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*Air Cargo: Engine for Economic  
Growth and Development - A Case  
Study of Asian Region*

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# *Abstract*

*The extensive forces of liberalization and globalization have radically transformed world trade and opened up economies and fueled consumer demand in an unparalleled scale. These forces combined with emergence of China as an economic powerhouse and the economic rise of developing nations like India, have stimulated international trade dramatically over the last few years. In many Asian countries, these developments have resulted in the investments and development of all sorts of infrastructure to support the explosion in global trade. Better infrastructure and supporting services, in turn have become catalyst to even a greater demands for more goods to be delivered even faster at cheaper costs between Asian economies and their trading partners.*

*This paper evaluates the impact of air cargo trend resulting from aviation sector relating to policies, development of airports and airlines in Asia. Focus is given on its influence on the performance of airports, airlines, regulatory agencies and logistic in order to facilitate to growing demand of air trade in the region.*

***Key Words: - Liberalization, Performance, Air Cargo and International Trade***

## **Introduction**

The liberalization of trade, capital, services and technology has made possible to transform and direct to mounting amalgamation of production systems transversely without any geographical boundaries. Globalization and trade liberalization has spin out to be the driving force of economic growth worldwide. In Asia, it has harbingered an unrepresented period of high economic growth and export competitiveness. In the transition economies, it is well determined to dramatic confirmation of major doctrinal shift from past command economic system to a competitive market economy. In the today's globalized village, the test of industrial performance lies in measuring the capacity of firms to meet the benchmarking levels of competitiveness set by the world markets. Likewise, the global linkages of an enterprise determine competitiveness with other economic agents, including its suppliers of goods and services and its customers, and with the financial, communications, scientific, research and technological networks. The recent trend towards international integration is characterized by the intensification of economic linkages made business operations in an increasingly borderless environment in which production; technology and marketing are linked with global and integrated with value added chains. Therefore, infrastructure facilities are the main factors for global market system.

In an increasingly global community and market place, aviation industry plays a prominent role in the world economic activity. The current trends of Liberalization, Privatization and Globalization (LPG) have opened up new-fangled landscape in the aviation industry to support the national, regional and global economy in order to earn foreign exchange revenue in terms of trade through export and import via "Air Cargo System". Air cargo is playing an imperative role in the value chain of global transport and logistic, which in turn attracts cargo market to grow four to five folds by 2020 surpassing passenger's traffic growth. The ongoing deregulation of aviation market is having the effect of accelerating the growth trend, in increasing global

trade. As a result, this would create competition between airports and become fierce in the air cargo market. Air cargo is concentrated at few major and non-major metro airports as compared to passenger's traffic. The top 100 major global airport accounts 85.0 to 90.0 per cent of the world's total cargo. The first top 30 largest airports worldwide share around 70.0 per cent<sup>1</sup>

Air cargo industry is undergoing qualitative change in the present trend of world economy. Cost efficient cargo transportation is essential for promoting trade, creating new market opportunities and improving the productivity of manufacturing industries and agricultural commodities. The world airborne cargo is projected to grow 6.5 per cent per annum for the next 20 years. World air cargo traffic excluding CIS & Baltic nations would ascend triple times over the next 20 years, increasing from 137.10 billion RTK's to 470.00 billion RTK's in 2019. More than 40.0 per cent of the global trade is carried by air transport. Air cargo is an industry worth over US \$ 200 billion a year carries approximately above 60 million tonnes of goods yearly throughout the globe<sup>2</sup>

Air cargo is lifeline through its activity to deliver the perishable commodities and manufacture red goods. Today air cargo business generates employment opportunities in the primary, secondary and tertiary sectors. Developing economies has become a major player in the world trade due to growth in the air cargo business. It has contributed to foster trade and development in merging with many industrialized economies. The share of world trade with developing nations has soared from 25.0 per cent to 35.0 per cent. In 2004, almost 97.0% of the world airfreight are moved to and from within three pillars (Asia, Europe and North America) of the world economy. The primary demand drivers of worldwide airfreight traffic growth are –

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<sup>1</sup> Harald Deprosse, Risk Sharing in Airport Cargo Business, Airport World, 1998

<sup>2</sup> [www.aircargoworld.org](http://www.aircargoworld.org)

