates to what has been forecasted as steady but slow growth in the Australian logistics market.

Australia Logistics Performance Index*		
Overall LPI	score	3.79
	rank	17
	conf	0,09
Customs	score	3.58
	rank	17
	conf	0,22
Infrastructure	score	3.65
	rank	20
	conf	0,28
International shipments	score	3.72
	rank	12
	conf	0.22
Logistics competence	score	3.76
	rank	19
	conf	0.22
Tracking & tracing	score	3.97
	rank	12
	conf	0.21
Domestic logistics costs	score	2.8
	rank	97
	conf	0,33
Timeliness	score	4.1
	rank	20
	conf	0.24
Source: World Bank		

5.3.2 Distribution Clusters

Australia's Parkes facility is located about 365 km west of the city of Sydney and 170 km south of Dubbo. Owned and operated by FCL, the facility is located at what is called the 'crossroads of Australia' where the Newell Highway, linking Brisbane and Melbourne, intersects with the Sydney to Perth

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

transcontinental railway. Unlike many logistic centres internationally, services for the Parkes logistics centre focus mainly on the domestic intermodal market moving freight all around Australia.

With 1,000,000 m2 of land, of which 15,000 m2 (1.5 percent) is paved hardstand, the facility includes a covered container storage area of 5,000 m2. The park can accommodate a maximum train length of 600 m. The average daily handling capacity of the facility sees a single train and 30 trucks for processing. From 2004-2005, the total annual rail throughput was nearly 20,000 TEU. Total annual containerised throughput by road was 800 TEU and 70,000 tonnes of non-containerised cargo for the same period. With containerised cargo expected to double and a rise in non-containerised anticipated at around 50 percent over the next five years, growth expectations for the terminal are high.

Additionally, total non-containerised cargo throughput during these aforementioned periods is estimated at 75,000 and 100,000 tonnes within the next five years. FCL owns a significant area of land around its present facility, which has been earmarked for future factory and warehouse developments to handle the increase in throughput. Other investments focus on raising height clearances, upgrading communications systems, and strengthening and upgrading bridges to improve efficiency and capacity.

There are a number of elements driving the expected expansion of throughput to this facility. The main signal of growth comes from AUD21m to be invested by the Australian Rail Track Corporation (ARTC) for linking Parkes and Broken Hill through the Main Western Line, the main trade route of the Sydney to Adelaide corridor.

5.3.3 Logistics Market Size and Growth

Australia's logistics market is large but relatively stagnant. As prices for Australia's export goods are expected to rise with higher commodity prices from the rest of APAC, this situation is likely to be a change for the better.

With demands of customers becoming much more complex, and increasingly looking for 'whole supply chain partners', both the Federal Government and a number of state governments in Australia have begun to actively promote private investment in transport infrastructure through the introduction of policies, principles or guidelines, and the establishment of specific units typically attached to treasury and finance ministries with roles that typically include:

- Development and overseeing the policy framework;
- Assessment of projects for private participation; and
- Providing support to agencies embarking on a bid process.

As an example of the trend supported by these government initiatives to promote streamlining and development in logistics markets to facilitate growth, Australia Post, in 2005, put forward a successful bid to acquire third party logistics provider J R Haulage, trading as State Warehousing & Distribution Services (SWADS). This acquisition established effective business-to-business capability for Australia Post and added an important component to its rapidly developing logistics business. It also complemented its logistics capability extending in and out of Australia to destinations in APAC, particularly China.

The emphasis of strengthening links to the emerging markets is a reflection of Australian logistics market's hopes of being able to benefit through the closer relationship to APAC and growth in the region as a whole as a means of accelerating growth in the logistics market locally.

The positive drive for cost-effective and reliable alternative supply chain solutions, including IT developments, spell a reasonable amount of potential growth for the market that has, for the most part lagged behind its neighbours in the APAC region. Future growth in this market is likely to be fuelled in large part by the demands for raw material and agricultural product in the emerging economies.

6 China

China is the largest country in East Asia, spanning over 5000km across the East Asian landmass and sharing borders with 14 other countries. China is separated from Mongolia and Russia's Siberia in the north by the Gobi desert and the Manchurian forest steppes. In the south, subtropical forests act as the boundary between China and Vietnam, Laos, and Myanmar. Its neighbour, India, lies beyond the Himalayan and the Tianshan mountain ranges in the west. China's 14,500km long coastline gives it access to the East and South China Seas, Bohai Bay and the Yellow Sea.

For centuries China stood as a leading civilisation, outpacing the rest of the world in the arts and sciences, but in the 19th and early 20th centuries the country was beset by civil unrest, major famines, military defeats, and foreign occupation. In the wake of World War II, the Communists under Mao Zedong established an autocratic socialist system that, while ensuring China's sovereignty, imposed rigid controls over everyday life and implemented disastrous economic policies that have been blamed for devastating the lives of tens of millions of people. After 1978, his successor Deng Xiaoping and other leaders focused on market-oriented economic development and by 2000 output had quadrupled.

Now, China is a single-party socialist republic, with Beijing as its capital city. There are twenty-three provinces, five autonomous regions, four municipalities and two special administrative regions. The population has grown to over 1.3bn people, making up one fifth of the world's total, the single most populous country in the world. For much of this population, living standards and personal freedom have improved radically; however, political control remains tight.

Geographical Facts	
Land area (sq km):	9,326,410
Water area (sq km):	270,550
Total area (sq km):	9,596,960
Source: World Factbook / Economist	

6.1 Economy and Trade

After more than a quarter century of reform and opening to the outside world, by 2005 China's economy had become the second largest in the world after the United States when measured on a purchasing power parity (PPP) basis. The government has a goal of quadrupling the gross domestic product (GDP) by 2020 and more than doubling the per capita GDP. Central planning has been curtailed, and widespread market economy mechanisms and a reduced government role have prevailed since 1978. The government fosters a dual economic structure that has evolved from a socialist, centrally planned economy to a socialist market economic system, or a 'market economy with socialist characteristics.'

Despite successes, China's leaders face a variety of challenges to the nation's future economic development. They have to maintain a high growth rate, deal effectively with the rural workforce,

improve the financial system, and continue to reform the state-owned enterprises, foster the productive private sector, establish a social security system, improve scientific and educational development, promote better international cooperation, and change the role of the government in the economic system. A failure to meet these challenges may cause widespread political discontent. Despite constraints the international market has placed on China, it nevertheless became the world's third largest trading nation in 2004 after the United States and Germany.

The Fifth Plenum of the Sixteenth CCP Central Committee took place in October 2005. The Fifth Plenum approved the new Eleventh Five-Year Plan (2006–10), which emphasises a shift from extensive to intensive growth in order to meet demands for improved economic returns; the conservation of resources to include a 20-percent reduction in energy consumption by 2010; and an effort to raise profitability. Better coordination of urban and rural development and of development between nearby regions also is emphasized in the new plan.

China's GDP grew 11.4 percent year-on-year to CNY24.6619 trillion (USD3.43 trillion) in 2007. China's PPP was estimated for 2005 at nearly USD8.9 trillion. PPP per capita in 2005 was estimated at USD6,800.

China's annual rate of inflation averaged 6 percent per year during the 1990–2002 period. Although consumer prices declined by 0.8 percent in 2002, they increased by 1.2 percent in 2003. China's estimated inflation rate in 2005 was 1.8 percent. Despite having been attributed with almost singled-handily holding global wage rates and inflation in check for most of the last ten years, in 2008 China experienced its highest rate of inflation for 11 years, reaching 7.9 percent in the first half of this year leading many speculators to conclude that China may indeed become a leading exporter of inflation in coming years.

According to China's National Bureau of Statistics, the world's fourth biggest economy expanded by 10.4 percent in the first half and 10.1 percent in the second quarter, down from the 11.9 percent recorded for 2007. According to the General Administration of Customs one of the primary causes for this unexpected downturn is the slowing of trade growth with the United States - particularly as the fall out from the super credit bubble begins to land.

On the production side of the equation, contributing to this overall decline in trade growth are factors ranging from the appreciating Yuan, rising fuel, food, land, and wage prices. According to Chinese government statistics, the industries most heavily impacted by the current slowdown in trade growth have been the textile, garment, shoe, toy-making and electronic component sectors particularly in the southern industrial workhorse region of Guangdong.

Since being unpegged from the US dollar in 2005 the Yuan has appreciated almost 20 percent against the dollar making Chinese textile products more expensive, eroding China's price advantage against products from Vietnam and India.

Understanding China's Economic Indicators

Key Economic Indicators 2007	
Population (m):	1,321.3
GDP (USD trillion; market exchange rate):	3.43
GDP (USD bn; PPP):	7,238.0
GDP per head (USD; market exchange rate):	2,453
GDP per head (USD; PPP):	5,478
Real GDP growth:	9.8
Inflation:	6.5
Exchange Rate:	6.93
Source: The Economist/China Daily	

Major Exports percent 2007	
Electrical Machinery	22
Coal, coke and briquettes	12.4
Non-ferrous metals	8.1
Petroleum/petroleum products	6.7
Source: Economist	

Major Imports percent 2007	
Road vehicles	12.9
Petroleum/Petroleum products	12.5
Telecommunications equipment	5.4
Industrial machinery	5.3
Source: Economist	

Exports Partners percent 2007	
Japan	18.7
China	14.3
South Korea	7.9
India	5.8
US	5.2
Source: Economist	

Import Partners percent	
China	15.6
US	14
Japan	9.9
Singapore	6.6
Germany	5.6
Source: Economist	

6.2 Transport Infrastructure

The incredible rate at which the Chinese economy has been able to grow has been slowed considerably by recent transport and communication deficiencies. The cost of goods lost to 'poor or obsolete transport infrastructure' amounted to one percent of China's GDP according to World Bank statistics' most recent survey. Logistics costs account for 20 percent of a product's price in China, compared to 10 percent in the United States, and 5percent in countries that are even better developed".

Since the establishment of the People's Republic under Mao Zedong in 1949, China has experienced rapid development in transport and infrastructure. Spurred by double digit growth rates over the past two decades, foreign logistics providers have been extremely quick to capitalise on the recent market liberalisations in the transport sector. Local and international investment in roads, railway and airport construction has provided huge employment opportunities in China, and has contributed to the 31 percent of China's labour force employed in related services.

China's transport infrastructure, however, is not evenly distributed, with large divides in development varying by geography. Many rural areas still rely on non-mechanized means of transport.

Ports are being improved for greater use of China's inland waterways, and airports are being improved across the country. Under a plan unveiled in early 2008, the government intends to spend over USD19bn on airport construction and renovation over the next five years – a figure in excess of total airport investment between the founding of the People's Republic, 1949, and 2007. Related industries such as

construction equipment, engineering, container security, and electronics and safety devices have also grown rapidly.

Transport Data	
Total Road Length (km)	1,930,544
Motorways (km)	41,005
Railways (km)	
Total	75,438
Airports	
Total	467
Sea Ports	
Total	2000+
Source: CIA	

6.2.1 Road Network

While improved, China's vast road network remains the subject of enormous investment attention from both the Chinese government and various international institutions. Their first priority remains the improvement of the national highway system, and a plan linking each provincial capital with Beijing and Shanghai was completed by the end of 2008.

A priority for the Chinese government is the development in highways. At present, the nation's highway density has reached 19.5km/100sq km, possible due to CNY350bn of investment into highway construction.

In 2005 China had a total road network of more than 3.3m km, although approximately 1.47m km of this network is classified as "village roads". Paved roads totalled 770,265 km in 2004; the remainder were gravel, improved earth standard, or merely earth tracks.

Road usage increased in the middle of this decade as a result of the better infrastructure and accessibility to vehicles and fuel. China now depends hugely on its highways and motor vehicles for the transport of 13.5percent of its cargo, and 49.1percent of its passengers.

Foreign investment has also been used to combat issues associated with traffic congestion and pollution. In 2004, USD4.25bn was invested in Beijing's infrastructure and another USD22bn were invested before the 2008 Olympics to improve Beijing's traffic congestion issues.

Some 270,000 km of rural highways are to be built and upgraded by the end of 2008. By comparison, 423,000 km of countryside highways were built or upgraded in 2007, a record high. According to China's Transport Ministry, as of the end of 2007, 98.54 percent of villages and towns had already been connected by highways.

6.2.2 Rail Network

The Chinese rail network extends into every province-- excepting Hainan-- along a 52,000km track. It carries approximately 24 percent of the world's railway transport volume, being the third largest in the

world. China's railways carried 1.36bn passengers in 2007, up 8 percent over the previous year's figure, but the country's booming economy means demand will be even greater this year. In addition, more than 3bn tonnes of cargo were transported by rail, an increase of 8.6 percent, according to Railway Ministry. Only India had more passengers/km and the United States more net ton/km than China

The Chinese national rail system is operated on an austere budget due to its limited capital and overburdened infrastructure. From the year 2003, the ministry of railways allowed foreign capital investment in the freight sector, followed by international public stock offerings which were introduced in 2006. China Railways Container Transport Company, China Railways Parcel Express Company, and China Railway Special Cargo Service Company were established in 2003 as three public shareholder-owned companies in another bid to reform and better capitalize the rail system. China Railway High-Speed is the main operator of high-speed rail, controlling 8 percent of China's 76,000km rail track since 2007.

Whilst foreign investment has been permitted for several years now, foreign capital has been slow to invest, given Beijing's inability to embrace full marketisation of freight rates, as subsidised rates have created a dependency culture among state-owned enterprises.

China is the final destination of the proposed New Silk Road or Eurasian Continental Land Bridge project that was launched in 1992. In China the project involves the modernization and infrastructure development of a 4,131-kilometer-long railroad route starting in Lianyungang, Jiangsu Province, and travelling through central and north-western China to Urumqi, Xinjiang Uygur Autonomous Region, to the Alataw Pass into Kazakhstan. From that point, the railroad links to some 6,800 kilometres of routes ending in Rotterdam. China also has established rail links between seaports and interior export-processing zones. In 2004 Chengdu in Sichuan Province was linked to the Shenzhen Special Economic Zone in coastal Guangdong; exports clear customs in Chengdu and are shipped twice daily by rail to the seaport at Shenzhen for fast delivery.

6.2.3 Airports

Since 1978 China has spent over USD15bn developing airports and air traffic control facilities. It has built over 50 airports and renovated or expanded more than 80 others while air passenger volumes have increased almost 50 fold over the same period. In 2007 China had 467 airports. Of these, Beijing Capital International Airport (PEK), located 27 km northeast of central Beijing, has the greatest flow of passengers annually.

In terms of development, China plans to spend more on airport development over the next five years than it has since the start of the open door policy in 1978. According to China's Ministry of Communications, almost USD20bn will be spent by 2013.

The Civil Aviation Administration of China (CACC) predict by 2010, there will be 186 domestic cargo airports, including three large scale comprehensive hub airports, seven large hub airports, 24 medium-sized hub airports, 28 medium-sized airports, and 124 smaller scale regional airports. Expansion projects at Beijing, Shanghai, and Guangzhou were intended to meet the needs of Beijing Olympic Games,

Shanghai World Expo and the Guangzhou Asian Games and the general development demand of the market

China's airfreight sector is currently constrained by inadequate infrastructure. According to Boeing's World Air Cargo Forecast forecasts from 2006 to 2021, the annual growth of the domestic air cargo market in China is likely to average out at around 10.3 percent, making it the fastest growing major market in the world, with much higher growth rates for services catering to high-value products such as electronics and pharmaceuticals. China is currently the second-largest domestic airfreight market in the world after the United States. According to Boeing's report, this market has grown at more than 20 percent annually since 1991.

In 2006, China's total air cargo throughput reached 7.532m tonnes, an increase of 19 percent over the previous year, of which domestic routes accounted for 5.042m tonnes (including a throughput volume of 466,000 tonnes from the mainland to Hong Kong and Macao); and international routes accounted for a total of 2.49m tonnes, a year-on-year increase of 23.6percent. According to the latest estimates from the Ministry of Communications, total air cargo volume from January to November 2007 reached 3.59m tonnes.

6.2.4 Sea Ports

With over 2,000 ports, 130 of which are open to foreign ships, China's major ports, including river ports accessible by ocean-going ships, are Beihai, Dalian, Dangdong, Fuzhou, Guangzhou, Haikou, Hankou, Huangpu, Jiujiang, Lianyungang, Nanjing, Nantong, Ningbo, Qingdao, Qinhuangdao, Rizhao, Sanya, Shanghai, Shantou, Shenzhen, Tianjin, Weihai, Wenzhou, Xiamen, Xingang, Yangzhou, Yantai, and Zhanjiang.

Shanghai Port, China's largest in terms of TEU throughput, registered a total TEU throughput for 2007: 26,152,000 TEU, up 20.4 percent from the 21,710,000 TEU attained in 2006

In 2007, Shanghai Port recorded a container throughput of 26.15m TEU, exceeding Hong Kong for the first time, making the port the world's number two container terminal in handling terms after Singapore. On March 18th at TOC Asia, Shanghai, SIPG revealed that Yangshan had been operational for 362 days and had already handled more than 10m TEU.

At the end of 2007, Shanghai's Yangshan deep-water port completed construction of Phase 3 adding four new berths to the facility. Shanghai is pinning its hopes on the new facility to allow it to overtake Singapore in the near future, moving the port into first place before 2010 - the year Shanghai is set to hold the International Expo.

According to port authorities, full utilisation of Yangshan facility is estimated to add 15 percent to throughput capacity, taking the port to 30m TEU once full capacity is reached. In addition to this, the company still has CNY4.5bn of further investment in facilities and improvements scheduled over the next few years.

Shenzhen, China's second largest port by TEU throughput, registered a total TEU throughput for 2007: 21,099,000 TEU, up 14.2percent on 18,469,000 TEU in 2006.

In December 2007, Shenzhen Da Chan Bay Phase 1, berths four and five became operational, with berths 1, 2 and 3 scheduled for completion before the end of the year.

According to details of the Da Chan Bay plan, the project will entail construction of fifteen 6,000 TEU container berths, seven 2,000 TEU container berths and several barge berths, with a total investment of around CNY 25bn. The whole project is divided into four phases and will take about 15 years to complete. The project is expected to add 10m TEU of capacity to Shenzhen Port upon completion.

However, despite the overall growth, Shenzhen Communications Bureau recently pointed out that throughput handling at the port had been hit by the current economic climate in the US, saying that growth of cargo and container throughput in 2008 was significantly down over previous years.

Between January and March of 2008, Shenzhen Port container throughput grew by the relatively small figure of 4.92 m TEU, an increase of 8.5percent over the same period the previous year. The government officer went on to point out that Yantian Container Terminal had been especially hard hit as 45 percent of the terminal's business was focused on North American routes.

In spite of what the government see as a temporary slowdown, it is still predicted that by the year 2010, Shenzhen Port's total container throughput will reach 26m TEU, and the number of container berths will increase to 48 from the current figure of 27. Under current plans, by 2020, Shenzhen Port container throughput will reach 38m TEU, with container berths totalling 67.