- ❑ Economic growth
- ❑ Globalization
- ❑ Lean inventory strategies

### **Relationship of Air Cargo to Trade and GDP**

The relationship of air cargo and trade and GDP are having a direct relationship and they are interdependent. Air cargo enables nations, regardless of location to efficiently connecting to distant market and global supply chains in a speedy, reliable manner. Thus in the new speedy logistic era, nations with good air cargo capability have competitive trade and development advantage over those without such capability. Competitive advantage, as Michael Porter and others have documented fundamental for growth. From the above references, there is well-established correlation between air cargo and GDP growth. The historical relationship between airfreight and GDP by world region from 1980 to 2000 reveals that there is a close relation between three. For example, the World Bank study 2000 reveals the relationship between the worlds GDP to world airfreight predicts close with approximately 97.0% accuracy. Since, these two are mutually causal, and they are highly interdependent. Hence, this strong interdependency holds up well across international regions as illustrated in Table: 1 below:

Table: 1

#### **Relationship of Air Freight to GDP – World Regions (1980-2000)**

Regions	R <sup>2</sup>
World	0.968
Europe and Central Asia	0.943
Latin America & Caribbean	0.968
East Asia & the Pacific	0.948
Middle East and N.Africa	0.874
Sub-Saharan Africa	0.818
South Asia	0.643

Source – World Bank, 'World Development Indicators', 2002

**Historical Air Cargo Trend**

Despite the year 2001-2003 there was a global downturn, but the air cargo industry continues to be an economic growth leader. For the last 30 years, growth in trade has constantly outperformed GDP growth; and likewise, airfreight growth has consistently outperformed trade growth. In terms of dollar values, the growth of air cargo corresponding to the dollar values for GDP and trade, the growth advantage for air cargo is even higher. In the US, the GDP grew at 38.0%, trade by 57.0% and freight value by 83.0% respectively during the period of 1992 and 2002. Table-2 shows the historical growth in GDP, Trade and Airfreight from 1972 to 2002. The air cargo growth advantage outlined above is not constrained to a few advanced economies. During the last 10 years, 90 out of a total 130 economies analyzed (representing 98.0% of the total world airfreight market), this shows that airfreight growth outpaced GDP growth in 77 countries (89.0% of the total airfreight market) signifying that air cargo is certainly a lead growth factor.

Table: 2

**Historical Growth in GDP, Trade and Airfreight - (1972-2002)**

<b>Trend</b>	<b>GDP</b>	<b>Trade</b>	<b>Airfreight</b>
1992-2002 (10 Year)	32.0%	76.0%	81.0%
1982-2002 (20 Year)	72.0%	132.0%	302.0%
1972-2002 (30 Year)	154.0%	355.0%	1395.0%
N=63			

Source: World Bank, 'World Development Indicators' 2002 & Kenan Institute for Air Commerce

Business rules are being distorted by the convergence of globalization, digitization, aviation and time based competition<sup>3</sup>. As evidence of globalization, from 1980 to 2000, world trade in goods tripled from 4.0 billion US dollars to 12.6 billion US

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<sup>3</sup> "From Airport City to Aerropolis", John D. Kasarda, Airport World, Vol-6, No: 1, Aug-Sept 2001

dollars<sup>4</sup>. Supply chains are more disseminated (geographically) and incorporated (vertically & horizontally) than ever before. Today's supply chain is featured with increasing numbers of options for raw materials and components, manufacturing and assembly as well as markets for finished goods.

### *Air Cargo in the New Economic Era*

The global economy is stressed by a speed-driven global economic era, transforming the businesses operation around the world. Underlying this transformation is the emergence of a new commercial environment in which price and quality are necessary. Increasingly, customers from both established and emerging markets demand fast and reliable delivery of products, often with distinctive, customaries features. The integration of sourcing, manufacturing, distribution and the growing importance of speedy reliable delivery form the basis of just in time. By combining information connectivity between supplier and customer with production flexibility, manufacturers can customize or otherwise differentiate products to create additional value. Air cargo business is not related with any unforeseen circumstance like terrorist attack or SARS or war, which passenger airlines are facing a dismal revenue environment. Airfreight is a subset of world trade, which is directly related to world economic growth. It is estimated that there has been approximately 2.0 % increase in the value of world trade for each 1.0% increase in the size of the economy. The drivers of freight demand prospects appears to be very brighten in most of the world despite the disruption and uncertainty caused by the war in Iraq. Indeed, output and corporate profits are gaining to rise in most parts of the developed and developing world.

### *Importance of Air Cargo Business in Global Economic Scenario*

Air cargo business has three imperative roles in the global economic scenario, namely

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<sup>4</sup> World Development Indicators, World Bank, 2002

- ❑ Global Sourcing
- ❑ Launching New Products
- ❑ Satisfying Consumers Expectations

*Global Sourcing:* Air cargo business assists in facilitating the global sourcing of manufacturing and allows manufacturers to thwart from holding inventories apart from their logistic chain. The speed and consistency of air cargo helps the individual customers and other business class groups to distribute the product within a dedicated time frame.

*Launching New Products:* Today, the global market is dwindling because people started travelling frequently and has better communications and knowledge about the new products. The modern consumer is no longer waiting for a new product for a year or so, therefore, the products are produced somewhere, but it becomes available in their own country within short span of time. Air cargo facilities these needs the product globally and also help in preventing from pirating the desirable products.

*Satisfying consumers Expectations:* Consumer expectations are growing faster; manufacturers are gaining a benefit from sourcing the products and components in the developing world, can afford to pay for the speed of air cargo, which is now looked upon as a selling point not a cost.

### **Key Strategic Players**

The global air cargo operating system is featured by a network relationship among carriers, brokers, handlers, motor carriers, integrators, airports, freight forwarders, customers, suppliers, manufacturers and logistic service providers. Today air cargo environment is becoming increasingly integrated and ground linked, characterized by door-to-door service from shipper to customers, as opposed to just airport - to - airport. Time definite services have also becoming estimated by supply chain

members and making it essential that all key players operates in an integrated and reliable fashion. The cargo 2000 study (Unisys Corporation, 2000) revealed that the speed advantage of air cargo would be compromised. But air cargo industry players themselves require a policy and operating environment, which facilitates rather than impedes their effectiveness.

### **Liberalization and Policy Measures**

Air trade rights liberalization is one of the key facilitation factors, which remains a major goal in the civil aviation policy. Today, most of the governments are focusing and recognizing their energies on passenger liberalization and for the most part have not recognized both the important difference between passenger, cargo services and the importance's of air cargo liberalization to business competitiveness, World trade and economic growth and development. Therefore, air trade liberalization is significantly related to growth in airfreight trade, net inflow of foreign direct investment (per capita) and GDP per capita. Further the econometric modeling demonstrates that nearly 80.0% of the variance in a nations economic performance can be explained by the combination of a nations level of aviation liberalization.

### **Advantages and the Economy**

A) *Business Competitive and Economic Development:* We can see the qualitative cases offering services towards positive effect of air cargo on business competitive and economic development. Major international valued products firms (Electronics – Philips, Samsung, LG and Dell computers) have substantially benefited from speedy, reliable supply chain integration by air cargo. By introducing new integrated air cargo services, many electronic goods industry's is able to consolidate its international facilities in streamlining its supply chain cutting shipping timing from weeks to days, while improving delivery reliability and substantially reducing inventory and inventory management costs. Air cargo enabled all the valued production to position itself in the mass customization arena, to dent costs by

locating sourcing operations in Asia and still time to market demands in the US and better satisfy its customers. Areas like Penang, Malaysia, Thailand directly benefited from each company strategies in which air cargo was pivotal.

B) *Development and Expansion of Metropolitan Cities*: Secondly, we can see the development of 'Metropolitan' areas were developing massively through the air cargo business, like *Sebic Bay* (Philippines), *Louisville* (USA), *Amsterdam* (Netherlands) and countries like *Dubai* (UAE) have greatly benefited from air cargo development. Since, 1995, when Fed Exp established its Asia hub at *Sebic Bay* the area has become the '*Multinational Companies Village*', which is having 200 international companies, who chose to locate at or near the airport and its associated Free trade zone. On the other side, *Amsterdam's Schiphol Airport* alone accounts for approximately 1.9% of the Netherlands economic output is expected to generate roughly 2.8% in the next decade. The *Netherlands aviation sector* is considered as *one of the most liberalized* and least corrupted in the world. It is one of the world's better customs regimes and it has attracted over 500 international companies to the Greater Schiphol area for their European distribution. Lastly, *Dubai* is seen as raising star in international air cargo business. The leadership of *Dubai* is depending on air commerce to carry the Emirates towards 21<sup>st</sup> Century commercial success. Development policies such as *Dubai Airport Free Trade Zone* (which allows 100.0% foreign ownership of companies, tax holidays to companies for 30 years and posses no duties on exported goods) have made *Dubai* appealing to companies who wish to locate positions of their global supply chain there, as well as capitalize on *Emirates Airlines*, which is rapidly expanding networks and *Dubai's* strategic location in growing Europe-Asia air cargo distribution networks.

### *Asian Aviation Scenario*

The comprehensive forces of liberalization and globalization have radically transformed Asian regions, opened up economies and fueled consumer demand in

an extraordinary scale. These forces, combined with the emergence of China as a major economic power house and the economic ascent of developing nations like India have spurred international trade dramatically over the last few years. In many Asian countries, these developments have resulted in the investment and development of all sort of infrastructure to support the explosion of global trade. Better infrastructure and supporting services, in turn have become catalyst to even greater demands for goods to be delivered even faster at cheaper costs between Asian nations and their trading partners. The phenomenal growth in global trade has huge impact in the development of airfreight industry. In the last few decades air transportation of goods has undergone dramatic change as a result of improved technologies in air transport and communication. In Asia, airfreight industry has significantly changed with ever increasing international airfreight movement, which had bought the key for '*Asian Hub Airports*'. Rapid integration of world markets and urgent demand for customized products has propelled global air commerce to dominance in the 21<sup>st</sup> century market place (John D. Kasarda, 2003).