In stark contrast to China’s efficient, modern container terminals, China’s dry bulk ports have suffered from a dearth of investment in recent years. Ever growing demand and a dearth of adequate investment in commodity handling infrastructure have led to a logistics logjam that has pushed up both global shipping rates and commodity prices. The current shortage of port infrastructure is further compounded by a shortage of connecting rail infrastructure in hinterland regions.

To remedy this situation Beijing has extensive plans to invest heavily in China’s dry bulk port sector. Tianjin port intends to invest by 2010 CNY27.3bn (USD3.4bn) in 30 major ongoing construction projects, raising Tianjin's commodity handling capacity of 300mn tonnes over the same period. These 30 major projects include completion this year of a 200,000dwt vessel lane raising the status of the port to the 200,000dwt level and speeding up of the southern port area's deep water, large scale crude oil, ore, and coal berth. By the end of this year construction of the large scale coal wharf will be completed and by the end of 2007 a 250,000dwt, large scale, crude oil berth, along with a large scale, dry bulk handling birth will also come on-line.

6.3 China Logistics Market

6.3.1 Overview

If China is to maintain its phenomenal level of growth, it must curb its logistics costs which are currently up to three times the level of those in developed countries. In 2003, China's logistics market exceeded CNY60bn (about USD7.3bn), increasing at an annual rate of 30 percent.

The logistics market has been growing rapidly since the 1990s. At present the cost of transporting goods from factory to retailer, amounts to 20-30 percent of the price of the sold product.

China's special logistics businesses consist mainly of four types of enterprises: traditional transport and warehouse enterprises, Sino-foreign, foreign-capital and private logistics enterprises and those affiliated to large-scale manufacturers, such as Haier, which enjoys booming refrigerator market share worldwide.

A key direction for the industry now, is to develop a professional logistics industry, which adapts to the changing needs of the Chinese society, in a planned and orderly way. This will involve the breakdown of regional barriers and industry limits as well as the retooling of logistics enterprises' assets. The reform of warehouse and wholesale enterprises will be carried out simultaneously.

At present there are 730,000 logistics enterprises in operation, helping to generate over CNY2 trillion (USD242bn) into the value of China's logistics and related markets.

China Logistics Performance Index*		
Overall LPI	score	3.32
	rank	30
	conf	0.04
Customs	score	2.99
	rank	35
	conf	0.09
Infrastructure	score	3.2
	rank	30
	conf	0.09
International shipments	score	3.31
	rank	28
	conf	0.09
Logistics competence	score	3.4
	rank	27
	conf	0.09
Tracking & tracing	score	3.37
	rank	31
	conf	0.1
Domestic logistics costs	score	2.97
	rank	72
	conf	0.08
Timeliness	score	3.68
	rank	36
	conf	0.09
Source: World Bank		

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they

6.3.2 Distribution Clusters

Most of China's third party logistics providers (3PL) are clustered in the three main economic regions; Beijing/Tianjin, the Yangtze River Delta (Shanghai area) and the Pearl River Delta (southeast)

It appears that new logistics centres are to be located in areas separate from the logistics zones near the ports. Outside of the main economic centres, the logistics sector tends to be of low quality, highly inefficient and with little technological competence.

6.3.3 Logistics Market Size and Growth

In 2003, China's logistics industry realized CNY788bn of added value, up 10.5 percent over that of the previous year and 1.4 and 3.8 percentage points higher than growth rates of gross domestic product and the service industry in the same period. The International Monetary Fund predicted that the market share of the logistics industry in China will rise to CNY1 trillion in value by 2010, compared with the CNY461.8bn in 1999.

operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

7 Hong Kong

Hong Kong, a special administrative region (SAR) of China, consists of a cluster of islands surrounding a peninsula abutting south-eastern Guangdong Province. The United Kingdom occupied the territory in 1841 and established Hong Kong as a full colony the following year. Further expansions into Kowloon and elsewhere followed, and in 1898 Britain consolidated its control over Hong Kong by signing a 99-year treaty allowing for sovereignty of the New Territories. Aside from Japanese occupation during the Second World War, Britain governed Hong Kong consistently until 1997, when during a planned transfer the colony became a Special Administrative Region of China's. Under the policy "one country, two systems" Hong Kong retains jurisdiction over its economic, media, and judicial systems while Beijing controls defence and foreign affairs.

In the years following Britain's agreement to hand Hong Kong back to China, the territory has struggled to consolidate its political structure. Chris Patten, the last British-appointed governor of the colony, attempted to widen suffrage and implement more direct elections, but these reforms were vetoed by the Chinese government who established the Provisional Legislative Council in 1996. Since then, Hong Kong's Chief Executives have been chosen by a combination of direct election and a 400-member political committee. There have been periodic demonstrations in support of wider democratic reforms in ensuing years, though most observers believe that Hong Kong's current electoral system will remain unchanged through the 2012 Chief Executive elections. Donald Tsang currently rules Hong Kong, having replaced Tung Chee-Hwa in 2005 when the latter resigned under pressure from Chinese President Hu Jintao.

Despite such political changes, Hong Kong has maintained its status as an economic success story and one of Asia's most prosperous regions, and China's leaders have thus far been content to keep the Hong Kong engine running on full since the handover.

7.1 Economy and Trade

Hong Kong has a free market economy highly dependent on international trade. The service sector accounts for 92 percent of GDP, among the highest proportions in the world. The region long had a vibrant manufacturing sector but in the years following China's economic opening, much industry has crossed the border into Guangdong Province. Hong Kong also depends on its neighbour for the bulk of its food imports, as the region's agricultural output is best described as negligible.

Under British administration, Hong Kong became one of the world's most liberal economies, imposing low taxes and lightly regulating business. In general, government adopted a laissez-faire approach to all economic matters excepting housing, education, and health care. Under Chinese administration, Hong Kong has not significantly altered its relationship between state and economy, as the region's Basic Law restricts government intervention to a great extent.

One consequence of Hong Kong's low-regulatory policy has been a disconcerting lack of competition in many major areas, including food retail and land development. The government has pledged to take

measures to increase the region's competitive atmosphere but thus far little has changed. Hong Kong will, however, occasionally intervene in the stock market, most notably in 1998 due to concerns about the fixed link between the Hong Kong and US dollar.

Hong Kong's government derives a significant portion of its revenue from property sales, corporate taxes, and salary taxes. Tourism- in particular from mainland travellers- offset economic difficulties caused by the SARS crisis in the early part of the decade.

The Chinese mainland is, by far, Hong Kong's largest trading partner; it accounted for nearly half of all imports and exports in 2007. The 2003 signing of the Close Economic Partnership Agreement (CEPA) with the mainland further cemented trade ties between the two countries, removing tariffs on more than 200 categories of goods. Benefits from the agreement though were muted somewhat by China's 2005 accession into the World Trade Organisation (WTO). Hong Kong's liberal economic structure and paucity of tariffs have long made it an important trading partner for countries throughout the world, as its lack of natural resources and small population have made the region dependent on trade for its economic prosperity.

Key Economic Indicators 2007	
Population (m):	7
GDP (USD bn; market exchange rate):	206.7(b)
GDP (USD bn; PPP):	292.7
GDP per head (USD; market exchange rate):	29,612
GDP per head (USD; PPP):	41,935
Real GDP growth:	6.4
Inflation:	0.4
Exchange Rate:	7.801(b)
Source: Economist	

Geographical Facts	
Land area (sq km):	1,042 sq km
Water area (sq km):	50 sq km
Total area (sq km):	1,092 sq km
Source: World Factbook	

Major Exports percent 2007	
Textile	26.2
Apparel	13.5
Consumer electronics	12.2
Machinery	10.2
Chemicals&chemical products	9.8
Source: Economist	

Major Imports percent	
Raw materials&semi-manufactures	36.9
Capital goods	22.6
Consumer goods	20.6
Fuels	11.5
Foodstuffs	8.3
Source: Economist	

Exports Partners percent	
China	48.7
US	13.7
Japan	4.5
Germany	3.0
UK	2.8
Source: Economist	

Import Partners percent	
China	46.3
Japan	10.0
Taiwan	7.2
Singapore	6.7
US	4.8
Source: Economist	

7.2 Transport Infrastructure

Transport Data	
Total Road Length (km)	2,009 km
Motorways (km)	2,009 km (2007)
Railways (km)	
Total	N/A
Airports	
Total	1
Sea Ports	
Total	
Source: Economist	

7.2.1 Road Network

Hong Kong is covered by just over 2,000km of roads, of which more than 1,800 are highways. In 2004, the region reorganised its highways into nine major routes in an effort to smooth transport efforts. Due to Hong Kong's varied terrain, the government has invested in a series of tunnels and bridges connecting outlying areas with the main population centres of Kowloon and Hong Kong Island. The Tsing Ma bridge system between Lantau Island (site of Hong Kong's international airport) and Kowloon has reduced transport times despite a heavy amount of traffic.

Due to the territory's dense population, a greater percentage of Hong Kong residents use public transport than anywhere else in the world. Nonetheless, vehicle density remains high. In 2006, there were 552,960 registered vehicles in the region, a figure the government has tried to manage by discouraging private transport through high registration taxes and frequent inspections.

Road links to the mainland have become increasingly important in recent years, given the high volume of trade between the two entities. In an effort to ameliorate slow border crossings between Hong Kong and Guangdong Province, the city government in 2007 launched the new Shenzhen to Hong Kong Western Corridor, a route that accommodate as many as 60,000 vehicles a day.

7.2.2 Rail Network

For much of its history, Hong Kong's rail network was controlled by two corporations; the Mass Transit Railway (MTR) focused mainly on underground municipal rail transit while the Kowloon-Canton Railway (KCR) handled transport between Hong Kong and the mainland, as well as train links to more remote parts of the SAR. In December 2007, these two services merged into the Hong Kong Railway Corporation in an effort to promote economies of scale and cost effectiveness.

Given the close economic relationship between Hong Kong and China, the former government has placed great emphasis on linking the SAR to the mainland rail network. Hong Kong has proposed the construction of an Express Rail Link (ELR) service connecting the SAR to the south Chinese cities of

Shenzhen and Guangzhou. If completed, the ELR would greatly reduce travel times and thus logistics costs, allowing the railway to become a more viable part of Hong Kong's logistics infrastructure.

7.2.3 Airports

Hong Kong inaugurated its new airport at Chek Lap Kok on Lantau Island in 1998, and in ensuing years the airport has generally been regarded as one of the best in the world. In 2007, Chek Lap Kok handled nearly 48 million passengers, making it the 12th busiest airport in the world and 3rd busiest in Asia after Beijing and Tokyo. In terms of cargo traffic, Hong Kong last year ranked as the second busiest airport in the world after Memphis (USA), processing 3.7m metric tonnes of cargo in 2007. It is the primary hub for Cathay Pacific, DragonAir, Hong Kong Express Airways, Hong Kong Airlines, and Air Hong Kong.

Initially built with one runway, Chek Lap Kok constructed its second one year after opening. Plans to build a third runway have been stymied by logistical difficulties; construction costs would be inordinately high due to the need to build on reclaimed land. In addition, airspace restrictions on flights to and from the mainland have led to more than ideal levels of congestion on these routes. Discussions with the Chinese military to relax these restrictions have yet to reach fruition.

From 1925 to 1998, Hong Kong was serviced by Kowloon's Kai Tak airport. Limited capacity and logistical difficulties--mainly related to its geographical location-- prompted the decision to build Chek Lap Kok.

7.2.4 Sea Ports

The Port of Hong Kong, long among the busiest ports in the world, has earned a reputation for efficient service; the turnabout time for containers is a mere ten hours. In recent years, though, Hong Kong's port has had to fend off competition from mainland competitors who benefit from cheaper operating costs. Nonetheless, its cargo traffic continues to grow in volume; at 23.8m TEU in 2007, trailing only Singapore and Shanghai. Neighbouring Shenzhen ranks fourth globally at just over 21m TEU.

More than half of Hong Kong's port activity occurs in Kwai Chung and Tsing Yi Container Terminals, a grouping of nine terminals covering a total area of 2.7 square kilometres. These terminals have a handling capacity exceeding 18m TEU, and provide 24 berths with over 8,500 metres of frontage. In addition to these activities, the port of Hong Kong encompasses the River Trade Terminal at Tuen Mun, that involves the consolidation and transhipment of goods between Hong Kong and ports in the nearby Pearl River Delta (PRD).

Hong Kong, recently dethroned from its long standing position as China's number one port by the rise and rise of Shanghai, is not taking the slight lying down. In an effort to bolster Hong Kong's position, the special administrative region has earmarked vast sums of money on improving logistics infrastructure as well as cooperation with South China provinces and Macao on over 237 projects at a cost of CNY1.6 trillion (USD200bn).

These projects include the recently completed Western Corridor – a bridge linking Shenzhen and Hong Kong Island -, the Guangzhou-Shenzhen-Hong Kong express rail link, and the Hong Kong-Zhuhai- Macao Bridge. All of which are designed to further integrate Hong Kong into the wider PRD region thereby

increasing the demand for cargo handling capacity. With this in mind, John Tsang's February budget announcement seems to have put Hong Kong's proposed Container Terminal 10 (CT10) – already delayed for ten years - very firmly back on the table.

But really the major question for Hong Kong is not really whether it can add additional capacity in the shape of CT10, but whether it can fill said expansion. In this respect many observers are quietly confident. Indeed, a substantial portion of the PRD's export cargo continues to flow through Hong Kong, with the SAR offering services that many mainland competitors are unable to, such as multimodal connectivity and advanced services like container bundling, packaging and multi-country cargo consolidation. As a multimodal hub Hong Kong remains unrivalled by anyone else in the PRD.

In addition to this, the local government's ongoing firm commitment to the maritime sector is likely to mean Hong Kong will continue to fight to protect its market share with the introduction of competitive tax incentives and preferential policies to draw cargo back from mainland upstarts. But whether that is enough to compete against the increasing quality of services offered across the border remains to be seen.

Tsang went on to point out that whilst south-west Tsing Yi was most likely the preferred location, north-west Lantau was still potentially on the cards. However, many analysts have long believed that the plan to locate the facilities on Lantau in the first place was never really viable, and was more likely a political move on behalf of vested interests on the island.

The prospects for the Lantau site are further hampered by environmental considerations. New building would require extensive land reclamation and dredging, which would very devastate the local preserved habitat of dolphins and horse shoe crabs. Tsang's speech indicated Tsing Yi does seem to be the favoured location, and he said that the site it could 'achieve synergy' with the container terminals in Kwai Chung and Tsing Yi. However, the Tsing Yi plan has obstacles of its own, and any development would have to take account of the fact that at present the site is already occupied by oil terminals.

However, given the enormous support that the Hong Kong government provides for the shipping industry, it is perhaps not inconceivable that Hong Kong could claw back some of the business lost in previous years to its competitors across the water.

The primary focus of expansion in Hong Kong is aimed at tackling the transhipment market, but in terms of import and export cargo it is simply a less competitive choice in terms of transport costs. This said however, Hong Kong is, and will most likely remain a very successful port and very important port for global shipping.

In some ways the overall future of Hong Kong is premised on a number of factors, not least of which is that if mainland ports were to loosen their cabotage restrictions, they may very well be able to compete with Hong Kong on a level playing field.

The possibility that mainland PRD ports, collectively with a potential for vast capacity, could enter the market for international transhipment cargo, must cast more serious doubt over the viability of CT10.

7.3 Hong Kong Logistics Market

7.3.1 Overview

Hong Kong's logistics market is defined by the SAR's close economic relationship with mainland China, specifically the nearby PRD. Thus far, the majority of large Chinese firms have preferred to manage their own logistics operations, accounting for a relatively limited use of 3PL firms. Many small and medium-sized Hong Kong logistics firms have attempted to make inroads into the mainland market by stressing their deep experience, technological superiority, and understanding of the market. In the Pearl River Delta, where many firms are Hong Kong-owned, the potential for logistics market growth is highest.

Hongkong Logistics Performance Index*		
Overall LPI	score	4
	rank	8
	conf	0.04
Customs	score	3.84
	rank	7
	conf	0.11
Infrastructure	score	4.06
	rank	9
	conf	0.1
International shipments	score	3.78
	rank	7
	conf	0.1
Logistics competence	score	3.99
	rank	9
	conf	0.11
Tracking & tracing	score	4.06
	rank	8
	conf	0.11
Domestic logistics costs	score	2.66
	rank	119
	conf	0.14
Timeliness	score	4.33
	rank	7
	conf	0.1
Source: World Bank		

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

7.3.2 Distribution Clusters

With its superb natural harbour, business-friendly economic climate, and world-class transport infrastructure, Hong Kong has become a major distribution centre in the South China region. The Close Economic Partnership Agreement (CEPA), which Hong Kong signed with China in 2003, has only intensified the importance of the SAR as a distribution point for the PRD and beyond. Hong Kong's efficient and modern network of roads and rail has enabled it to compete with less expensive distribution centres on the Chinese mainland.

The construction of Hong Kong International Airport (HKIA) in 1998 and subsequent infrastructure projects have tightened links between the SAR and nearby Guangdong Province. A bridge connecting Lantau Island (site of HKIA) and the more populous region of Kowloon has enabled speedier road transport from the airport into the rest of the city and locations in the nearby Pearl River Delta.

In addition to the Chinese market, Hong Kong could become a major distribution cluster for trade with other northeast Asian countries, as cost savings in aviation goods, for example, are estimated to be between 24 to 45percent in comparison to clusters in Tokyo, Singapore, and Shanghai.

7.3.3 Logistics Market Size and Growth

Growth in Hong Kong's logistics industry depends greatly on their use by Chinese firms, who have been inclined in the past to use their own logistics operations. In 2007, only an estimated 3 percent of Chinese firms used 3PL providers in moving their goods, a number Hong Kong 3PL's are keen to increase.

Hong Kong's small and medium-sized logistics companies have several advantages, not least the benefits accrued from the 2003 CEPA agreement. In addition, continued growth of the Port of Hong Kong as well as government investment in infrastructure seem poised to reduce logistics costs, allowing for Hong Kong firms to gain the upper hand on their nascent mainland counterparts.

8 India

India occupies most of the subcontinent of India in southern Asia. It borders China in the northeast. Other neighbours are Pakistan in the west, Nepal and Bhutan in the north, and Burma and Bangladesh in the east.

The country can be divided into three distinct geographic regions: the Himalayan region in the north, which contains some of the highest mountains in the world, the Gangetic Plain, and the plateau region in the south and central parts. Its great river systems have extensive deltas and all have their sources in the Himalayas: the Ganges (2,478 km) and the Brahmaputra (2,900 km).

India gained independence in 1947 after two centuries of British colonial rule. In the same year, partition created the state of Pakistan, with which India has fought three wars. Until a spate of economic reforms took place in the early 1990s, economic policy focused on self-sufficiency. Reforms have since proceeded slowly. The large, and inefficient, public sector co-exists with a sizeable and diversified private sector. Agriculture is almost entirely in private hands.

In 1974, after the successful testing of a nuclear bomb, India joined the nuclear club with eight other nations including its neighbour, Pakistan who successfully tested their own bombs in 1998. India has yet to ratify the Nuclear Non-Proliferation Treaty (NPT).