Airports today drive global commerce; the airport of the future will be a commerce centre. Next generation airport will be destination sites, providing not only multi-modal transport networks for worldwide commerce, but also as retail and leisure outlets. If we review the past decade, the development of Asia's aviation infrastructure is remarkable. Asia's airports - from Kuala Lumpur to Seoul, Singapore, Japan and Thailand New Bangkok International Airport are setting world standards for efficiency and security. Asia's airlines are the most profitable in the world with some of the youngest, most efficient fleets, and highest customer service. If Asia wants to continue in expanding their economies, they must complete the investment in the other port - the aviation port - and this requires a world-class air traffic infrastructure. As been demonstrated by Asia's airlines and airports, this region has the capability to lead the world in air traffic infrastructure.

The Asia-Pacific region consists of more than 40 countries of various economic levels spread over a vast geographic area. To accomplish this goal, it requires accelerated cooperation between countries and new industry-government partnerships. The International Civil Aviation Organization's (ICAO) Asia-Pacific office and IATA's Asia office have traditionally played an important air traffic coordination role in the region. As we look to the future, leadership by these organizations and others such as APEC and ASEAN are needed to build the cross-regional political will for an integrated air traffic system.

As a first step, the Asia-Pacific region has the opportunity to lead the world in putting to use existing technology. Asia also has the opportunity to lead the world in other aspects of air traffic management such as congestion flow management. Currently, few countries tend to work independently when it comes to managing traffic flows. Regional traffic flow management collaboration also would help the region deal more efficiently with major disruptions, such as typhoons. China has made impressive infrastructure investments in its airports with major expansions in Beijing, Guangzhou and Shanghai - the anchors of its busiest air routes. Not surprisingly as airport capacity has increased, so too have the demands on the high-altitude en route air traffic routes connecting these major Chinese cities and the CAAC is now faced with a new strain on its en route air traffic system.

### *Asian Air Cargo Trade Performance*

Asian region has become a big player in the world air cargo market, with the highest growth rates for airfreight of any region since the 1980s. Over time, the cargo component of both traffic and revenue has become of central importance. During the year 2004-05, 45.0% of the world's air cargo moved to from or within Asia, and estimates are that by 2020, 55.0% of all airfreight will pass through Asia. The strong growth in inter-regional trade has supported the boom in airfreight as Asian exporters, excluding Japan, sold 24.0% of their goods in East Asia. According to the

Association of Asia Pacific Airlines (AAPA), cargo shipments within region were went up by 15.0%. On transpacific routes, cargo traffic increased by 16.0% while traffic between Asia and Europe continued to registered double-digit growth at 19.0%. In the future, China is likely to become the most important source of growth for cargo as inbound shipments increased about 50.0% in the first year of its membership of the World Trade Organization (WTO).

China and Vietnam are becoming forces in the Asia Pacific commercial aviation industry. Economic and tourism growth in the past years as well as continuous market liberalization, are helping these two countries to achieve the highest growth rates of air traffic growth. The International Air Transport Association (IATA) expects traffic to, from and within Vietnam will increase at an average annual rate of 10.5% to 2014, underpinned by - 6.0 -7.0% annual GDP growth. Similarly, IATA estimates that China will become the largest Asia Pacific country for domestic and international scheduled passenger combined in the next 10 years, projecting that total traffic will increase by 208.0% by 2014. We can see the air cargo performance airport wise for the last years.

### **Contribution of Asian Airlines in the Air Cargo Trade**

Association for Asia Pacific Airlines (AAPA) member airlines are always been at the forefront in developing air cargo industry in the region and currently they handled above 10.0 Million tonnes of cargo annually or about one-third of global air cargo traffic and generating revenue of US \$ 11.5 billion<sup>5</sup>. The AAPA have 1,292 fleets' mainly wide-body aircraft, of which 95 are dedicated exclusively towards freighters, and also supplemented by the available belly cargo space in the passenger aircraft fleet. The ratio of cargo volume carried by the passenger aircraft and freighter aircraft is 65:35 in the Asian region. Among the top 10 airlines worldwide in international air cargo traffic in terms of (FTK), Korean Airlines ranks the top followed by Lufthansa,

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<sup>5</sup> Association of Asia Pacific Airlines (AAPA), Annual Report 2005

Singapore Airlines, Cathay Pacific, China Airlines, Federal Express, Eva Airways, Air France, British Airways and Cargolux Airlines International.