8.1 Economy and Trade

Strong growth enablers exist in India today in the form of over USD300bn worth of infrastructure investments, phased introduction of value-added-tax (VAT), and the development of organized retail and agri-processing industries. Strong foreign direct investment inflows in several industry sectors will also lead to increased market opportunities for 3PL providers in India.

India ranks second globally in terms of farm output. Agriculture and related sectors like forestry, logging and fishing accounted for 16.6percent of the GDP in 2007, employed 60percent of the total workforce. Though these sectors have seen a steady decline of its share in GDP, they are still the largest economic sectors and are vital in the overall socio-economic development of India. Yields per unit area of all crops have grown since independence due to the special emphasis placed on agriculture by the government in the five-year plans. Improvements in irrigation, technology, application of modern agricultural practices and provision of agricultural credit and subsidies have resulted in a Green revolution in India. However, international comparisons reveal that the average yield in India is generally 30percent to 50percent of the highest average yield in the world.

The low productivity in India is a result of the following factors:

- Illiteracy, general socio-economic backwardness, slow progress in implementing land reforms and inadequate or inefficient finance and marketing services for farm produce.
- Average size of land holdings is very small (less than 20,000 m²) and subject to fragmentation, due to land ceiling acts and in some cases, family disputes. Such small holdings are often over-manned, resulting in disguised unemployment and low productivity of labour.
- Inadequate adoption of modern agricultural practices and use of technology is inadequate, hampered by ignorance of such practices, high costs and impracticality in the case of small land holdings.
- Irrigation facilities are inadequate, as revealed by the fact that only 52.6 percent of the land was irrigated in 2003–04 resulting in farmers still being dependent on rainfall, specifically the Monsoon season. A good monsoon results in a robust growth for the economy as a whole, while a poor monsoon leads to a sluggish growth.

India currently accounts for 1.2 percent of World trade as of 2006 according to the WTO. Before liberalisation in 1991, India's young economy was deliberately isolated and protectionist in its trading practices. Foreign trade was subject to import tariffs, export taxes and quota restrictions.

As a result, the Indian export market experienced 15 years of stagnation after independence. This was primarily due to a reliance on tea, jute and cotton products, all of which were fairly inelastic in terms of demand. Imports during the same period were primarily of machinery, equipment and raw materials, needed during the early stages of industrialisation. Since liberalisation, the value of India's international trade has become more broad-based and has risen to substantial levels. India's major trading partners are China, the US, the UAE, the UK. The exports during April 2007 were USD12.31bn up by 16 percent and import were USD17.68bn with an increase of 18.06 percent over 2006.

Key Economic Indicators 2007	
Population (m):	1,148
GDP (USD bn; market exchange rate):	USD1.099 trillion (2007 est.)
GDP (USD bn; PPP):	USD2.989 trillion (2007 est.)
GDP per head (USD; PPP):	USD2,700 (2007 est.)
Real GDP growth:	9.2percent (2007 est.)
Inflation:	6.4percent (2007 est.)
Exchange Rate:	INR/USD- 41.487 (2007)
Source: World Factbook / Economist	

Geographical Facts	
Land area (sq km):	2,973,190
Water area (sq km):	314,400
Total area (sq km):	3,287,590
Source: World Factbook / Economist	

Major Exports percent	
Engineering goods	23.0
Petroleum products	14.7
Textiles and textile products	13.5
Gems and jewellery	12.3
Other	36.5
Source: Economist	

Major Imports percent	
Petroleum and petroleum products	29.9
Electronic Goods	8.4
Gold and silver	7.7
Machinery	7.3
Other	46.7
Source: Economist	

Exports Partners percent	
US	15.1
UAE	8.8
China	8.4
UK	4.3
Other	63.4
Source: Economist	

Import Partners percent	
China	10.5
US	7.8
Germany	4.5
Singapore	4.5
Other	72.7
Source: Economist	

8.2 Transport Infrastructure

India’s transport sector is large and diverse; it caters to the needs of 1.1bn people. Logistics costs (i.e., inventory holding, transport, warehousing, packaging, losses and related administration costs) have been estimated at 13-14 percent of Indian GDP which is higher than the 8 percent of USA’s but lower than the 21 percent of China’s GDP.

Continued growth in urban and rural areas is dependent upon physical connectivity. Beginning in the early 1990s, India's growing economy has witnessed an average rise in demand of about 10 percent a year for transport infrastructure and services. Investment has been uneven across the country with transport infrastructure in the southern and south-western parts of the country being more developed than in other parts of the country.

Transport infrastructure has not been able to keep pace with rising demand and is proving to be a bottleneck for economic growth. Large-scale improvements in the sector are necessary to support the country's economy.

Transport Data 2007	
Total Road Length (km)	3,383,344
Motorways (km)	1,603,705
Railways (km)	
Total	63,221
Airports	
Total	345
Sea Ports	
Total	198
Source: World Fact Book	

8.2.1 Road Network

Roads are the primary mode of transport in India carrying nearly 90 percent of the country's passenger traffic and 65 percent of its freight. The density of India's highway network - at 0.66 km of highway per square km of land – is similar to that of the United States (0.65) and much greater than China's (0.16) or Brazil's (0.20). Most of India's highways, however, are narrow and congested with poor surface quality, and 40 percent of India's villages lack access to all-weather roads.

8.2.2 Rail Network

At 63,000 km, Indian Railways is the most extensive railway in Asia and the fourth most heavily used system in the world, but remains antiquated. With 1.4m employees, it is one of the world's largest non-military employers. Till recently, the railways played a leading role in carrying passengers and cargo across India's vast territory. However, with tariff policies that overcharge freight to subsidize passenger travel, the movement of freight is increasingly shifting from railways to roads. To counter this shift, the government moved to liberalise and improve rail services in 2005 and 2006 by encouraging investment, enforcing rail safety measures and controlling prices.

8.2.3 Airports

India has over 60 medium and large sized airports, including 11 international airports and is one of the world's fastest growing aviation industries. As a result of the drastic increase in air traffic for both passengers and cargo in recent years has placed undue strain on the country's four major airports. This has resulted in an overhaul of major airports, namely Delhi, Mumbai, Kolkata and Chennai's under way. Also in a bid to relieve this pressure, a new international airport opened in Bangalore, India's information technology (IT) hub, in May 2008.

The combined size of the Indian fleet at the end of 2006 was some 270 aircraft. By 2013, an additional 480 aircraft are due for delivery, including the new Airbus A380. Domestic traffic has seen particularly

strong growth, including the entry of new low-cost carriers. By 2026, Indian domestic air travel is forecast to be the eighth largest traffic flow in the world.

August 2007 saw the merger of Indian and Air India, the two state-owned national carriers. The integration of fleet and staff is still in progress and not expected to see full integration until 2009. The merger was necessary for the survival of the carriers airlines as their market shares individually were too small (Indian served the domestic market while Air India the international one) to compete with newly emerging privately owned competitors. In 2007, the privately owned rivals Jet Airways and Air Sahara finalised a merger to become India's largest domestic airline. These mergers are representative of a long-past-due trend toward consolidation in India's growing civil aviation industry.

8.2.4 Sea Ports

India's growing foreign trade in the movement of containers, coal, iron ore and petroleum products is served by its 185 minor and intermediate ports as well as 13 major ports. These handle up to 90 percent of India's total foreign trade. Although India also has access to 14,000 Km of canals and navigable rivers these have gone largely undeveloped.

Private investment is a major contributor to the Indian port sector. Private players have taken over many existing facilities and set up further new facilities at existing ports, such as Mundra and Pipava in Gujarat.

The Central government controls the management and development of major Indian ports, through their respective port trusts, where the state governments control minor ports.

Major ports have increased their total cargo volume by 183 percent over 10 years, (from 1992-2002), to 288m tonnes. The remaining 91m tonnes are handled by minor ports. The total volume is comprised of 83 percent liquid and dry bulk cargo, and 17 percent container and general cargo.

As a result of the USD394m investment into the new mechanised coal handling facility at Paradip, and the new port at Ennore, India has raised its capacity of major ports to 344m tonnes.

Having reviewed strategies used by nations around the world to address domestic ports, the Indian government believes that the commercialisation, privatisation, and modernisation of currently operating ports will result in their technological advancement and overall improvement.

The government has also launched measures intended to buttress regulatory structures of major ports. These measures include tariff rationalisation and the gradual introduction of a corporate structure for existing ports.

In an effort to promote foreign investment in ports, the government has issued regulations that allow for joint ventures or foreign collaboration in establishing port facilities.

The government permits wholly-foreign investment in the construction and maintenance of ports and harbours and when providing support services in transporting water In addition, the private sector may establish captive facilities.

In an effort to entice private investors, the government is offering incentives including a 10-year tax holiday in port development, operation, and maintenance. Those investing in an inland waterways and ports may also benefit from these offers.

The Tariff Authority for Major Ports (TAMP) now sets and amends tariffs on major ports. To allow changes dealing with port reorganisation, the government is altering the current legal framework as well as announcing regulations for the bid evaluation process. Maritime states have also formulated port development plans utilising private investment and user agencies. A strategy integrating port development consists of the creation of port facilities and the industrialization and development of infrastructure facilities used to reach rural areas via roads and railways. In carrying out this process, those responsible have identified suitable locations, completed techno-economic pre-feasibility studies, and formulated guidelines.

8.3 Indian Logistics Market

8.3.1 Overview

The logistics infrastructure has received lot of attention both from business and industry as well as policy makers. It has been estimated that by the year 2010, India will have an overall market size of over USD125bn. This projection has been based on a gross domestic profit growth averaging over 9 percent a year and the manufacturing sector enjoying growth rates and phenomenal, sustainable growth in the manufacturing sector.

In spite of this news, the job of managing this infrastructure for effective competition has been under-emphasised. The inadequacies of the logistics infrastructure have had a bottleneck effect on the growth of the economy. National level analysts have concluded that the logistics management regimen is capable of overcoming the disadvantages of the infrastructure in the short run while providing ongoing and sustainable competitiveness in the long term. It is here that several challenges exist as well as opportunities for the Indian economy. There are several models that seem to be emerging based on the critical demands of the Indian economy that would be viable models for other global economies as well.

As a result of the under-developed trade and logistics infrastructure, the logistics cost of the Indian economy is over 13 percent of GDP, compared to less than 10 percent of GDP in almost the entirety of Western Europe and North America.

The Indian logistics market is largely disorganised. Two thirds of road transport providers operate with fleet sizes of less than five trucks and these tiny enterprises, as a whole, comprise 80 percent of revenues. The freight-forwarding segment is also made up of thousands of small customs brokers and clearing and forwarding agents catering to local cargo requirements.

Highway capacity shortages are further exacerbated by mixed traffic, encroachment, crowded and negative environmental consequences of poor unsafe urban crossings, and frequent stops at state and municipal check-posts. Widespread overloading by the outdated, rigid two-axle trucks has long been a

major factor in the damage of road pavement and structure. In rural roads, there is almost a total lack of important maintenance and drainage, leading to extraordinarily rapid deterioration of road surface conditions.

Until now, all major ports have handled more traffic than their rated capacities. Although the situation has improved with capacity augmentation, the capacities, as rated, are 50-60 percent lower than those at comparable ports elsewhere in Asia. The real berth capacities have not been used efficiently, mainly because of low productivity of equipment and labour. Equipment use on berths is extremely low-about 30-35 percent.

In railways, in spite of the vast scope of its network, simple issues such as wagon failure cause the largest share of train maintenance failures, which in turn cause a loss of about 20 percent of line capacity.

Large measures have been taken by the government in attempts to remedy the failings of the Indian transport structure but there has been resistance from many sectors. In spite of this resistance, three factors make it a particularly opportune time for India to expedite transport reform:

- First, the initial reform momentum has already been built up.
- Second, there is growing consensus within India that transport should be managed as an economic sector.
- Third, there are many successful models for transport reform from around the world.

The resistance to reform, however, should not be underestimated. But such resistance has to be overcome, keeping in mind the high costs of slow or inadequate action that will be borne by the Indian economy and society. There is hope that policy and institutional reform will contribute to the momentum being built up for more speedy reforms and in consequence, for a substantial performance improvement in the Indian transport sector.

India Logistics Performance Index*		
Overall LPI	score	3.07
	rank	39
	conf	0.08
Customs	score	2.69
	rank	47
	conf	0.19
Infrastructure	score	2.9
	rank	42
	conf	0.2
International shipments	score	3.08
	rank	40
	conf	0.18
Logistics competence	score	3.27
	rank	31
	conf	0.2
Tracking & tracing	score	3.03
	rank	42
	conf	0.24
Domestic logistics costs	score	3.08
	rank	46
	conf	0.17
Timeliness	score	3.47
	rank	47
	conf	0.22
Source: World Bank		

8.3.2 Distribution Clusters

Mumbai is India's primary distribution cluster with other major centres existing in Kolkata and Madras but new developments are set for the coming years expected to draw a bit of the investment away from these into areas concentrated in 14 locations. As nearly one-third of the total realty development in the sector has been projected occur in emerging locations, many tier-2 and tier-3 cities and peripheral location offering good connectivity to multiple markets are expected to experience increased activity from logistics players. This will also provide an inadvertent thrust to the real estate market. In spite of the newly emerging centres, Mumbai remains the preferred location for the development of logistics

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

parks with an investment of approximately USD200m to date. The city will in addition to existing centres, seven to eight logistics parks on almost 2.5m square metres around Mumbai. The new logistics centres are expected to boost industrial activities around the country.

It is further estimated that by 2012, India will have 110 logistics parks spread over 1.4m square metres hectares and 4.2m square metres will be operational by 2010 at an estimated cost of USD1bn.

8.3.3 Logistics Market Size and Growth

The Indian Times reported in August of 2008 that the Indian logistics industry is expected to grow at 15percent to 20percent per annum, reaching an industry turnover of USD385bn by 2015. Indian ports cater mainly to transhipment and coastal movement. Most of the Indian cargo is transhipped through hub ports like Colombo, Singapore and Salalah. The results are an increase in Indian freight cargo. To solve this, the government is planning to set up two hub ports, one on the east coast and one on the west coasts at Chennai and Jawaharlal Nehru Port at Mumbai. Furthermore, it is proposed to develop an International Container Transhipment Terminal at Cochin Port on BOT basis.

Major opportunities for investment exist in: leasing of assets at existing ports, construction and operation of terminals, and berths and storage facilities. The World Bank has been a major investor in the transport sector in India. Till 2007, it has provided 17 loans for improving the national and state highways and rural roads, as well as urban transport in Mumbai. It has also provided 18 loans for the railways.

At present, World Bank's total loan commitments for the transport sector in India are USD4.95bn. The main activities include:

- National Highway Development Project: The World Bank is financing highway construction on the Agra-Dhanbad and Lucknow-Muzaffarpur corridors. It is also involved in other sector activities such as improving road transport efficiency, upgrading road safety, and improving asset management.
- Rural Roads Program: The program provides for the provision of all weather roads to villages in four states – Uttar Pradesh, Jharkhand, Rajasthan and Himachal Pradesh. Following the success of these projects loans for another five states are being prepared.
- State Roads Projects: State Highways are being upgraded in the states of Gujarat, Karnataka, Kerala, Mizoram, Uttar Pradesh, Tamil Nadu, Punjab and Himachal Pradesh. In addition, loans for another 3 states are under preparation.
- Mumbai Urban Transport Project: The project aims to improve transport in the Mumbai Metropolitan Region by fostering the development of an efficient and sustainable urban transport system - suburban rail, bus and link roads - and building effective institutions.

9 Indonesia

The modern nation of Indonesia, consisting of more than 17,000 islands straddling the equator, has the fourth largest population in the world after China, India, and the US. Initially colonised by the Dutch in the 17th century, Indonesia became independent in the years immediately following World War Two under the leadership of General Soekarno.

Political instability and economic stagnation characterised Soekarno's rule, and in 1967 he was deposed in a military coup and replaced by General Soeharto, who would govern the country for the next thirty years. Repressive and autocratic, Soeharto nonetheless presided over a period of economic expansion that lifted many Indonesians out of poverty. 1997's East Asian financial crisis fomented intense opposition to Soeharto's rule, and under pressure from his cabinet ministers and military leadership, he resigned his post as President in 1998.

Soeharto's downfall ushered in a transition to democracy, eventually consolidated with the election of Susilo Bambang Yudhoyono in 2004. Despite the existence of a free and vibrant press, official corruption and a weak judiciary have prevented Indonesia from improving its political structure further.

Challenges for Indonesia's government include preserving freedom for the nation's religious minorities (mainly Christians and Hindus), protecting the country from further terrorist attack, and spreading benefits of economic growth to previously neglected parts of the country.

9.1 Economy and Trade

With abundant natural resources and a large labour force, Indonesia has long had enormous economic potential. Under Soeharto's thirty-year rule, Indonesia achieved impressive growth, averaging more than 6percent per year between the years 1970 and 1996. Prudent economic management (in addition to currency stabilisation) enabled Indonesia to escape the ranks of low-income countries and become a middle-income country by the 1990s, though the East Asian financial crisis led to a sharp economic downturn in 1998 from which Indonesia only recently began to recover.

Indonesia is Asia's only member of OPEC, though in recent years declines in production and an increase in demand have on occasion turned the country into a net oil importer. The Indonesian government has long been careful with fuel subsidies, as a cut in the 1990s was one of the factors that led to Soeharto's ouster.

Roughly 43 percent of Indonesia's labour force is employed in the agriculture sector, though agriculture's share of the national GDP has shrunk to around 10percent as the manufacturing and service sectors have come to dominate the economy. Indonesia remains the third largest rice producer in the world, but only seldom achieves self-sufficiency in this commodity; high population density and industrial encroachment in rice-producing areas has forced Indonesia to import massive amounts from other countries.

Manufacturing overtook agriculture in terms of GDP in 1991 and now, along with the service sector, accounts for much of Indonesia's economic production. However, several factors have prevented Indonesian manufacturing from maximising its potential. Indonesian industries have had to compete with their Indian and Chinese counterparts, both of which benefit from a cheaper supply of labour. In addition, labour disputes, rising production costs, and legal issues have also impeded the development of Indonesia's manufacturing sector.

Indonesia sells its exports to four major markets: The EU, US, Japan, and Singapore. Together, they account for over 60percent of Indonesia's external trade. While trade growth remains strong, Indonesia has lost global market share in recent years due to a variety of interacting factors, such as labour unrest and increased commodity prices.

Machinery and electrical goods account for nearly a third of Indonesian exports, though a reduced domestic supply (and increased customer demand) has lead to the country importing large amounts of oil. Neighbouring Singapore remains Indonesia's foremost partner in the imports market.

Key Economic Indicators 2007	
Population (m):	234.7
GDP (USD bn; market exchange rate):	432.8
GDP (USD bn; PPP):	837.7(b)
GDP per head (USD; market exchange rate):	1,844
GDP per head (USD; PPP):	3,569(b)
Real GDP growth:	6.3
Inflation:	6.4
Exchange Rate:	9,143
Source: Economist	

Geographical Facts (2007)	
Land area (sq km):	1,826,440 sq km
Water area (sq km):	93,000 sq km
Total area (sq km):	1,919,440 sq km
Source: World Factbook	

Major Exports percent (2007)	
Oil&gas	21.8
Mineral products	11.5
Machinery&electrical equipment	10.8
Fat, edible oil& waxes	8.7
Source: Economist	

Major Imports percent (2007)	
Machinery&electrical equipment	32.
Oil&gas	27.5
Base metals	13.5
Chemicals	11.9
Source: Economist	

Exports Partners percent	
Japan	20.6
US	12.1
Singapore	11.7
China	9.7
Source: Economist	

Import Partners percent (2007)	
Singapore	43.5
China	18.8
Japan	13.2
South Korea	8.6
Source: Economist	

9.2 Transport Infrastructure

Covering an archipelago with over 6,000 inhabited islands and catering to the needs of 235m people, Indonesia's transport network is vast and varied. The national road network reaches 400,000km, of which well over 200,000 is paved. Railways are less prevalent, reaching only the two most populous islands of Sumatra and Java. Given the distance between the westernmost and easternmost points of the archipelago, a fair amount of Indonesia's cargo and passenger traffic travels by airplane. Airline deregulation, implemented in the last twenty years, has led to the rapid growth of the domestic airline industry and as a result, air travel has become far cheaper and more efficient than ever before.

Like many developing countries, Indonesia's transport infrastructure does have its fair share of problems, most notably government neglect in the years immediately following the 1997 East Asian Financial Crisis. While the new government has pledged to place infrastructure development at the centre of its domestic agenda, major improvements are still needed.

Transport Data	
Total Road Length (km)	391,009 km
Motorways (km)	216,714 km (paved)
Railways (km)	
Total	6,458 km
Airports	
Total	652
Sea Ports	
Total	186
Source: World Factbook	

9.2.1 Road Network

Indonesia's extensive road network covers nearly 400,000km and remains the most common method of land transport in the country. Within densely populated Java, more than 90percent of all roads are paved, though this percentage is far smaller in rural parts of the country. In fact, more than 11m Indonesians

lack access to all-weather roads of any kind, presenting an obstacle for the government in developing poorer regions of the country.

Several discrete problems plague Indonesia's roads. Narrowness in certain areas impede access for containers larger than 40 feet, while Indonesia's frequent wet weather regularly renders roads impassable. Corruption also plays a negative part; drivers often must pay extortionate fees to unscrupulous toll operators, corrupt police officers, and organised criminal gangs. The government's inability to curb corruption has led to a reduction in road network investment, as would-be investors lack confidence that they will be able to charge an agreed-upon toll once new roads are built.

Rising land acquisition costs present an additional problem. Land prospectors routinely buy land earmarked for toll roads and drive up acquisition costs. In an effort to reduce these costs, the government has pledged to freeze land costs at 10percent over initial estimates in an effort to placate investors.

9.2.2 Rail Network

Railways cover roughly 4,500km of Indonesian territory, of which nearly two-thirds is located on Java. Nearly 75percent of revenue for Kereta Api Railways (Indonesia's state-owned rail company) also occurs on its most populous island, though a significant amount of freight is moved on neighbouring Sumatra's three unconnected rail lines. 90percent of Indonesia's rail network is single-gauge, indicating a need for added investment.

Like other areas of Indonesia's transport infrastructure, the national rail network requires new investment. Ageing equipment and the absence of security gates (in some areas) have led to more frequent rail accidents, an issue of concern for the central government.

In an effort to boost railway investment, the Indonesian parliament crafted legislation in 2007 allowing the private sector to provide rail transport for the first time, though government restrictions will still exist. The government's biggest priority in the railway sector is the completion of an 800km track linking Jakarta with Surabaya in East Java.

9.2.3 Airports

Indonesia's multitude of islands coupled with enormous distances from west to east explain why air travel is often the most convenient method of transport in the country. Liberalisation of the airline industry in 2000 preceded the arrival of several privately owned, (mainly) low-cost airlines. Reduced ticket prices have conversely caused a spike in the number of passengers; while only 6.6m trips were taken in 1999, 16m occurred in 2003.

In recent years, Indonesia's airline industry has been plagued by major safety concerns. In early 2007 alone, two airlines crashed (claiming a total of 145 lives) and a third suffered major structural damage upon landing. Observers believe these accidents resulted from corruption, and weak enforcement of

regulation and safety rules. Steps, such as greater compliance with International Civil Aviation Organisation, must be undertaken to rectify Indonesia's air safety problems.

Indonesia's largest airport, Soekarno-Hatta, is located near the national capital of Jakarta and is the 35th busiest in the world in terms of passenger traffic. While among the most punctual airports in the world, Soekarno-Hatta has endured problems in recent years, most notably from flooding during the rainy season.

9.2.4 Sea Ports

Of Indonesia's 186 ports, Banjarmasin, Belawan, Ciwandan, Kotabaru, Krueg Geukueh, Palembang, Panjang, Sungai Pakning, Tanjung Perak, Tanjung Priok, are considered major ports.

The lack of port facilities to attract major ocean-going vessels requires most cargo to be transhipped in Singapore before arriving in Indonesia via feeder vessels. As an archipelago with a long coast line, Indonesia's domestic shipping industry comprises the bulk of port activity, approaching an estimated 60percent.

Indonesia's four major ports are located at Jakarta and Surabaya on Java, Belawan on Sumatra, and Ujung Pandang on Sulawesi. Of these, by far the largest facility is Jakarta's Tanjung Priok port, handling 28percent of exports and 42percent of imports in 2005. Recently, partial privatisation of the port has attracted heavy investment, lending hope that through upgrades Indonesia will be able to entice a greater volume of trade.

In addition to infrastructure weaknesses, Indonesia's ports are plagued by problems such as organised crime, piracy, strikes, and theft. As with the national air industry, Indonesian seaports have a poor safety record and in 2007 a ferry disaster killed 470 people. Rectifying these issues, combined with greater investment, is necessary for Indonesia to improve its port situation.

9.3 Indonesian Logistics Market

9.3.1 Overview

With the fourth highest population in the world, the growth potential for Indonesia's logistics market is enormous, yet persistent problems have prevented firms- both domestic and international- from realising this potential. The logistics industry comprises well over 10percent of Indonesia's GDP, and the high-cost of transmitting goods within the country have made Indonesian exports too expensive for the global market.

Corruption- usually in the form of illegal road tolls- is one major issue with Indonesia's logistics market. Truck drivers must pay a series of extortionate road bribes on long routes, slowing transport times considerably. Inadequate road maintenance is another factor driving up transport costs, as vehicle

operating costs in Indonesia are nearly 60percent more per kilometre than in many of its East Asian counterparts.

In order for Indonesia to improve its logistics situation, it must stamp out corruption and encourage more investment in infrastructure, particularly in respect to the nation's roads.

Indonesia Logistics Performance Index *		
Overall LPI	score	1.3
	rank	2.13
	conf	0.13
Customs	score	2.1
	rank	2.14
	conf	0.36
Infrastructure	score	2.1
	rank	2.15
	conf	0.32
International shipments	score	5.3
	rank	2.14
	conf	0.28
Logistics competence	score	2.1
	rank	2.20
	conf	0.33
Tracking & tracing	score	3.1
	rank	2.3
	conf	0.36
Domestic logistics costs	score	2.1
	rank	4.2
	conf	0.36
Timeliness	score	3.1
	rank	2.28
	conf	0.39
Source: World Bank		

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

9.3.2 Distribution Clusters

The island of Java, home to roughly half of Indonesia's population, also contains the country's most significant distribution clusters. Soekarno-Hatta International Airport, located near Jakarta, transmits the vast majority of Indonesia's air freight, a significant factor when considering the prevalence of air travel in the country. Soekarno-Hatta's proximity to Tanjung Priok, Indonesia's largest port, also attests to the importance of greater Jakarta in Indonesia's distribution network.

Additional clusters exist on the islands of Java and Sumatra, though these are far less involved with international trade. Indonesia's plethora of islands and length speak to the necessity of well-developed domestic clusters, as the government has made it a priority to develop previously neglected rural areas and outlying islands.

Corruption, poor maintenance, flooding, and organised crime are all hindrances to the distribution in goods within Indonesia. Truckers are often forced to pay bribes along several of the nation's important roads, rendering the transport process slower and more expensive. A lack of infrastructure development and poor maintenance on existing roads and railways often prevent the smooth passage of goods to rural areas. The government also has struggled to adapt to Indonesia's tropical climate, as persistent flooding (even at Soekarno-Hatta airport) have also been a nagging problem. As a result, many major companies will use the better-organised and more reliable Singapore distribution cluster as a better way to move goods through Indonesia.

9.3.3 Logistics Market Size and Growth

Given Indonesia's large population and growing economy, financial opportunities in the logistics market are great, particularly within intra-island trade. Several businesses in Indonesia have established logistics clusters in an attempt to capitalise on this sizeable potential.

Yet despite the existence of over 800 domestic tourist companies, the logistics market in Indonesia is dominated by major foreign firms. Few Indonesian companies have the technological prowess to manage large shipments of cargo, and as a result foreign firms have the upper hand in supply chain management.

The East Asian Financial Crisis and regime change in the late 1990s led to a stall in Indonesian infrastructure development, and as a result basic problems such as flooding still exist. In addition, high levels of corruption (usually in the form of bribe-taking) have hampered Indonesia's domestic logistics market, explaining the predominance of better-organised foreign firms.

10 Japan

In 1854, the US forced Japan to sign the Treaty of Kanagawa, ending over two hundred years of isolation. Shortly thereafter, modernisations set forth by the Meiji Reformations saw Japan quickly start to become a major player in the global arena that it had avoided for so long and saw the island nation step onto the world scene as the first main East Asian imperialist power.

Japan's militarisation saw its first fruits by defeating both China and Russia in the late 19th and early 20th centuries. Then, embarking on its policy of creating a 'Pan-Asian Co-prosperity Sphere', Japan occupied Korea and Formosa (Taiwan) and southern Sakhalin Island, culminating in the invasion of Manchuria in 1931 and finally the full out invasion of China beginning in 1937. In early 1941, after occupying most of East and Southeast Asia, Japan's attack on Pearl Harbour ushered the US into the war, ending American neutrality and culminating in the unconditional surrender of the Japanese military government, ending the campaign for regional dominance of Asia Pacific. Having lost their hand at war, Japan shifted their focus to economics. Post-War Japan saw a radical shift in politics with elected officials taking power from the emperor, who while still the nominal ruler of the country, saw his traditional status as a deity revoked by law. Decision-making has since been made through elected bodies with strong input from bureaucrats and business executives. While thirty years of breakneck growth slowed in the 1990s, Japan stills stands out as the foremost economic power in the Asia Pacific region.

Politically, legislative and executive powers are the jurisdiction of the Diet (parliament), comprised of the House of Councillors (the upper house) and the more powerful House of Representatives (the lower house). Currently, the Liberal Democratic Party operates a minority government through a coalition with the smaller New Komeito party。

10.1 Economy and Trade

Following the large-scale destruction of its industrial base in World War II, huge investments, relative to GDP, were put into creating a modern industrial sector that relied heavily on high-technological features to improve efficiency and saw striking growth for the economy of Japan. Preferential government policies to certain industries along with an emphasis on high levels of education and positive relations between management and the labour force quickly all worked in tandem to bring Japan to the forefront of the world as one of its strongest economies by the 1980s. Rapid increase in asset prices followed the loosening of Japan's monetary policy but the drops in asset prices in the early 1990s saw the downward turn in the Japanese economy. As the central bank introduced higher interest rates and as the government passed laws to restrict speculation, Japan entered its longest period of recovery since the end of World War II starting in 2003.

Important policy issues include deregulation and liberalisation but the rate of change has been slow. With its rapidly ageing population, the structure of the future labour force is a cause for concern as

are the savings rates and the government budget. The fiscal position of the government, after implementing JPY100 trillion (USD925bn) in fiscal-stimulus packages designed to kick-start growth, has been cast into doubt. However, it is also viewed as a necessary evil due to improved growth numbers from 2003 to 2007 as well as better performance from major banks. Concerns remain about the health of the smaller, regional banks whose precarious position still threatens the stability of the economy as a whole.

In spite of having some the highest levels of taxation in the APAC region, tax revenue growth for the Japanese government has been sluggish. The standard national corporate tax rate is 30percent. When coupled with local taxes, the effective standard corporate tax rate rises to 40.9percent. The top effective personal income tax rate, including local taxes, is 50percent. The consumption tax rate is 5percent. As high as these rates are, government budgets still struggle with what they've been allotted.

Japan's merchandise trade surplus (fob-fob, balance-of-payments basis) stood at USD104.8bn in 2007, with exports of USD678.1bn and imports of USD573.3bn. Japan's current account recorded a surplus of USD210.5bn, or 4.8percent of GDP. However, as of July 2008, Japan's trade surplus in fell 86.6 percent from 2007 as imports grew in the wake of higher prices for oil and other commodities. The finance ministry recorded its fifth straight month of decline as the surplus shrank to JPY91.1bn (USD830.6m). Imports saw an 18.2 percent increase to stand at JPY7.54 trillion (USD68.7bn) in July, while exports rose a mere 8.1 percent to JPY7.63 trillion (US69.6bn).

Japan's trade surplus with the US, always a politically sensitive issue, fell 19.0 percent, down for the 11th straight month in July with slower exports of automobiles, auto parts, machinery and electronics. Japan is also one of the few nations in the world experiencing a trade surplus with China but this too fell 63.3 percent since 2007.

The nation's trade surplus with the rest of Asia, however, ran up to 42.3 percent, recovering after a dip in June due to stronger exports of mineral fuels and raw materials.

Key Economic Indicators	
Population (m):	127.5
GDP (USD bn; market exchange rate):	4,376
GDP (USD bn; PPP):	4,283
GDP per head (USD; market exchange rate):	34,331
GDP per head (USD; PPP):	33,602
Real GDP growth:	2.1
Inflation:	0.0
Exchange Rate:	117.8
Source: Economist	

Geographical Facts	
Land area (sq km):	374,744 sq km
Water area (sq km):	3,091 sq km
Total area (sq km):	377,835 sq km
Source: World Factbook	

Major Exports percent	
Transport equipment	24.8
Electrical machinery	20.2
Non-electrical machinery	19.8
Manufactured goods	11.8
Chemicals	5.6
Source: Economist	

Major Imports percent	
Mineral fuels	27.8
Electrical machinery	12.7
Manufactured goods	10.1
Non-electrical machinery	8.9
Food	8.2
Source: Economist	

Exports Partners percent	
US	20.0
China	15.4
South Korea	7.6
Taiwan	6.3
Hong Kong	5.6
Source: Economist	

Import Partners percent	
China	20.4
US	11.5
Saudi Arabia	5.3
UAE	5.0
Australia	4.9
Source: Economist	

10.2 Transport Infrastructure

Japan's transport infrastructure is of a very high-standard; its 'bullet trains' are justifiably famous, and the country is well served by road and air links. However, issues remain. Japan's high population density leads to frequent traffic congestion, and government investment in infrastructure often can't keep up with ever-increasing amounts of pressure. In terms of port infrastructure, the rise of several competitors within the Asia-Pacific region has led to some concern within the Japanese industry.

Transport Data	
Total Road Length (km)	1.193m km
Motorways (km)	paved: 942,000 km (includes 7,383 km of expressways)
Railways (km)	
Total	23,474 km
Airports	
Total	176 (2007)
Sea Ports	
Total	1,064
Source: World Factbook	

10.2.1 Road Network

Japan's automotive industry was one of the main powerhouses driving the Japanese 'economic miracle'. As a result, there has been an explosion in car ownership rising from 22percent in 1970 to about 90percent now. This, along with the approximately 90percent of all freight that is transported by road has placed huge pressure on the road networks of Japan. Though there has been a large amount invested in the past couple of years on road expansion and improvement, the system as a whole remains under strain. To make matters worse, national holidays have become a popular time to travel in Japan, and the greater concentration of automobiles on roads have only exacerbated issues with the national road network.

10.2.2 Rail Network

According to data from Ministry of Land, Infrastructure and Transport (MILT), from 2006-2007, Japan's rail systems saw a total of 22b passengers. Though vast and efficient, Japan's public and private railways systems are used extensively for passenger transport but handle less than ten percent of land surface cargo transport due to the popularity of roads for this purpose. Japan's dense settlement patterns mean that cargo sent by train must go by road to the departure terminal and by road again upon arrival to the recipient of the cargo In addition, as Japan is an archipelago, anything sent by rail between two islands not connected by tunnel means the goods must travel by boat. All these factors make it easier to transport goods, if not people, by road.

Even passenger travel by rail has experienced stagnation in recent years with the bullet train (Shinkansen) connecting Tokyo to Osaka seeing no increase in its 2006-2007 level of 305m passengers. Competitive airfares offered by Japan's domestic airlines are cited as being the primary reason for the lack of growth.

10.2.3 Airports

After 2002, Haneda, which was previously open exclusively to domestic traffic, began to take the pressure off of Narita airport when it became open to charter flights. Today, the two airports of Narita

and Haneda handle over 50 percent of all arrivals to Japan by air (about 99percent of all arrivals to Japan being by air). Haneda quickly became a favoured route for travelers and in 2006, the Airport International Council ranked it as the world's fourth busiest airport in terms of passenger volume, handling nearly twice of Narita's 33.9m passengers. One of the reasons Haneda is favoured over Narita is due to its geographical proximity to Tokyo- just 12km from the airport to the city centre, compared to the 60km between Tokyo and Narita. Still, Narita remains the world's sixth busiest airport.

Kansai International Airport, which opened in Osaka in 1994, and Chubu Airport (also known as Central Japan International Airport or Centrair) in Aichi prefecture are Japan's two other major airports. In addition to these, there are more than 20 important regional airports serving domestic routes.

The number of passengers has been steadily increasing over the past few years and is partly due to government efforts to support air travel as a means of propping up Japan's own aircraft industry. Government data in 2007 showed Japan's airlines carried more than double the number for 1980/81 with 113m passengers. Compared to almost zero change in freight volume over the same period, Japan's geography and the intricately laid out network of roads to compete with make air freight as an option for domestic use prohibitively expensive.

10.2.4 Sea Ports

Since Commodore Matthew Perry first landed at the port of Yokohama with a fleet of American warships in 1853 Japan has enjoyed the benefits of almost uninterrupted trade with the US, making its ports some of the busiest in Asia for much of last century. But with the ever present rise and rise of Japan's neighbour, China, Japanese ports have felt themselves increasingly left out in the cold.

As China surpassed Japan as the US' dominant trading partner in Asia, the future of Japan's once booming port industry looks uncertain. Over the past ten years, according to the Tokyo Municipal Government, Japanese ports have seen their percentage share of ships calling at Asian ports fall from around 30 percent in 1998 to less than 15 percent in 2007, prompting many in the Japanese government to ask what can be done to keep Japan's ports competitive in an increasingly globalised market place.

Looking at the trend of ships making Asian port calls over the last decade, whilst Japan has managed to maintain a relatively stable level of growth, in real terms, compared to the overall growth dynamic of the industry in Asia in general, it has experienced a relative decline in calls.