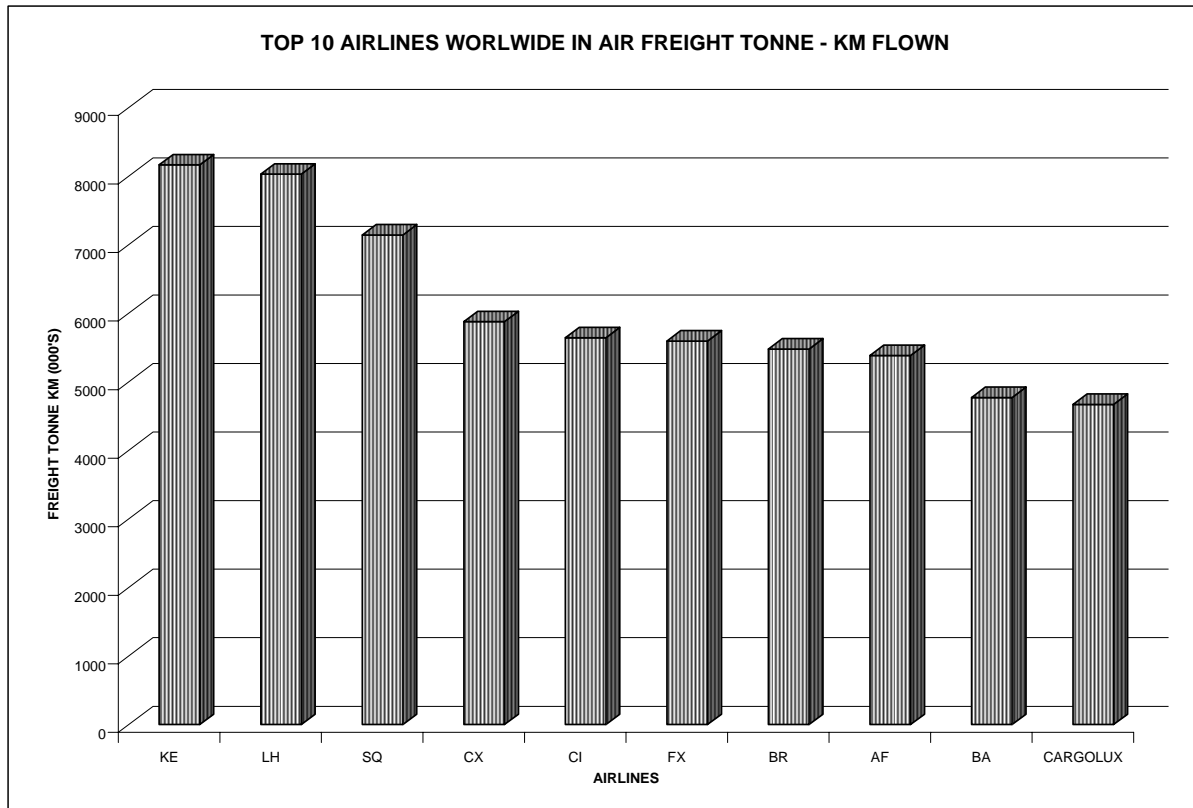
Table: 3

Top 10 Airlines worldwide in Air Cargo Movement (in FTK)

Global Rank	Airlines	Cargo Volume (000's)
1	Korean Airlines	8164
2	Lufthansa	8028
3	Singapore Airlines	7143
4	Cathay Pacific Airways	5876
5	China Airlines	5642
6	Federal Express Corp	5595
7	Eva Airways Corp	5477
8	Air France	5384
9	British Airways	4771
10	Cargolux Airlines Int'l	4670

Source: IATA, 2004

Figure-1



Asian freight markets are continuing to expand, boosted by the rapid growth of exports from the region, led by the booming of Chinese economy. Aviation Analysts projected that Asian region freight growth would be 6.0% to 8.0% annually over the next 20 years, since China and India is growing even faster at 10.0% annually. In keeping with the growth momentum, governments are progressively liberalizing routes and traffic rights for cargo services, both within existing frameworks and occasionally through new initiatives specifically focusing on cargo liberalization. For example, China has declared a policy of effective cargo “Open Skies” for freight services out of Hanian, and also prepared to grant fifth freedom cargo rights to foreign operators. Another most important feature of the pace of liberalization in China has been the announcement of relaxations in ownership and control regulations, which have allowed a number of Sino-Foreign joint venture air cargo operators to enter into the market.