This is in large part due to structural changes in the nature of global trade that have been occurring over the past twenty years - 1991 there were three Japanese ports in the top twenty worldwide, in terms of container throughput, by 2008 there were none.

The reasons for this shift are manifold. Looking at the wider trade picture it is clear to see that there has been a massive global shift in production away from the heyday of Japanese economy, to lower cost manufacturing bases. Of course China is a good case in point but this is not the entire picture. Looking across the shipping industry itself, there has been a global shift in ship sizes. There is a global trend toward larger vessels, and with the advent of new deepwater access points to China, it is becoming

harder to attract business to ports like those in the Bay of Tokyo. According to estimates, in 2005 there were 42 ships over 8000teus, by 2010 this figure will reach be 203.

In the midst of this general shift away from Japanese ports the country is also feeling the effects of the US sub-prime crunch that seems to be affecting much of Asia at present with a 2 percent drop in cargo handling at Yokohama since January. In an effort to stave off Japan's relative decline in the port sector the Government in Tokyo is attempting to introduce incentive measures to make Japanese ports more competitive in the global arena.

MILT figures as of April 2007 place the number of ports in Japan at 128 major ports, with a further 936 regional ports. Maritime transport has experienced a decline in Japan recently in spite of its status as an island nation. The completion of bridges and tunnels once again puts more emphasis for transport onto the road networks and decreases the reliance of the slower sea transport sector. The Japanese registry of steel vessels of 100 tonnes or more has declined from 7,668 in 1990 to 4,848 in 2005 and in terms of gross tonnage, 25.1m gross tones of cargo carried dropped even more sharply to only 11.8m gross tonnes over the same period.

Nagoya remains Japan's largest port, handling a total of 187,134 tonnes in 2005 according to MILT data. Other major ports, in order of importance, include Chiba (165,715 tonnes), Yokohama (133,280 tonnes), and Tomakomai in Hokkaido (107,747 tonnes). The 1995 earthquake that damaged most wharves and container berths knocked Kobe, once one of the biggest ports, permanently out of the picture as most traffic was diverted to other harbours. In spite of this, Kobe remains the tenth largest of Japan's ports having carried 91,182 tonnes.

Japan's ports are tightly regulated and although some progress in deregulating ports has been made since initiatives began in the late 1990s, labour union resistance to more far-reaching change has limited the extent of reforms. The Japan Harbour Transport Authority (which lies under the jurisdiction of the MLIT) is responsible for hiring dockworkers and maintains unusually high minimum manning levels for operation at new container terminals. This has resulted in high costs for shipping firms, both foreign and domestic, that are using the ports. Specific areas targeted for reform include the short work shifts for Japanese ports causing increases in cargo processing time.

10.3 Japanese Logistics Market

10.3.1 Overview

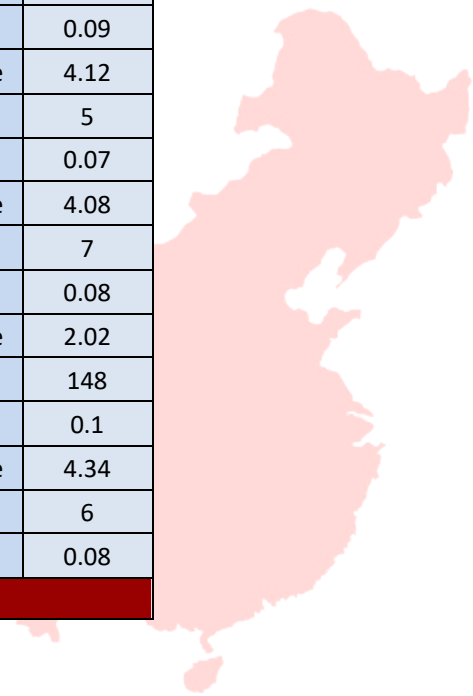
The logistics industry in Japan is still immature for reasons such as a dearth of investment opportunities and limited information disclosure. To overcome this, the Government of Japan, in 1997 identified three areas it could assist in building an efficient logistics system: improvement of social infrastructure, promotion of competition and the development of a more sophisticated logistics system. The Comprehensive Program of Logistics Policies adopted in 1997 (CPLP 1997) targeted negative externalities related to logistics, congestion, and competitiveness. The government proposed redeveloping

international hub ports and establishing linkages between roads, railways, ports and logistics hubs to facilitate the smooth flow of freight.

One major factor driving this trend is a general move within the Japanese logistics industry to restructure many of its traditionally-organised supply chain operations.

There are proposals for companies to devise plans to increase the efficiency of distribution including the overall conduct of carriage, storage, and distribution processing, the consolidation of distribution hubs and the promotion of sites near highways and ports, and the rationalization of delivery networks through joint carriage. If authorized by the national government, these initiatives will be supported through preferential tax treatment and low-interest financing though governmental financial institutions.

Japan Logistics Performance Index*		
Overall LPI	score	4.02
	rank	6
	conf	0.03
Customs	score	3.79
	rank	11
	conf	0.08
Infrastructure	score	4.11
	rank	6
	conf	0.08
International shipments	score	3.77
	rank	10
	conf	0.09
Logistics competence	score	4.12
	rank	5
	conf	0.07
Tracking & tracing	score	4.08
	rank	7
	conf	0.08
Domestic logistics costs	score	2.02
	rank	148
	conf	0.1
Timeliness	score	4.34
	rank	6
	conf	0.08
Source: World Bank		



* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

10.3.2 Distribution Clusters

Due to concerted efforts in the private sector driven by incentives from the government to reconfigure Japan's supply chain with more effective and competitive service, Japan's investments into logistic centre development has given the country one of the world's largest industrial property markets.

The pattern of development in terms of actual design is restricted by Japan's limited space thus favouring a multi-storied model of logistics parks. The challenge in making these buildings is ensuring that they are well resistant to the earthquakes in Japan.

Some leading developers in international logistics property development are significantly strengthening their presence in Japan. One of these players is AMB Property Corporation, a US-based developer and owner of industrial real estate that announced it had leased 29,500 square metres for development at Tokyo's Narita International Airport. As of December 31, 2007, AMB's Japan portfolio totalled 938,300 square metres of facilities, of which 583,900 square metres was in Tokyo.

Projected to becoming Japan's largest logistic park, AMB's 32,400 square metre facility is part of the company's 194,500 square metre project at Narita Air Cargo Centre, Building C and has already been leased to Japanese forwarder/logistics provider Nippon Express and Crocs Asia Private.

ProLogis is another US-based international logistics facility property developer active in Japan. ProLogis recently signed a build-to-suit agreement with third party logistics service provider Hitachi Transport System for the development of a 24,000 square metre distribution centre at ProLogis Parc Kiyama. Located on Kyushu Island in Saga Prefecture, Hitachi will operate the facility as a regional distribution centre for the AEON Group, a provider of retail and financial services.

ProLogis earlier this year launched the first phase of construction on a major new distribution park near Tokyo. ProLogis Parc Zama I, a five-storey facility totalling more than 113,000 square metres, is being developed in the city of Zama in Japan's Kanagawa Prefecture.

DHL is the number one foreign owned 3PL provider in Japan and operates 26 logistics centres and distribution parks throughout the country, having invested over USD250m into logistics centres in Japan. DHL's largest Asia distribution centre is the Tokyo Distribution Centre, located in Shinkiba with a facility over 18,000 square metre in size and a staff of 450 employees. The successful operations at the DHL centre serve as a model of how distribution centres are managed and operated by other players entering the distribution centre development industry in Japan.

10.3.3 Logistics Market Size and Growth

With its huge population density and a reliance on public transport, Japan is unique in terms of freight and transport. This has led to the development of the largest domestic express business in the world. The size of the domestic market is larger than the entire express freight business for Europe.

The real estate securitisation investment market was about JPY320bn (USD2.91bn) in 2007, accounting for only 3.8percent of Japan's total REIT (real estate investment trust) investment. As large as this already

is, as an indication of growth, the logistics real estate market in Japan is expected to triple for investments such as warehouses, distribution centres and ports and has been a sector considered stable even during the recent period of economic slowdown.

In spite of deflation, a large drop in the stock market, and the depreciation of land values in general, Japan has still experienced a growth in GDP and remains the second largest economy in the world with massive infrastructural growth. The logistics industry has worked as a facilitator of these changes and is experiencing positive financial results, growing by double digits in 2007. Similar growth figures are expected this year and in 2009.

Much of this growth rides on the role China plays as Japan's "factory floor". The current trend started with major moves toward manufacturing within China but has spread to small and medium-sized firms. The air express industry has been responsible for moving products and components between countries in a cost-effective way. Traditionally seen as not being cost effective, air-freight has become a more viable form of transport than shipping as the cost of capital tied up in shipping by boat and the cost of documentation actually exceeds the costs of shipping directly to markets. This is particularly true for high-value finished goods and components, including electronic components such as chips and hard-disk drives.

Limits to how much can actually be shipped by the larger companies are being met through the assistance of smaller companies doing business with China. Many logistics providers are offering packages of trade facilitation services targeted to small-to-medium size Japanese importers. Smaller companies typically lack the foothold needed in China and the right financing know-how [LCs, etc.], thus often being forced to use a trading house or other middleman. Logistics service providers such as IMP let these smaller companies find products over the Internet, then use services to get needed products into Japan with less effort and risk on their part.

Versatility in being able to respond to a variety of shipping requests is integral to these solutions. The Deutsche Post WorldNet logistics IT system gives clients the power to not only offer shipping capability from 500 grams to 500 tonnes, it also offers a host of add-on services, such as tracking, delivery speed versus price [e.g., overnight versus two weeks], warehousing, breakdown of single loads into multiple deliveries and other value added features.

The microchip industry in Japan, long the flagship industry of Japan's growth (along with the automobile industry), has slowed for some time now. However, Japan is experiencing an increased demand for freight. This increase is due, at least in part, to recovering consumer demand for products, but also the general trend to start building intelligent products. These include auto manufacturers using more semiconductors in order to keep demand in place for the industry.

11 Singapore

A British colony from 1819 to 1959, Singapore became an independent city-state in 1965 following a failed attempt to form a union with Borneo, Sarawak, and Malaya (in present-day Malaysia). Since then, it has developed into one of the most prosperous countries in the world, holding the highest GDP per capita in Southeast Asia.

A tiny island lacking in natural resources, Singapore has thrived due to its extensive trade links and liberal economic policies. Politically, Singapore remains an authoritarian state governed by the People's Action Party (PAP) since its inception. Opposition political leaders seldom appear in the state-controlled media, and while Singapore does hold regular elections, opposition parties are vastly underrepresented in Singapore's parliament. Singaporeans also lack basic civil liberties such as freedom of speech.

Lee Kwan Yew served as Singapore's president from 1959 to 1990 and has remained active in government since then. He is considered by many Singaporeans as the "father of the country". The current president is Lee's eldest son, Lee Hsien Loong, who has held office since 2004. Since his accession, the younger Lee has prioritised continued economic liberalisation while maintaining PAP control of political life.

Singapore has long had frosty relations with its two nearest neighbours, Malaysia and Indonesia, despite once attempting to form a union with the former. With Western countries, however, Singapore enjoys strong trade and diplomatic links, a significant factor in the city-state's rise to economic prosperity. A charter member of ASEAN, Singapore has nonetheless pursued bi-lateral trade agreements with countries such as New Zealand out of frustration with ASEAN's slow pace of reform. Its commitment to trade liberalisation far outstrips that of its neighbours, and cooperation in regard to the War on Terror has solidified military links between Singapore and the United States.

An ethnically diverse nation, Singaporean leaders have at times struggled to maintain unity between its Chinese, Malay, and Indian populations. The Chinese comprise the vast majority of Singapore's citizens and are in firm control of the country's political and business apparatus. The city-state also serves as an important financial nexus for ethnic-Chinese businesses throughout the region, particularly from Indonesia.

11.1 Economy and Trade

Singapore has a highly industrialised, successful economy in which agriculture and mining effectively play no role. Its per capita income (measured in PPP) of USD$49,000 is ranked seventh in the world and first in Asia. Singaporeans enjoy one of the highest standards of living in the world.

Due to its small size, Singapore relies heavily on foreign trade for economic sustenance. The value of trades in goods (measured as exports plus imports) is 345percent greater than overall GDP, a number nearly 30 times that of similarly developed Japan. This focus on international trade, precipitated by Singapore's maritime location and small domestic market, has been in place since independence. As a

result (and benefiting from an almost corruption-free government) Singapore's economy grew at a nearly 9percent clip from 1960 to 1999.

Manufacturing in Singapore is dominated by electronics, an emphasis that has been in place since the US firm Texas Instruments established a semi-conductor plant in the city-state in 1967. While lucrative, Singapore's electronics industry is highly susceptible to global economic downturns, such as one in 2001 that cut output by 21.2percent. In an effort to diversity its manufacturing sector, Singapore has developed a viable pharmaceutical industry that grew by more than 25percent in 2006. Nonetheless, electronics still comprise the largest share of Singapore's manufacturing sector.

Singapore's superb port infrastructure, highly-skilled workforce, and lack of corruption have made conditions ideal for brisk international trade. Malaysia remains Singapore's foremost trading partner in both exports and imports, respectively comprising 12.9percent and 13.1percent of the total. Singapore's chief exports are electronic goods, chemicals, and consumer goods. Machinery and equipment account for more than half of Singapore's imports, mainly in the form of electronic parts, to which Singapore adds an estimated 28percent of value. While Singapore's trade relationships with both the EU and US remain strong, China (Hong Kong included) has quickly become a vital trade partner as well as the recipient of a great deal of Singaporean foreign direct investment.

Despite being affected by the global economic downturn in the first years of the decade, Singapore's growth outlook remains strong. Economists estimated the city-state attained a real GDP growth rate of 7.1percent in 2006, placing it among the top of all developed nations.

Key Economic Indicators	
Population (m):	4.5
GDP (USD bn; market exchange rate):	161.3(b)
GDP (USD bn; PPP):	187.1
GDP per head (USD; market exchange rate):	35,956
GDP per head (USD; PPP):	41,701
Real GDP growth:	7.1
Inflation:	1.1
Exchange Rate:	1.51(b)
Source: Economist	

Geographical Facts	
Land area (sq km):	682.7 sq km
Water area (sq km):	10 sq km
Total area (sq km):	692.7 sq km
Source: World Factbook	

Major Exports percent	
Electronic components & parts	25.5
Telecommunications equipment	17.7
Petroleum products	12.3
Scientific & optical instruments	4.9
Source: Economist	

Major Imports percent	
Office machines	52.7
Petroleum products	20.3
Telecommunications equipment	7.7
Scientific & optical equipment	6
Source: Economist	

Exports Partners percent	
Malaysia	12.9
Hong Kong	10.4
China	9.7
US	8.8
Source: Economist	

Import Partners percent	
Malaysia	13.1
US	12.3
China	12.1
Japan	8.1
Source: Economist	

11.2 Transport Infrastructure

Extensive, modern, and well-managed, Singapore has a world-class transport network. Both Changi Airport and the Port of Singapore are widely considered to be the best in the world, and within the city-state itself both road and rail services are excellent. Two bridges link Singapore with Malaysia and thus to the rest of the Asian landmass, and roads and ferries link the main island to Singapore's smaller, outlying territories. In general, Singapore's transport infrastructure has been instrumental in facilitating the country's remarkable economic prosperity.

Transport Data	
Total Road Length (km)	3,262 km
Motorways (km)	paved: 3,262 km (includes 150 km of expressways)
Railways (km)	
Total	
Airports	
Total	8
Sea Ports	
Total	1
Source: World Factbook	

11.2.1 Road Network

Of Singapore's 3,262 kilometres of road, all are paved and well-maintained; potholes are rarely evident. The Land Transport Authority manages both urban roads in the city centre (many of which operate on tolls) and a network of expressways that serve as major transport arteries. These expressways include

the Pan Island Expressway (linking west to east), the Bukit Tima (connecting Singapore to Malaysia across the causeway), the East Coast Parkway (going from the Central Business District to Changi Airport in the east), and the Ayer Rajah Expressway going to the industrial region in the west. Expansion of the expressway is planned and may be completed before 2015. Expressway infrastructure is important to the Singapore government because of the need to link residential outer districts with the city centre, where many commute to work.

In order to limit traffic congestion in the city centre, the Singaporean government strictly regulates issuance of drivers' licenses. In addition, the city's excellent urban rail network has reduced incentives for Singaporeans to use private transport.

11.2.2 Rail Network

Singapore's rail network can be divided into three distinct categories: a Mass Rapid Transit (MRT) system used in the city centre, a Light Rail Transit (LRT) system connecting outer neighbourhoods to the city centre, and an international heavy rail network connecting Singapore with Malaysia. The MRT debuted in 1987 in an effort to reduce congestion on city buses, and while passengers still use the bus network nearly twice as much as the MRT, government investment in new lines as well as economic incentives could reduce this discrepancy in future years. The Singaporean government has stated its goal of having 70percent of all peak time commutes be done on public transport, justifying its effort to develop the rail network further.

11.2.3 Airports

By many accounts, Changi Airport is considered to be the world's best and a major international hub in Asia. In terms of passenger traffic, Changi is the 19th busiest airport in the world, processing more than 36m passengers in 2007. It is also the 11th largest airport in terms of cargo traffic and easily the largest in Southeast Asia.

Singapore Airlines (SIA) is the city-state's flag carrier and largest airline; its flights occupy two terminals at Changi. Recently, SIA has formed alliances with other medium-sized airports in order to extend its global reach, notably acquiring a 49percent share of Virgin Atlantic. Attempts to coordinate with airlines in New Zealand and Australia have proved less successful.

Singapore Airlines has also invested in its own budget carrier, careful to capitalise on a fast-growing industry within Asia. TigerAir competes with two other Singapore-based budget airlines: JetStar Asia and Valuair. Changi has even set aside a separate terminal for these short, regional flights, though at present only TigerAir has set up their operations there.

11.2.4 Sea Ports

Modern and efficient, Singapore's port has become the busiest in the world as measured by cargo tonnage, notwithstanding competition from the nearby Malaysian port of Tanjung Pelepas. Singapore handles half of the world's supply of crude oil and roughly a quarter of the world's shipping containers. It also remains the world's busiest transhipment port, owing to its proximity to large neighbouring countries lacking Singapore's superior capacities.

The importance of Singapore's port to the country derives from the importance of trade to the city-state's economy. Capacity growth in nearby ports has led the Port of Singapore Authority International (PSA International) to invest in several foreign facilities, particularly in China. Two years ago, PSA took a 20percent stake in Hong Kong-based Hutchison Port Holdings, currently the world's largest port company.

11.3 Singaporean Logistics Market

11.3.1 Overview

Singapore's logistics market is large and growing, ranking as one of the three largest logistics hubs in Asia along with Hong Kong and Tokyo. Its massive export sector and extensive trade links throughout the region has led to a high concentration of 3PL firms in Singapore, many involved in the city-state's prodigious electronics trade. Many 3PL firms in Singapore are of European or North American origins as pan-Asian logistics companies have been slow to develop. Singapore's largely corrupt-free government, coupled with its modern infrastructure, has been an ideal choice for foreign 3PL's to break into the Asian market.

At present, logistics accounts for roughly 8percent of Singapore's GDP, a number that is expected to reach 13percent by 2018. Correspondingly, employment in the logistics sector is expected to increase by 120,000 in the next four years, reflecting an Asia-wide trend in logistics industry growth.

11.3.2 Distribution Clusters

Singapore's two most significant distribution clusters are located around Changi International Airport and The Port of Singapore. Located at the northern end of the airport, the 47-hectare Changi Airfreight Centre (CAC) operates as a Free Trade Zone where companies can process and store cargo without documentation or custom tariffs. Several international 3PL firms operate from the CAC's vast warehouse floor, where a total of 2.2m tonnes of cargo is handled a year. Such efficient shipment operations, coupled with Changi's status as a major air travel hub, ensure Singapore's pre-eminence in logistics infrastructure.

Warehousing and distribution at Singapore's port are mainly handled by four major Distriparks, the most modern of which is called Keppel Distripark. Connected to the port via a flyway, Keppel Distripark has 41

warehousing modules with a combined floor size of 113,000 square metres. These distribution centres ensure speedy and reliable transport of goods from the port to points abroad.

Singapore's major transhipment industry ensures a regular flow of international cargo traffic in its waters, often to its major trading partners of Malaysia, China, and Indonesia. In addition to sea links, both road and rail connect the island state to neighbouring Malaysia, providing an additional means of distribution.

Singapore Logistics Performance Index*		
Overall LPI	score	4.1
	rank	1.2
	conf	0.05
Customs	score	3.1
	rank	1.4
	conf	0.14
Infrastructure	score	4.1
	rank	1.3
	conf	0.12
International shipments	score	4.4
	rank	1.3
	conf	0.13
Logistics competence	score	4.1
	rank	1.3
	conf	0.12
Tracking & tracing	score	4.1
	rank	1.2
	conf	0.13
Domestic logistics costs	score	2.1
	rank	4.23
	conf	0.13
Timeliness	score	4.1
	rank	1.2
	conf	0.11
Source: World Bank		

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

11.3.3 Logistics Market Size and Growth

Growing at 8.4percent annually, the intra-Asian logistics market is outpacing global growth by nearly a third. Singapore, as the main transhipment hub on the continent, is poised to capitalise on the enormous economic potential of Asian economies as a whole. Adding to the city-state's prowess in sea trade is the growing pre-eminence of Changi International Airport as a major air freight hub.

The Singaporean government is currently taking measures to ensure the continued growth of the logistics industry. The Logistics Enhancement and Applications Programme (LEAP) encourages the cooperation of both government and the private sector. The increase of foreign-run 3PL's within Singapore has also spurred greater growth in the logistics market.

12 Taiwan (Chinese Taipei)

Taiwan, a tear-shaped island off the south-eastern coast of China, became a Chinese territory in the late 17th century when the ruling Qing Dynasty overthrew the Ming loyalist Koshinga, who himself had defeated Dutch and Spanish colonists roughly thirty years earlier. Taiwan's status received little attention from the imperial government until 1895, when the island was ceded to Japan following the latter's victory in the Sino-Japanese War.

Following sixty years as a Japanese colony, Taiwan returned to China in 1945, in a settlement negotiated by Kuomintang (KMT) President Chiang Kai-Shek. Four years later, Chiang would flee to the island after his defeat in the Chinese Civil War, and would govern Taiwan as an absolute dictator until his death in 1976.

Beginning in 1949, Taiwan allied itself with Western countries and adopted a market-based economy focused on export-oriented industries. Wide political recognition of the country ceased in the 1970s as the West reoriented itself toward mainland China, and around the same time Chiang's son (and successor) Chiang Ching-Kuo began introducing political reforms. By the middle of the 1980s, opposition parties became legal and political prisoners released, and the Taiwanese government renounced its stated intention of re-capturing mainland China.

Under the guidance of President Lee Teng-Hui, who succeeded the younger Chiang, Taiwan continued to implement political reforms and held its first nationwide direct presidential elections in 1996. In 2000, Chen Shui-bian of the Democratic People's Party (DPP) captured the presidency, ending a half-century of continuous Kuomintang rule.

Despite initial popularity, the DPP government struggled to weed out corruption, leading to the election of KMT politician Ma Ying-jeou in early 2008. Currently, Taiwan's polity remains evenly divided between pro-independence and pro-reunification camps, and the status-quo appears likely to persist for the time being. Loosening of restrictions on the use of the Taiwanese dialect (identical to that of south Fujian in

China) indicate that Taiwan seeks its own "national identity" without explicit calls for independence from China.

12.1 Economy and Trade

When Chiang Kai-Shek and the Kuomintang arrived in 1949 to govern the island, Taiwan's economy was dominated by agriculture; namely, sugar and rice exports. Soon, high levels of US aid combined with government investment in industry led to the tremendous growth of the manufacturing industry, and by the 1960s Taiwan had developed a prosperous export-oriented industrial economy. A rise in production costs prompted the shift of much manufacturing industries overseas, first to Southeast Asian countries and later, after liberalisation, to the People's Republic of China (PRC). Subsequently, Taiwan focused on producing high-technology goods, most recently semi-conductors and liquid crystal display (LCD) units.

Unlike in countries such as Japan or South Korea, the bulk of Taiwan's enterprises are small and medium-sized, insulating the island somewhat from the 1997 East Asian Financial Crisis. Since 1990, the government has prioritised economic liberalisation, namely in the form of privatising state-owned enterprises (SOEs). Taiwan's 2002 accession into the World Trade Organisation (WTO) has exacerbated this trend, as Taipei has permitted foreign firms greater access into the domestic Taiwanese market. While links between the ROC and PRC have multiplied in recent years (some estimates put the number of Taiwanese enterprises on the Chinese mainland at 50,000), business leaders have called for further deregulation. Taiwan's linguistic, cultural, and geographical ties to the mainland indicate tremendous trade potential between the two economies.

Taiwan's GDP grew by 5.7 percent in 2007, and export growth approached 8 percent, due to an upsurge in the global electronics market. Forecasts for 2008 are strong.

Key Economic Indicators 2007	
Population (m):	22.7
GDP (USD bn; market exchange rate):	383.3(b)
GDP (USD bn; PPP):	783.3
GDP per head (USD; market exchange rate):	16,913
GDP per head (USD; PPP):	34,566
Real GDP growth:	4.9
Inflation:	1.2
Exchange Rate:	32.8(b)
Source: Economist	

Geographical Facts	
Land area (sq km):	32,260 sq km
Water area (sq km):	3,720 sq km
Total area (sq km):	35,980 sq km
Source: World Factbook	

Major Exports percent 2007	
Machinery & electrical equipment	47.9
Base metals	11.3
Precision instruments	8.1
Plastic & rubber articles	7.7
Source: Economist	

Major Imports percent 2007	
Machinery & electrical equipment	35.8
Basic metals	11.4
Mineral fuels	19.1
Chemicals & related products	11.1
Source: Economist	

Exports Partners percent 2007	
China	26.6
Hong Kong	16.2
US	13.6
Japan	6.8
Source: Economist	

Import Partners percent 2007	
Japan	21.0
China	12.8
US	12.1
South Korea	6.9
Source: Economist	

12.2 Transport Infrastructure

Transport Data	
Total Road Length (km)	40,262 km
Motorways (km)	paved: 38,171 km (includes 976 km of expressways)
Railways (km)	
Total	1,588 km
Airports	
Total	41
Sea Ports	
Total	Chilung (Keelung), Kaohsiung, Taichung
Source: World Factbook	

12.2.1 Road Network

Both the west and east coats of Taiwan are serviced by major roads covering the entire length of the island, with the west coast roads far more congested due to the region's much higher population. Three roads cross the island to link both coasts, but frequent earthquake and typhoon damage have created

logistical problems. A priority for the Taiwanese government has been to improve these east-west roads in order to develop poorer parts of the island.

A high-speed highway connects Taiwan's largest port at Kaohsiung to the capital Taipei, and trucking along this route provides the bulk of the island's freight traffic.

12.2.2 Rail Network

Rail track in Taiwan encircles the island, connecting the capital of Taipei to cities lining the east and west coasts. A new "bullet train" service inaugurated in 2007 travels along the west coast from Taipei to the southern port city of Kaohsiung, encompassing the island's major economic corridor. The new train service reduced travel time along the 345km route to a mere 90 minutes from a previous average of four hours.

Along Taiwan's east coast, a conventional electric train line runs along the coast, effectively encircling the island at its terminus at Kaohsiung. As of yet, there are no plans to build a high-speed rail in the east, as topographical difficulties could render such a project impossible. Taiwan's centre, comprised mainly of rugged mountains, also lacks a rail service; as a result, most direct transport between the two coasts occurs on road.

12.2.3 Airports

Taipei's Taoyuan International Airport is Taiwan's largest and the world's 16th busiest in terms of container traffic. In 2007, Taoyuan handled 1.6m metric tonnes of cargo, trailing only Hong Kong, Shanghai, Seoul, Singapore, and Tokyo within East Asia. In 2008, over 24 million passengers travelled through Taoyuan's two terminals, and plans for the construction of a third terminal have been proposed.

Southern Taiwan's Kaohsiung Airport also offers international flights, though most of these are regional. The other 41 airports on the island are reserved for domestic travel only.

12.2.4 Sea Ports

As an island, Taiwan is heavily reliant on its maritime industry to facilitate international trade.

Kaohsiung is Taiwan's busiest port and among the busiest in the world; in 2007 its 10.26m TEU ranked 8th in the world. A new container, upon completion of construction, will increase production by 2m TEU by 2013. The port currently handles roughly two thirds of all cargo in Taiwan.

Taiwan also has major ports at Taichung and Keelung. While the latter attained mild growth figures in 2007 (exceeding 2.2m TEU), the former has shrunk in size in recent years.

Taiwan's shipping industry faces a major obstacle in consummating trade with mainland China. As a result of government bans and regulations, Taiwanese ports have been unable to maximise their potential, a source of friction between the island's political and business communities.

12.3 Taiwanese Logistics Market

12.3.1 Overview

The logistics market in Taiwan benefits from several advantages, mainly derived from the island's proximity to several of the largest cities in East Asia. Among seven major airports in the Asia-Pacific region (Sydney, Singapore, Tokyo, Seoul, Manila, Hong Kong, and Shanghai), Taipei offers the shortest average flight time at just over two hours and fifteen minutes. Likewise, shipping times from Taiwan's largest port of Kaohsiung are significantly shorter than most other major harbours in the region, including nearby Hong Kong.

At present, Taiwan's logistics industry is the fifth largest in Asia and 21st in the world, according to the World Bank. There are over 11,000 registered logistics companies on the island, and in 2006 the industry reported annual revenues of USD22.3bn.

The Taiwanese government has established five Free Trade Zones intended to ease barriers to trade. While these measures have led to the growth of the market, government restrictions on trade with mainland China have prevented Taiwanese logistics firms from taking full advantage of the greater Chinese market.

Taiwan, China Logistics Perfomance *Index		
Overall LPI	score	3.64
	rank	21
	conf	0.09
Customs	score	3.25
	rank	25
	conf	0.23
Infrastructure	score	3.62
	rank	21
	conf	0.22
International shipments	score	3.65
	rank	16
	conf	0.23
Logistics competence	score	3.58
	rank	23
	conf	0.2
Tracking & tracing	score	3.6
	rank	24
	conf	0.25
Domestic logistics costs	score	3.1
	rank	43
	conf	0.2
Timeliness	score	4.18
	rank	15
	conf	0.22
Source: World Bank		

12.3.2 Distribution Clusters

Taiwan's port city of Kaohsiung has become the most prominent distribution centre in the country. Recently, the Port of Kaohsiung and the Yangming Marine Transport Corporation commenced a NTD 300m project aimed at building an international logistics centre at the port. The new facility will include a six-storey high-tech building as well as a two-storey computerised warehouse, as well as other operations spread over a site of 1.4 hectares.

Taiwan's Taoyuan Airport, ranked 22nd globally in cargo tonnage, is the island's other major distribution point. Transport links between the airport and the port city of Kaohsiung are serviced by a modern highway as well as a high-speed train.

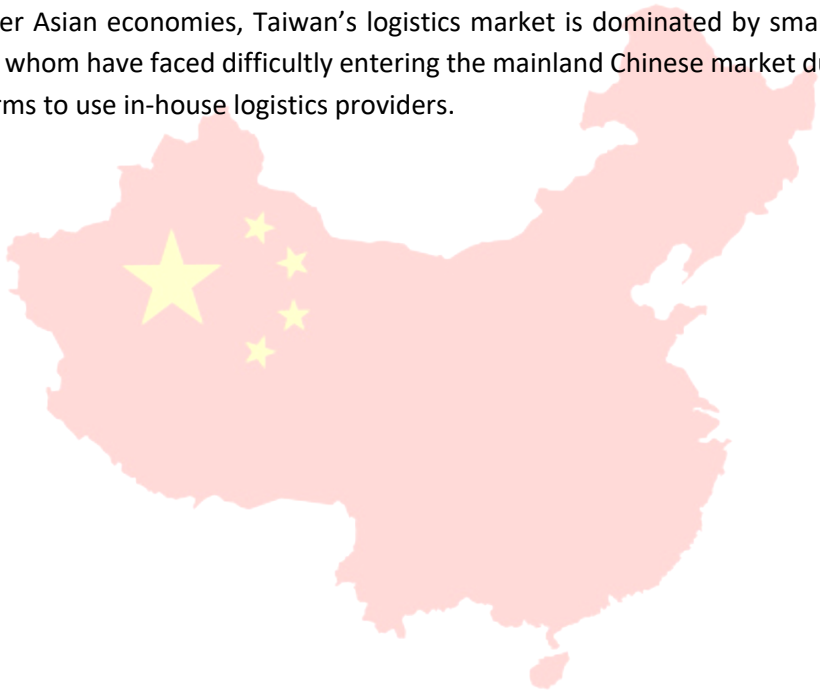
* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

While the distribution of goods along the western corridor remain efficient, Taiwan has struggled to provide similar levels of quality to its more remote areas, particularly along the east coast and in the interior.

12.3.3 Logistics Market Size and Growth

With overall economic growth at 5.7percent and export growth nearing 10percent, the Taiwanese logistics market seems poised to continue growing. While logistics rank 21st in overall size, Taiwan's logistics costs are far higher than several competing entities, a problem the government has attempted to fix by investing in a major new distribution centre at Kaohsiung. While Taiwan's ports are presented with favourable tax conditions, restrictions on trade with China (the island's largest export partner) have driven up logistics costs and hindered growth of the market.

Like many other Asian economies, Taiwan's logistics market is dominated by small and medium-sized firms, many of whom have faced difficultly entering the mainland Chinese market due to the preference of mainland firms to use in-house logistics providers.



13 Thailand

Thailand is situated in continental Southeast Asia, bordering Myanmar in its west, Cambodia and Laos in its east, and Malaysia in its south. In southern Thailand, a narrow peninsula borders the Andaman Sea to the west and the Gulf of Thailand to the east.

Thailand is the only nation in Southeast Asia never to have been colonised by a European power, as the nation emerged as an independent kingdom in the 14th century. Beginning in the middle of the 19th century, the United Kingdom effectively controlled Thailand's export economy, particularly in regard to commodities like rice, teak, tin, and rubber. Internal pressures led to the overthrow of Thailand's absolute monarchy and the establishment of a constitutional government in 1932. Nonetheless, the monarchy still plays a vital role in the nation's politics, culture, and society. While nominally a democracy, Thailand has endured several military coups in the past seventy-five years, most recently in the fall of 2006.

From 1985 to 1996, Thailand enjoyed the world's highest growth rate, but the collapse of the Baht in 1997 led to a 10percent contraction in the economy and precipitated the broad East Asian Financial Crisis that year. Eventually, Thailand's economy resumed steady growth, with the baht now trading at roughly 30 to the US dollar.

13.1 Economy and Trade

Thailand's economy was dominated by agriculture until foreign investment spurred the growth of an industrial sector in the 1970s. In the following decade, Thailand transitioned to an export-oriented economy focused on labour-intensive products such as textiles and garments, although in the ensuing years exports of high-technology goods have gradually become predominant.

While agriculture comprises just over 11percent of the Thai GDP, 49percent of the Thai labour force remains employed in the sector. However, in recent years Thai agriculture suffered from both the avian flu crisis and Indian Ocean tsunami, both of which struck the country in 2004. As a result, Thai agriculture contracted by roughly 10percent in 2005 and 2006. Even still, Thailand remains the world's largest exporter of rice.

Upon the election of Thaksin Shinawatra as president in 2001, the Thai government launched a macro-economic policy scheme that implemented populist measures intended to boost the nation's rural population. Shinawatra placed a three-year moratorium on debt owed by farmers, issued a grant of Bt 1m ($25,000) to each of the 70,000 villages under a Village Fund programme, and set-up a health-care scheme permitting a one-time payment of Bt 30 ($.75)

While Shinawatra's policies received broad support in Thailand, opponents claimed that they were irresponsible and the military regime that replaced Shinawatra in 2006 moved to change government management of the economy. The civilian restoration in early 2008, however, saw a reversion back to several of the former president's populist programmes.

Thailand's recovery from the 1997 financial crisis began in earnest in 2002, when the Thai GDP sustained growth of over 5percent for three years. In 2005, the uncertain political situation and tsunami disaster caused a slight downturn, as the economy has grown by a little over 4percent over the past three years, ranking below several of Thailand's East Asian neighbours. However, its well-developed infrastructure, investment-friendly climate, and free-market economy has kept the overall outlook for the Thai economy bright.

Thailand is a signatory to both the World Trade Organisation (WTO) and the Association of Southeast Asian Nations (ASEAN) as well as several bilateral free-trade agreements with countries such as India and Australia. The United States is Thailand's largest export market, though much of Thailand's recovery from the Asian Financial Crisis resulted from its increased exports to its regional trading partners.

Textiles and shoes dominated the Thai export market until the mid-1990s, when manufactured goods began to assume pre-eminence. Presently, over 90percent of Thai exported goods are manufactured, mainly consisting of electronic computer goods, computer components and automobiles. The development of the manufacturing sector led to an increase in Thai imports of raw materials and crude oil, the latter of which is mainly imported from the United Arab Emirates. Thailand's import bill (on a customs basis) reached USD141.3bn in 2007, nearly double that of 2003.

In addition to the United States, Thailand's major trading partners are Japan, China, and the European Union, as well as other signatory members of ASEAN.