In South East Asia, liberalization is progressing at a relatively slower pace, but again air cargo is leading the way. ASEAN member countries in 2002 signed a MoU to liberalize airfreight services within the region. The MoU permit unlimited 3<sup>rd</sup> and 4<sup>th</sup> freedom traffic rights for designated airlines of each member country to operate all-cargo services of up to 100 tonnes weekly in each direction, with no limitations on frequency and aircraft type. The scale of intra-Asian air cargo flows is often underestimated in comparison with the high profile export flows to developed markets in North America and Europe, but regional cargo flows are key enabler in closely integrating global supply chains. Air cargo business has achieved remarkable growth and looks forward to even brighter future prospect.

#### **Trend towards Liberalization in Asia Pacific Aviation**

Liberalization is continuing to gain a high momentum in the region. In 2004, Singapore, Thailand and Brunei have signed successive, liberalized agreements, which opened up their markets to unlimited all cargo services on any route within

three countries. These agreements, which were reached under the aegis of the ASEAN roadmap for the integration of the air travel sector, provide for other ASEAN nations to sign on when they are ready. Last year, China and Thailand has also concluded a similar agreement allowing unlimited cargo and passenger operations between the two countries. In 2003, India announced an arrangement with the members of ASEAN that permits ASEAN flag carriers to operate unlimited flights to Mumbai, New Delhi, Chennai and Kolkata. Malaysia and Hong Kong agreed in 2004 to an open capacity agreement that authorizes the carriers of both countries to operate passenger and all cargo flights between Hong Kong and any point in Malaysia, without any limitation on routing, equipment type or frequencies. According to Department of Transportation Statistics, Asia – US air cargo totaled to 3.37 million tonnes (3.71 million US tonnes) in 2004. In 2003, trade in goods between Asia Pacific nations and the US amounted to US \$ 686.0 billion, according to World Trade Organization<sup>6</sup>. Asian countries are perennially rank among America's largest trading partners. Asia's progresses in liberalizing intra-Asia air services are deeply to the United States.

### *Asian Regional Performance Overview on Air Cargo Traffic*

Asian region freight traffic dipped in 1998, thereafter continued to grow at a slower pace than in the first half of the decade, owing to the slow recovery of a number of the regions exporting economies. According to ICAO report, the region accounted for 27.7 per cent of world freight in ton-kilometers performed in 1990, later this has increased to 33.3 per cent in 2000. After the 9/11, the airfreight was growing slowly and steadily upholding the same status. However, the region share of world freight traffic is continued to be the leading freight generating region. ICAO projected that the region will return to high growth rate of 7.5 per cent annually as against the world average of 6.0 per cent.

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<sup>6</sup> US Department of Transportation, Office of Public Affairs, Washington, D.C, "ICAO Symposium on Liberalization of Air Transport in Asia Pacific", May 2005

Table: 4

**ICAO Projected Annual Average Growth of Airfreight - (1999-2019)**

<b>Regions</b>	<b>Growth Rate (in %)</b>
Africa	5.0
Asia Pacific	7.5
Europe	4.5
Middle-East	4.0
North America	5.0
Latin America & Caribbean	4.5
<b>World Average</b>	<b>6.0</b>

Source: ICAO, 2001

Further, the ICAO Projection study on “Airfreight Growth” revealed that the share of Asian region would increase to 43.0% in 2010, followed by Europe (25.0%), North America (21.0%), Middle-East (4.0%), Latin America & Caribbean (4.0%) and Africa (3.0%). This clearly indicates the Asian region will dominate the airfreight industry in the years to come due to various government policies on international trade and liberalization of aviation policies.

The Asian region is segmented into two parts namely - intra-Asia region (North East & South East Asian Region) and Southwest Asia. Intra-Asia region comprises of Eastern Pacific Rim (Japan, China, Taiwan, Korea, Singapore, the Philippines, Indonesia, Malaysia and Thailand. On the other side the southwest region, which includes India, Pakistan, Bangladesh, Srilanka, Maldives, Nepal, Bhutan and Afghanistan? We can examine the air cargo traffic market in intra-Asian region and Southwest Asia separately for better understanding and finally merge these two regions to see the overall performance at the global scale.

*Intra-Asian Region (North East & South East Asian Regions):* The intra- Asian region air cargo market constitutes 12.7% of the world’s air cargo traffic in terms of tonnage and about 6.3% in terms of tonne-kilometers. Semi manufactured components are the major exports onward to Europe and North American regions, which accounts a

major share of intra-Asia traffic. This region has grown much faster than air trade in the rest of the world during the past two decades. Since, 1981, the average annual growth rate has exceeded 10.0% for the region. Air cargo is therefore remaining an essential part of intra- Asia economic development and growth. The major items, which are moving by air, are computers, telecommunication equipment, semi manufactured goods and high value perishable goods.