Key Economic Indicators 2007	
Population (m):	65.7
GDP (USD bn; market exchange rate):	245.7
GDP (USD bn; PPP):	519.4
GDP per head (USD; PPP):	7,900
Real GDP growth:	4.8
Inflation:	2.2
Exchange Rate:	THB/USD-33.599 (2007)
Source: CIA World Factbook	

Geographical Facts	
Land area (sq km):	511,770
Water area (sq km):	2,230
Total area (sq km):	514,000
Source: CIA World Factbook	

Major Exports percent	
Machinery and Mechanical Appliances	15.4
Electrical Apparatus For Circuits	10.3
Vehicles, Parts & Accessories	8.4
Electrical Appliances	7.5
Other	58.1
Source: Economist	

Major Imports percent 2007	
Fuel & Lubricants	18.1
Minerals&metal products	14.3
Electronic parts	11.2
Industrial machinery, tools&parts	6.9
Source: Economist	

Exports Partners percent 2007	
US	12.6
Japan	11.9
China	9.7
Singapore	6.3
Source: Economist	

Import Partners percent	
Japan	20.3
China	11.6
US	6.8
Malaysia	6.2
Source: World Factbook	

13.2 Transport Infrastructure

During the 1980s, Thailand's infrastructure often proved inadequate to deal with its rapidly expanding economy, at times even threatening to curtail the nation's impressive growth. In the ensuing years, the Thai government has invested greatly in improving rail, air, and road networks throughout the country. Most notably, the completion of Bangkok's Suvarnabhumi Airport in 2006 has helped the Thai capital handle capacity constraints, an important consideration for an airport that acts as a major regional hub.

Logistics infrastructure accounts for 25percent of the Thai GDP, a figure roughly one third higher than the global average. Thailand's government has stated that its major priorities include improving transport

between Bangkok to the capital's surrounding areas (thus helping to alleviate Thailand's notorious traffic jams) as well as furthering infrastructure development in economically disadvantaged regions in the country.

Transport Data	
Total Road Length (km)	62,401 km
Motorways (km)	62,176 km (unpaved)
Railways (km)	
Total	4,071 km
Airports	
Total	106 (2007)
Sea Ports	
Total	4 Bangkok, Laem Chabang, Prachuap Port, Si Racha
Source: CIA	

13.2.1 Road Network

With over 60,000km of paved road, Thailand's road network is one of the most comprehensive in the region, as even rural areas are well-connected through paved roads. Despite the breadth of Thailand's road network, the vast majority of existing roads are dual-carriageways, meaning that u-turns and intersections regularly slow traffic. In an effort to improve the economic efficiency of road travel as well as alleviate Thailand's traffic congestion, the central government approved construction of over 4,000km of high-speed motorways in 1997.

Although rural areas are well-looked after by their representatives in Thailand's parliament, Thailand's powerful automobile lobby has pressed the government to make the construction of new roads in Bangkok a greater priority, placing a strain on available resources.

In recent years, Thailand has worked with other regional governments to plan major international roads. In 2007, the Thai, Chinese, and Lao governments agreed to construct a bridge over the Mekong River at Chiang Khong, slated for completion in 2011. Thailand hopes that its investment in trans-national infrastructure will foster greater efficiency when dealing with the massive Chinese market.

13.2.2 Rail Network

Thailand's railway network is the second-most extensive in Southeast Asia and the 43rd largest in the world. Although there are more than 4,000km of tracks extending to all parts of the country, Thailand's rail network often endures difficulties during rainy months and its rolling stock is in need of upgrading.

In an effort to modernise its rail system, the Thai government is planning two major initiatives. In May 2008, Parliament considered a measure that would partially privatise the State Railways of Thailand (SRT), an institution that has been saddled with enormous debt (TBT51.2b) and has been undermined by inefficiency and sub-par service. Secondly, the government plans to build double tracks on all main lines throughout the country, a measure that would greatly increase speed and efficiency.

13.2.3 Airports

By far the largest and most important of Thailand's 65 paved airports is Suvarnabhumi International Airport in Bangkok, opened in September 2006. Suvarnhabhumi is the busiest airport in Southeast Asia in terms of passenger traffic and fourth largest in Asia, trailing only Tokyo, Beijing, and Hong Kong. The new airport also has a cargo capacity of 1.3m metric tonnes, a nearly twofold increase from Bangkok's cargo intake at Don Muang International Airport in 2003. In Southeast Asia, only Singapore's Changi Airport is capable of handling a higher volume of cargo.

Suvarnabhumi's proximity to Bangkok is central to the Thai government's plan to reduce logistics costs, and the government is currently constructing double track rail links to improve transport times for both passengers and cargo. However, predicted increases in passenger traffic have led some to predict that Suvarnabhumi will reach maximum capacity within the next decade, leading the government to consider expansions that may complicate airport logistics.

Thailand is also considering an expansion of Chiang Mai Airport in the north of the country, allowing the city to become a departure point for regional destinations such as Laos and Cambodia as well as to highlight the north's considerable tourism possibilities.

13.2.4 Sea Ports

Thailand's proximity to several major economic powers as well as its more than 3,000km of coastline justify the existence of eight major ports, the largest of which is located at Laem Chabang on the Gulf of Thailand. Having only recently overtaken Bangkok's Tong Kloey as Thailand's largest port, Laem Chabang has become the 4th busiest port in Southeast Asia and the 22nd most heavily used in the world.

In 2004, the Port Authority of Thailand granted a thirty-year concession to the Hong Kong based Hutchison Port Holdings to construct six new berths at Laem Chabang. Currently, experts estimate that within the next decade Laem Chabang's capacity will expand from 3.8m TEU to roughly 10m, which would render it the region's busiest port after Singapore.

This emphasis on Laem Chabang (rather than Bangkok) results from the latter port's heavy congestion and inability to serve large ocean-going container ships, leading to serious constraints on Thailand's shipping industry. Thailand also benefits from Laem Chabang's advantageous location. Positioned on the Eastern Seaboard roughly 110km south of the capital, Laem Chabang is situated within Thailand's largest industrial area, home to many manufacturing, petrochemical industries and auto assembly plants. Its proximity to such a wide array of industries led Thailand to transfer much of its shipping industry there from Bangkok in an effort to cut logistics costs.

Thailand also plans to invest heavily in developing a second port at Chiang Saen in north Thailand's Chiang Rai province. This port serves as an important gateway to Thailand's rapidly growing trade with southwest China's Yunnan Province, which increased threefold (as measured in Thai baht) between 2000

and 2002. Because the existing port at Chiang Sean is located at an important historical site, the Thai government will instead commence construction of a new port in 2009, hoping to enlarge trade capacity with China and the greater Mekong River region.

13.3 Thai Logistics Market

13.3.1 Overview

Over the past twenty years, one of Thailand's major economic challenges has been to modernise its logistics infrastructure in order to keep pace with breakneck growth. Given its central location (flight times from Bangkok to most major Asian cities rarely exceed five hours), Thailand is ideally situated to capitalise on trade opportunities and become a major hub for the shipping business. However, difficulties in the logistics field have thus far prevented Thailand from maximising its potential.

Poor supply chains have artificially inflated the price of Thai food exports, as the prevalence of middle-men and a high spoilage rate have undermined agri-business. In addition, Thailand spends USD450m annually on importing empty shipping containers, a number that would be drastically reduced if Thailand could produce these containers domestically.

Another major problem for the Thai logistics market has been its over-reliance on road transport. Up to 86percent of Thailand's cargo movement occurs on land, while the railway network accounts for only 2percent. Due to rising fuel costs, the Thai government could reduce logistics costs if it were to transfer more of its cargo transport to the railway system. Better rail infrastructure- in particular a link between northern Thailand and southern China- would be necessity in improving logistics efficiency.

The Thai government has recently recognised the need to construct a deep-water port on the country's Bay of Bengal coast in an effort to reduce shipping costs. At present, shipments to locations in South Asia and the Indian Ocean mainly originate from Laem Chabang port, located on the Gulf of Thailand. Building a more conveniently-located port would reduce the cost of Thai goods and make them more competitive on the global market.

Thailand Logistics Performance Index*		
Overall LPI	score	3.1
	rank	2.1
	conf	0.10
Customs	score	3.3
	rank	2.2
	conf	0.26
Infrastructure	score	3.1
	rank	2.1
	conf	0.23
International shipments	score	3.1
	rank	2.2
	conf	0.23
Logistics competence	score	3.1
	rank	1.30
	conf	0.23
Tracking & tracing	score	3.1
	rank	2.6
	conf	0.29
Domestic logistics costs	score	3.1
	rank	1.29
	conf	0.23
Timeliness	score	3.1
	rank	1.29
	conf	0.28
Source: World Bank		

13.3.2 Distribution Clusters

The construction of Suvarnabhumi International Airport in 2006 has provided Thailand with a major multimodal distribution centre that vastly improves upon the capabilities offered by the airport it replaced. Among other advantages, Suvarnabhumi is equipped with a 190,000 square metre cargo terminal, allowing for faster cargo clearance and minimising damage. In addition, the new terminal has

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

a 100,000 square metre Customs Free zone, allowing for companies to import cargo, store it, and pay duties only when removing items from the zone for domestic use.

The Thai government plans to construct double-tracks linking Suvarnabhumi airport to other parts of the country by rail. These improvements, coupled with the airport's proximity to Thailand's largest sea port at Laem Chabang, will transform Suvarnabhumi into a highly efficient multimodal distribution cluster that will only benefit the Thai economy.

Thailand's second locus for cargo distribution is its port at Laem Chabang, located 100km south of Bangkok. Due to Thailand's multiple free-trade agreements with ASEAN, China, Japan, and India, Laem Chabang's modernised distribution cluster will serve an ever more vital role in expanding Thailand's economy.

13.3.3 Logistics Market Size and Growth

Thailand's logistics market has grown both in raw size and in terms of the national economy; logistics costs as a percentage of GDP ballooned to 23.4percent in 2008, up from 19percent two years earlier. Rising global oil prices and Thailand's reliance on road transport accounts for logistics' larger role in the kingdom's economy. Reducing logistics costs (to levels currently enjoyed by OECD-member nations) has become a priority for the Thai government, who believes more efficient logistics will reduce the cost of Thai exports.

In order to facilitate lower costs, the Thai government has constructed a modern distribution centre near the port of Laem Chabang. In addition, Bangkok's Suvarnabhumi Airport, opened in 2006, has excellent road links both to the port and to points abroad. Major logistics players, such as DHL, have opened centres within the airport in order to capitalise on Thailand's improved distribution networks.

One of Asia's largest logistics players, the Kerry logistics firm has pinpointed Thailand as a major centre for an intermodal distribution network throughout Southeast Asia and China. Kerry Siam Seaport, a subsidiary of the firm, has the largest private terminal at Laem Chabang port, capable of processing 500,000 TEU per year. Kerry also controls 23 warehouses within the country totalling 80,000 square metres of storage capacity.

Its emergence in Thailand indicates growing interest among international 3PL firms in working within the kingdom, as economic and political conditions tend to be the most congenial in the region. However, recent political instability may discourage certain foreign firms from entering the market, a cause of concern for Thailand's business community.

14 South Korea

Korea has existed as an independent state or as a collection of states for over a thousand years. Between its initial unification in the 7th century - from three pre-existing Korean states – up to the 20th century, Korea existed as a single independent country. In 1905, in the wake of the Russo-Japanese War, Korea became a protectorate of imperial Japan, and in 1910 was annexed as a colony. Korea regained its independence following Japan's surrender to the United States in 1945 and was then partitioned by the US and the Soviet Union in 1945. The Republic of Korea (ROK) was set up in the southern half of the Korean Peninsula while a Communist-style government was installed in the north (the DPRK). During the Korean War (1950-53), US lead UN forces fought with soldiers of the ROK against DPRK attacks that were supported by China and the Soviet Union. Four million lives were lost by the time of the signing of the 1953 armistice splitting the peninsula along a demilitarized zone at about the 38th parallel.

During the cold war, the Korean peninsula was one of the testing main testing grounds of the communist vs. capitalist economic competition. American realpolitik meant that it needed to support the South Korean in order to ensure its economic growth. The continued US military presence in Korea comes at the expense of a variety of conditions favourable to South Korea.

There is a complacency that often sets once a nation achieves ‘developed’ status than can slow development but this is not the case for South Korea. It has a politically galvanised population and is prone to violent protests and social unrest. Compulsory military service has inadvertently ensured a highly skilled labour force. As a result, South Korea achieved rapid economic growth with per capita income rising to roughly 14 times the level of North Korea.

After two military coups and several decades of authoritarian rule, South Korea is now a democracy. The constitution of the Sixth Republic, promulgated in 1987, provides for a directly elected president, who serves for a single five-year term and appoints the prime minister and the cabinet. There is also a unicameral National Assembly (parliament), elected at four-yearly intervals. In 1993, Kim Young-sam became South Korea's first civilian president following 32 years of military rule. South Korea today is a fully functioning modern democracy. In June 2000, a historic first North-South summit took place between the South's President Kim Dae-jung and the North's leader Kim Jong Il. In October 2007, a second North-South summit took place between the South's President ROH Moo-hyun and the North Korean leader. Lee Myung-bak of the Grand National Party (GNP) won the December 2007 presidential election and took office on February 25th 2008. The GNP won the parliamentary election on April 9th 2008.

Overdue restructuring and opening of the economy was forced by the 1997-98 Asian financial crisis forced. These reforms facilitated a swift recovery. Kim Dae-jung's administration (1998-2003) was particularly successful in reforming the banking sector, but this momentum slowed in the final years of his presidency. His successor, Roh Moo-hyun, whose presidential term ended in February 2008, proved erratic, despite a pro-reform image and platform. The chaebol (conglomerates) have used their influence as exporters and investors to resist further changes. Major foreign acquisitions in the financial sector have generated a backlash against further opening of the market, especially in service sectors.

Corporate income tax rates range from 13percent to 25percent. Companies are also subject to a residence surtax applied at a rate of 10percent of corporate tax liability. Rates for personal income range from 8percent to 35percent. A residency surcharge of 10percent of income tax liability is also applied. The value-added tax (VAT) rate is 10percent.

Merchandise export revenue in 2007 (fob-fob, payments basis) rose by 14.2percent to USD379bn, and the value of merchandise imports increased by 15percent to USD350bn. As a result South Korea's trade surplus for the year of around USD29bn, improved from USD28bn in 2006.

14.1 Economy and Trade

Key Economic Indicators 2007	
Population (m):	49.0
GDP (USD bn; market exchange rate):	969.8
GDP (USD bn; PPP):	1,199
GDP per head (USD; market exchange rate):	19,794
GDP per head (USD; PPP):	24,477
Real GDP growth:	4.4
Inflation:	2.9
Exchange Rate:	929
Source: Economist	

Geographical Facts	
Land area (sq km):	98,190 sq km
Water area (sq km):	290 sq km
Total area (sq km):	98,480 sq km
Source: Economist	

Major Exports percent	
Information & communications products	13.6
Semiconductors	10.5
Chemicals	9.9
Machinery & equipment	9.7
Source: Economist	

Major Imports percent	
Crude petroleum	16.9
Machinery & equipment	11.0
Semiconductors	8.6
Chemicals	8.2
Source: Economist	

Exports Partners percent	
China	22.1
US	12.3
Japan	7.1
Hong Kong	5.0
Source: Economist	

Import Partners percent	
China	17.7
Japan	15.8
US	10.4
Saudi Arabia	5.9
Source: Economist	

14.2 Transport Infrastructure

Transport Data	
Total Road Length (km)	102,293 km
Motorways (km)	paved: 78,581 km (includes 3,060 km of expressways)
Railways (km)	
Total	3,472 km
Airports	
Total	105
Sea Ports	
Total	33
Source: World Factbook	

14.2.1 Road Network

South Korea has a total road network of 63,000. About 13,000 km of this is national highway; the remainder consists of provincial and local roads. Successive governments made car ownership prohibitively expensive for the average wage earner for decades but this policy was abandoned with the recognition for growing need for a strong domestic base for the car industry, which was initially designed to be export-oriented. Increasing affluence during the years of high economic growth in the mid-1980s and early 1990s led to an explosion in car ownership: the number of vehicles registered rose to 3.4m in 1990 and stood at 16.4m in 2007.

Nevertheless, at just under 220 cars per 1,000 people in 2007, the stock of cars in South Korea is low by the standards of many industrialized nations, suggesting that there is considerable scope for growth in the sector.

14.2.2 Rail Network

The Ministry of Transport operates the Korean National Railroad (KNR). The backbone of the railway system is the 444 km double-tracked Kyongbu line, running between Busan on the southeast coast and Seoul in the northwest. In 2004, a high speed line was added to the existing conventional line. Taegu and Taejon as well as other major and intermediate cities can be reached on this route. While it constitutes less than 15 percent of total route-km, the line accounts for nearly half of the rail system's operating revenues.

Diverging to the southwest from the Kyongbu line at Taejon, the Honam line reaches into the agricultural heartlands of North and South Cholla provinces and on to the important south-western port of Mokpo. Branching off from the Honam line at Iri is the Cholla line, extending southward to Yosu, another important southern port and the site of a major oil refinery.

Linking these two lines across the south coast with the Kyongbu line near Pusan is the Kyongchon line. The Yongdong line, which links the east coast with the Chungang line at Yongju, extends northward to the major east coast city of Kangnung. The KNR's second route to the east coast was completed through the heart of the Taebaek mountain range in 1993.

Rising car ownership has led to a decline in public transport. Over the past few years the railways have lost much of their share of the commercial passenger transport market. Growth in rail transport was negligible in the 1990s and the early years of this decade, rising by an annual average of 0.6percent in passenger-km terms in the ten years to 2005.

14.2.3 Airports

The opening of Incheon airport near Seoul in 2001 has given Korea three main airports; the other two are Gimpo airport, also near Seoul, and Busan airport in the south. All three serve international routes. Incheon airport has capacity to handle 30m passengers a year, and will increase its capacity to 44m passengers a year, with the second stage of an expansion project due to complete in the first half of 2008. From its founding in

Since the 1970s, the nation's aviation market has been expanding at an annual rate of 14 percent on domestic routes and 22 percent on international lines since the 1970s. From the late 1980s the government took a variety of actions to stimulate the industry including deregulation and licensing a second carrier, Asiana Airlines. The government continues to expand its air transport improvement programs. As a result, Korean air freight providers now offer services to and from as many as 82 foreign cities across 30 countries. The combined rank of Korean Air and Asiana is 6th in cargo handling in the world.

The new Incheon International Airport, 25 miles west of Seoul, is vying to become an air transport hub of Northeast Asia. The new high-tech airport, which opened for service in March 2001, boasts a 1.7m tonnes in freight per year. When the final phase of the airport construction is completed in 2020, its yearly capacity would jump to 100 7.5m tonnes of cargo. The airport is strategically located at the

geographic centre of Northeast Asia, and 40 cities, with a population of over one million, are within a three-hour flight from this modern airport.

More than 800 international flights per week are currently flying between Seoul and major cities around the world. Gimpo Airport (the former Kimpo) is the nation's second largest airport, and serves domestic routes and serves as a backup for Incheon International Airport.

14.2.4 Sea Ports

With seven of the world's ten-largest shipbuilding companies, South Korea has one of the largest shipbuilding industries in the world. According to government figures in 2005, Busan boasted a handling capacity of 131m tonnes; the handling capacity of Gwangyang, the second-largest port, was 120m tonnes in the same year. Growth in China is expected to provide a boost to South Korean ports.

Ports in Korea handle an estimated 99 percent of the nation's entire export and import freight. Thus the ports represent both the core distribution arm of the Korean economy and the centre of logistics, waterfront industries, fisheries and international trade.

The Port of Busan (the former Pusan), located in south-eastern Korea, is the country's largest seaport and one of the world's largest ports, handling some 95percent of South Korea's container transport and serves as the nation's principal gateway linking the Pacific Ocean to the Asian continent. In 2001, it processed a total of 7.9m TEU in freight, becoming the world's third largest port (in terms of container shipments). The port handles about 43 percent of the nation's exports and 95 percent of the total container loads. Currently, it is serving more than 50 foreign carriers from all over the world, proving that it has already become a hub port, both regionally and globally.

According to Korean Government estimates, in 2005 there were 42 ships over 8000teus, and by 2010 this figure will be 203 making the key to the region who will emerge as the winner in the deep-water mega port competition in North-east Asia.

Strategically located between China, Asia's largest manufacturer, and Japan, Asia's largest market, Korea is attempting to position itself as the logistics hub of Northeast Asia. With extensive plans, Korea is investing heavily to expand its container terminal development with new container berths planned at Busan, Ulsan, Gwangyang, and Incheon.

In order to increase port capacities, the government is currently in the process of expanding two major ports, the Ports of Busan and Kwangyang. In 2001, when the initial expansion works at these ports were completed, Korea's container handling capacity rose to 8m TEUs. The capacity will increase to a total of 14m TEUs by 2011. The construction of an additional container terminal is also under way near Gadeokto, west of Busan. The first ten berths were completed in 2005 and when fully completed, the piers will serve a total of 24 modernized berths.

According to the government's development strategy, North-east Asia is home to 20 percent of global GDP, 25 percent of world population and 33 percent of container value. The region is expected to exceed

238mn teus by 2010, a 100 percent increase over 2004, and a sharper increase than any other region. By 2010 it is estimated to be 38 percent of the global market, primarily driven by strong China growth.

This dynamic, coupled with a marked structural change that is taking place in shipping fleets toward larger vessels, led policy makers in Korea to believe the future held increased demand for specialised transhipment services favouring mega ports able to capitalise on their vast economies of scale and diversified services.

The initial long run model adopted by the Korean Government was that most other ports in the North-east Asia region would be forced into regional roles as feeding became increasingly important. With this in mind, both Busan and Gwangyang have embarked upon major program to develop these capacities.

However, it remains to be seen whether Korea's development strategy failed to foresee the speed with which China was able to bring its deep water harbours online so rapidly, perhaps curtailing any significant role for the Korean peninsular in the long term development of the East Asian maritime sector.

14.3 Korean Logistics Market

14.3.1 Overview

The Korean peninsula is surrounded on three sides by sea and strategically located between Japan, China and Russia. This allows South Korea to develop itself in order to serve as a logistics hub for north-eastern Asia. In order to meet this challenge in modern logistics, Korea has steadily pursued logistics modernisation programs. Ultimately, Korea hopes to become a logistics hub in Northeast Asia.

The problems of domestic logistics industry include the high portion of first-party logistics handling, small scale of logistics firms and inefficient logistics systems stemming from inadequate standardization, computerization and collaboration. As a result of innovations in organisational levels and added IT advantages such as RFID and an extremely modernised set of transport networks, the South Korean logistics industry has been characterised by a steady decline in the costs of logistics. These have occurred in spite of sharp increases in fuel prices.

Korea, Rep. Logistics Performance Index*		
Overall LPI	score	3.52
	rank	25
	conf	0.07
Customs	score	3.22
	rank	27
	conf	0.13
Infrastructure	score	3.44
	rank	25
	conf	0.18
International shipments	score	3.44
	rank	24
	conf	0.18
Logistics competence	score	3.63
	rank	22
	conf	0.17
Tracking & tracing	score	3.56
	rank	25
	conf	0.2
Domestic logistics costs	score	2.73
	rank	110
	conf	0.17
Timeliness	score	3.86
	rank	30
	conf	0.18
Source: World Bank		

14.3.2 Distribution Clusters

Under the 10-year Freight Transport Improvement Plan, the government aims to establish a hub-and-spoke distribution network, linking all major transport centres across the nation. To achieve the goal, the government will continue to construct freight distribution facilities. In all, 39 freight distribution facilities, including truck terminals, warehouses, wholesale markets, will be constructed by 2011, in addition to highway networks. These facilities are set to facilitate a more systematic movement of goods at lower logistics cost.

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

14.3.3 Logistics Market Size and Growth

Although the Korean logistics market has grew to 92.5 trillion won (as of 2004) and has continued since, the proportion of first- and second-party logistics, in which the manufacturers transport products using their own vehicles or those of their affiliated firms, respectively, exceeds more than 60 percent of the total logistics volume, leading to inefficient logistics activities. In 2006, the market share of third-party logistics (3PL) was 38.8 percent, far lower than the corresponding portions of 75 percent to 90 percent in the United States and Europe, where manufacturers focus on production and outsource logistics-related activities to specialized firms. This suggests that the high percentage of first- and second-party logistics discourages the growth of specialized transporters in Korea.

National Intermodal Transport Network Plan (2000-2019) was set to secure transport infrastructure to boost national competitiveness in the 21st century global competition, to build a cost-reducing logistics system and a highly efficient transport system, to attain swift, safe, convenient and environment-friendly transport system, and to establish inter-Korean transport network in preparation for unification of South and North Korea. In order to implement the above-mentioned transport strategies, approximately 335 trillion KRW is expected to be spent from 2000 to 2019. Around 25bn KRW of it will be paid by the Government with revenue such as those from traffic taxes. The remaining amount will be financed by private capital inducement and investment from public corporations.

The government has also set a series of incentives to build an infrastructure for a logistics and business hub. The scheme to build a logistics and business hub involves reconnecting the two inter-Korean railways and roads that are currently under construction, and establish a transport network connecting with the Trans-Siberia Railway (TSR) and the Trans-China Railway (TCR).

15 Vietnam

Vietnam, a long, sickle-shaped country, occupies the eastern coast of the Southeast Asian peninsula. It borders China to the north, Laos and Cambodia to the west, and the South China Sea and Gulf of Tonkin to the east. Vietnam's population of 86m is the second-largest in Southeast Asia, after Indonesia. Despite the existence of 54 separate ethnic groups within the country, Vietnam largely remains ethnically and linguistically homogeneous.

For much of its history, Vietnam defined itself in opposition to China. The Chinese occupied Vietnam for more than 1,000 years until the 9th century BCE, and since then Vietnam has repeatedly fended off incursions by their much larger neighbour. After attaining nominal independence, the Vietnamese state spread from its base in the Red River delta to its present-day territory, overtaking both the Champa and Khmer empires in the process. In the late 19th century, Vietnam was colonised by the French, who would control the nation (as part of French Indochina) for the next seventy years. Under the leadership of future head of state Ho Chi Minh, a Communist insurgency battled the French and eventually forced their withdrawal in 1954, a victory that led to the division of the country into northern and southern halves.

With the north under his control, Ho Chi Minh fomented an insurgency in the south, placing pressure on the corrupt American-backed government of Ngo Dinh Diem. Following Diem's assassination in 1963, the US escalated its military involvement in Vietnam, placing 500,000 troops in country by 1968. After a series of military setbacks, the United States negotiated an end to the war in 1973, and the collapse of the South government two years later led to the eventual reunification of Vietnam under northern control in 1976.

Newly independent, Vietnam commenced a major reorganization of society into a single-party, centrally planned state. Economic reforms in 1986 (doi moi) liberalised Vietnam's economic system while leaving the political structure intact. Vietnam withdrew its troops from Cambodia in 1989 and subsequently became a member of the international community in good standing, joining the World Trade Organisation in 2007.

The Vietnamese Communist Party has de facto control over all branches of Vietnam's government, and judicial independence remains weak. Nevertheless, Vietnam's economy continues to experience rapid growth and the country seems poised to remain on the international economic stage for years to come.

15.1 Economy and Trade

Following reunification, Vietnam implemented a Soviet-style planned economy throughout the whole country, seizing land in the south that had previously been in private hands. In 1986, the government introduced the doi moi policy, introducing market reforms and privatisation to the Vietnamese economy, leading to a period of sustained growth that lifted substantial numbers of Vietnamese out of poverty. Since 2001, when Vietnam began recovering from the 1997 East Asian financial crisis, the government has focused on modernising the economy and producing more export-driven industries. Significantly,

Vietnam's accession to the WTO in 2007 allows the nation to benefit from the elimination of quotas on textiles and clothing among organisation members.

Although more than half of the national labour force is employed in the agriculture sector, its share of Vietnam's GDP has fallen to 23percent from 41percent since 1991. Nevertheless, Vietnam remains a major exporter of several agricultural commodities, such as coffee, rubber, and pepper. 55percent of total cultivated area is devoted to rice and a plateau in domestic demand has allowed Vietnam to maintain its status as one of the world's leading rice exporters. Several factors act as a potential limiting factor on Vietnam's agricultural production. Only 20percent of the land is arable, and much of its production potential has been undermined by soil erosion, urban encroachment, and deforestation.

In the industrial sector, once dominant state-owned enterprises (SOEs) have grown at a much slower pace than both foreign-invested enterprises (FIEs) and private domestic enterprises. In order to improve economic performance, the Vietnamese government has restructured more than 3,000 SOEs (well over half of the overall number) since 2001, most commonly though partial privatisation (equitising). However, the largest share of privatised companies remains in government hands, limiting foreign investment in formerly state-owned enterprises to a mere 20 companies. While opposition to privatisation remains strong in Vietnam (mainly from workers and managers who fear a loss in job security), the central government recently announced that sectors such as the media, railway, and key airports would no longer be entirely state-owned.

The United States, with whom Vietnam normalised relations in 1995, is the nation's largest export partner, accounting for 22percent of outgoing trade. Much of the trade concerns the garment industry, a result of a bilateral trade agreement signed between the two countries in 2001. Restrictions on imports from China, implemented occasionally by the U.S. and E.U., have also benefited Vietnamese exports.

China remains Vietnam's largest import partner, comprising a total of 20percent. The increase in Vietnamese manufacturing exports, combined with rising global oil and steel prices, have led to a vast overall growth of the national import market.

With annual GDP growth nearing 8percent, the overall outlook for Vietnam's economy is strong. In order to preserve these gains, however, the Vietnamese government will have to prioritise infrastructure development (in order to cut logistics costs) as well as accelerate the rate of which plodding SOEs are restructured.

Key Economic Indicators 2007	
Population (m):	85.9
GDP (USD bn; market exchange rate):	70.7
GDP (USD bn; PPP):	221.3
GDP per head (USD; market exchange rate):	823
GDP per head (USD; PPP):	2,575
Real GDP growth:	8.0
Inflation:	7.0
Exchange Rate:	16,179(b)
Source: Economist	

Geographical Facts	
Land area (sq km):	4,200 sq km
Water area (sq km):	325,360 sq km
Total area (sq km):	329,560 sq km
Source: World Factbook	

Major Exports percent 2007	
Crude oil	16.7
Textiles & garments	16.4
Footwear	8.3
Fisheries products	7.8
Source: Economist	

Major Imports percent 2007	
Machinery, equipment & parts	16.3
Refined petroleum	11.6
Steel	7.9
Material for textile industry	3.7
Source: Economist	

Exports Partners percent 2007	
US	21.5
Japan	12.4
Australia	9.5
China	5.8
Source: Economist	

Import Partners percent 2007	
China	18.6
Singapore	13.6
Japan	10.3
South Korea	10.1
Source: Economist	

15.2 Transport Infrastructure

In an effort to keep pace with its growing economy as well as cater to the needs of the world's 13th largest population, the Vietnamese government has invested heavily in upgrading its transport

infrastructure. Overall, its record of success can best be described as mixed. While Vietnam's vast network of inland waterways transport goods efficiently throughout the country, an inadequate road network (less than 20percent paved) and limited railway capacity have thus far prevented Vietnam from meeting its transport potential. On the other hand, Vietnam's rapidly growing air and seaport industry has facilitated a higher volume of trade, lending hope that improvements across all transport networks will have a similar effect.

Transport Data	
Total Road Length (km)	222,179 km
Motorways (km)	paved: 42,167 km
Railways (km)	
Total	2,600 km
Airports	
Total	44
Major Sea Ports	
Total	Da Nang, Hai Phong, Ho Chi Minh City
Source: World Factsheet	

15.2.1 Road Network

Vietnam's road network is an area in need of improvement. While there are over 200,000km of roads in the country, far fewer than half are paved. Furthermore, more isolated parts of the country are inaccessible by road at least one month each year due to adverse weather conditions. Providing reliable transport to isolated regions is a major goal of the government, which has proposed increased funding for road infrastructure starting in 2010. Extensive foreign aid, long a major source of logistics funding, will also help develop Vietnam's road network in the coming years.

In Vietnam's two major cities, Hanoi and Ho Chi Minh City, the prevalence of motorcycles combined with a growing demand for cars have led to increases in traffic and pollution levels. To alleviate these concerns, the Vietnamese government is planning to build an above-ground rail network in Hanoi and an underground subway in HCMC, both scheduled to begin construction in 2010.

15.2.2 Rail Network

Vietnam's rail network is comprehensive but inefficient and slow. Covering more than 2,000km), much of Vietnam's railroad is single-tracked and narrow gauged, slowing transport times for both passengers and cargo. The 1,700km journey from Hanoi to Ho Chi Minh City takes 32 hours and is often marred by flooding and bridge closures during wet months. Recently, the Vietnamese government has partnered with foreign firms to launch construction projects intended to bolster the national railway network. In addition to planned improvements to the domestic rail network, there are also proposals for international links to cities in Cambodia and China.

Due to the railways' logistical problems and Vietnam's extensive network of inland waterways, the rail network only carries about 7percent of all freight, roughly half the amount transported by Vietnam's various rivers and tributaries.

15.2.3 Airports

There are 37 airports in Vietnam, of which three service international flights. These international airports are located in Hanoi, Ho Chi Minh City, and the central city of Danang. The state-owned airline, Vietnam Airways (VA), is rapidly expanding, planning to add 22 planes to its fleet by 2010. In the past, the Vietnamese government restricted private competition in an effort to support VA, but due to the risk of alienating tourists with high ticket prices, there have been recent measures allowing other airlines access to the Vietnamese air market.

A master plan for a new international airport near HCMC was approved in 2006. Called Long Thanh, the new airport when completed will be the largest in Vietnam as well as serve as a major hub for passenger traffic in Southeast Asia. HCMC's existing airport (Tan Son Naht) will eventually handle only domestic flights.

15.2.4 Sea Ports

At present, there are seven international ports in Vietnam, of which the three largest are in Haiphong (north), Danang (central) and Ho Chi Minh City (south). While Vietnam's extensive coastline (over 3,000km) speaks to its potential as a major hub in East Asian shipping, deficiencies in size and efficient handling have limited the efficacy of Vietnam's ports.

In comparison to their counterparts in Thailand and Malaysia, Vietnamese port storage capacity and maximum vessel size fall far short despite similar berth sizes. As a result, transport of goods to major markets (such as the US or EU) often must be transhipped at foreign ports, increasing the expensive of such transactions. For example, shipments from Ho Chi Minh City to Los Angeles, USA are almost 30percent more expensive than identical shipments from Hong Kong and 15percent more expensive than those from three major Chinese ports. These higher costs erase advantages Vietnam has with its cheap and abundant labour force. Additionally, urban traffic congestion in the HCMC area has also caused problems in transporting goods from the port further afield in Vietnam.

To remedy deficiencies in port infrastructure, the Vietnamese government has earmarked funds for improving existing ports and constructing new ones. Most significantly, authorities announced in 2006 that the Saigon Port would be moved to Cat Lai and Hiep Phuoc. In addition to an overall increase in size, the new port location will be near Vietnam's industrial parks and export centres, a far more convenient setting than in Ho Chi Minh City. Furthermore, a more remote location avoids the traffic congestion that increasingly characterises urban HCMC.

15.3 Vietnamese Logistics Market

15.3.1 Overview

Vietnam's rapid economic growth has occurred in spite of, not because of, its logistics infrastructure. Despite recent government proposals to invest in logistics (particularly in sea ports), persistent problems have thus far prevented Vietnam from maximising trade benefits.

Vietnam's sea ports, for example, are plagued by an insufficient container handling capacity, as few ports in Vietnam are able to lift 30 containers per hour as per international standard. Furthermore, inefficient customs processing means that goods shipped into Vietnam must wait far longer than similar shipments to countries such as China. Road transport, vital in Vietnam due to the underutilisation of the national rail network, is undermined by poor maintenance as well as lax enforcement of driving and vehicle regulations. The overall paucity of paved roads, particularly in remote rural areas, prevents Vietnam's poorest people from gaining as much from the country's prodigious economic growth. In the country's international airports, inadequate x-ray technology has occasionally led to the deterioration and destruction of valuable imports.

Massive investment in logistics infrastructure will undoubtedly alleviate some of these shortcomings, but improved government regulation- to be on par with Vietnam's more developed neighbours- is necessary for the logistics market to fully service the demands of Vietnam's economy.

Vietnam Logistics Performance Index*		
Overall LPI	score	2.1
	rank	2.23
	conf	0.18
Customs	score	2.1
	rank	2.7
	conf	0.37
Infrastructure	score	2.1
	rank	3.1
	conf	0.41
International shipments	score	1.4
	rank	2.17
	conf	0.39
Logistics competence	score	2.1
	rank	2.26
	conf	0.46
Tracking & tracing	score	2.1
	rank	2.23
	conf	0.43
Domestic logistics costs	score	3.1
	rank	1.18
	conf	0.78
Timeliness	score	3.1
	rank	3.6
	conf	0.60
Source: World Bank		

15.3.2 Distribution Clusters

Until recently, Vietnam lacked an adequate multimodal distribution cluster, a major inhibition in the growth of its logistics market. The planned construction of Long Thanh International Airport in southern Vietnam, announced in 2006, will establish the nation's first distribution cluster able to facilitate the massive growth of international trade. Located between Ho Chi Minh City and Vietnam's industrial park area, Long Thanh will reduce logistics costs by reducing the distance export goods previously travelled to reach the existing airport at Tan Son Naht.

* The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics 'friendliness' of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain in the home country, data collected for 100 countries. The LPI consists therefore of both perception and objective measures and helps build profiles of logistics friendliness for these countries. The scores are from one to five, one being the worst performance for the given dimension.

A promising site for a major distribution cluster also exists in the north, near the port of Haiphong. From Haiphong, the Vietnamese capital Hanoi is well-connected via road and rail links, and northern Vietnam's proximity to China is yet another incentive for the government to invest in its distribution clusters in the Red River area.

15.3.3 Logistics Market Size and Growth

Government investment in infrastructure coupled with frenetic economic growth have led to an increase in logistics cost as percentage of GDP, estimated to be between 15 and 20percent in 2006. In particular, the shipbuilding and maritime industries have grown at an annual average rate of over 30percent, though a large share of profits are taken away by foreign operators, who own 80percent of Vietnam's market share.

Despite growth in the domestic logistics market, domestic Vietnamese logistics businesses suffer from deficiencies in logistics, personnel, and capital. As a result, domestic firms often act as a sub-contractor to larger foreign companies. Vietnam's accession to the World Trade Organisation (WTO) in 2007 may also result in a greater presence of foreign firms in the country's logistics market