Air cargo within the intra-Asia market is featured by relatively short haul around 2500 kilometers, as well as leading markets are concentrated in the air dense air trade corridors connecting Japan, Korea, Hong Kong and Singapore. The top 10 country pairs constitute one-half of total annual intra-Asian air cargo flows. Leading the market pair is Japan-Korea at 321000 tonnes, followed by Japan-Hong Kong at 285000 tonnes and Taiwan-Hong Kong at 220000 tonnes.

Table: 5

## Top 10 Country Pairs

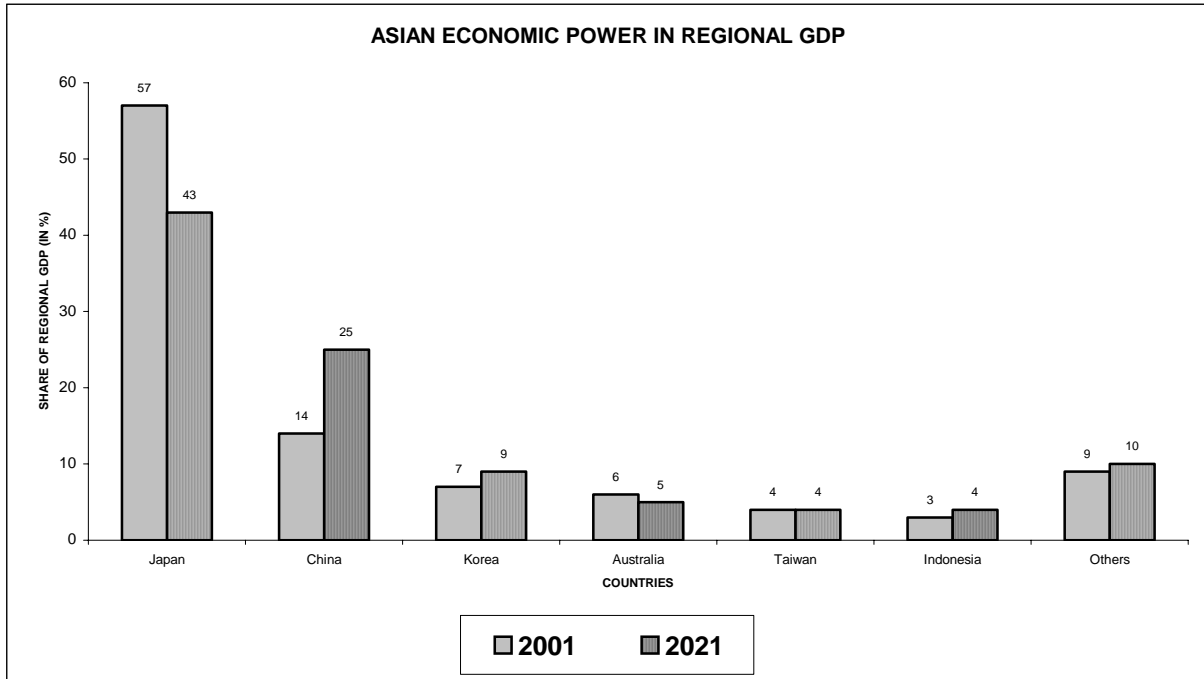
No	Country Pairs
1	Japan - Korea
2	Japan - Hong Kong
3	Hong Kong - Taiwan
4	Japan - Singapore
5	Japan - Taiwan
6	China - Malaysia
7	Australia - Singapore
8	Hong Kong - Singapore
9	Korea - Hong Kong
10	Hong Kong - Thailand

Supply chain traffic consisting of raw materials, components and sub assemblies moves between manufacturing centres to take advantage of specification, relatively low labour costs, and just-in-time (JIT) inventory management practices. Growth in inter-regional air trade has increasingly been fueled by rising consumer demand, but this component of Asian air cargo has not recently grows as much as export flows.

The combined economies of Japan and the People’s Republic of China (PRC) currently constitute 71.0% of the overall Asian economy. Hong Kong, Taiwan, South Korea and Singapore constitute a second echelon of economic power within Asia. Over the past two decades, they have shifted economic focus from low-labor-cost manufacturing, financial services or both.

Figure-2

**Projected Asia Economic Power in Regional GDP**

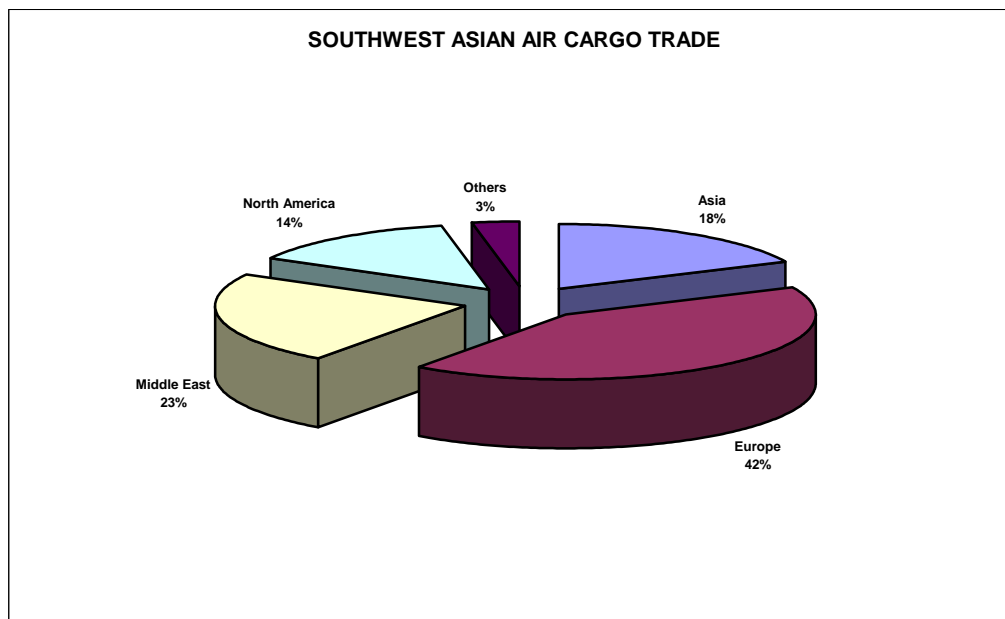


The above Figure-1 indicates that there will be a change in the regional share of GDP projected by Boeing industry. The share of Japan in regional GDP would turn down from 57.0% in 2001 to 43.0% in 2021. Whereas, the other countries like china, Korea and Indonesia would incline upward to 25.0%, 9.0% and 4.0% respectively in 2021. This reveals that there is huge market demand in these countries in the years to come.

*Southwest Asia Region:* The southwest region contributes around 3.9% approximately of the world air cargo traffic market in terms of tonnage and 4.3% in terms of tonne-

kilometers. The region comprises of Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Srilanka. The total international air cargo flow has touched 1.1 million tonnes. Europe is playing a key strategic market closely knitted with southwest region and providing 42.0% of its share in the international trade. The other regions like Middle East, Asia and North America share in the international trades with southwest region are 23.0%, 18.0% and 14.0% respectively. Region wise air trade share with other region is shown in Figure-2 below.

Figure-3



India is having a good potential market for domestic airfreight. In 2001, the Indian domestic market was estimated to exceed 160, 000 tonnes. A large service sector, a fast growing software development and information technology industry, and much more than that is overall industrial liberalization would stimulate the growth in the domestic airfreight market followed by Pakistan and Bangladesh.

### *Asian Airports Performance in Air Cargo Trade*

“Airports today impel global trade, the airport of the future will be a business nucleus”. Next invention of airports will be destination sites, providing not only multi-modal transportation networks for worldwide commerce. Major Asian airports

account 35.0% of the total Asia's international trade by volume but more than 40.0% by value. As compared to other regions, airfreight movement is most significant for Asia, since the distance from the regions markets are well connected to the major airports worldwide markets with the United States and Europe. Fast delivery and high proportion of the regions manufactured exports require timely delivery, because these manufacturers have high value to weight ratio's the ad valorem cost of their air transport is comparatively low.

The importance of airfreight in Asia can be known from the ranking of cargo volumes handled by the airport. According to the ACI 2004 annual traffic report reveals that 12 airports in the Asia region are ranking on the "Top 30 World Airports" which is accounting nearly 40.0% of the total air cargo volumes handled at the major Asian airports. The Top 30 Asian Airports ranking are appended in Table-6 for better understanding.

Airfreight facilities are playing an important role in attracting fast growing high value-added industries. Hence, competition between airports in the region is to act as a hub for major developing logistic companies. The substitution of smaller and new airports can offer better services than the larger airports. Airlines and traditional freight forwarders both compete and co-operate with each other to provide air transport based services. The progress of air freight forwarding and air freight logistic in Korea, Hong Kong, Japan and Singapore compares favorably with that in the US and Europe, while some countries still depend on a multinational air carriers for efficient airfreight logistic.

The latent demand for air cargo in the Asian region is massive, since, the region is has high population density, strong economic growth and development, raising per capita income, improving political stability and wide spread adoption of open skies policies. Many countries in the Asian region are in the job of augmenting existing

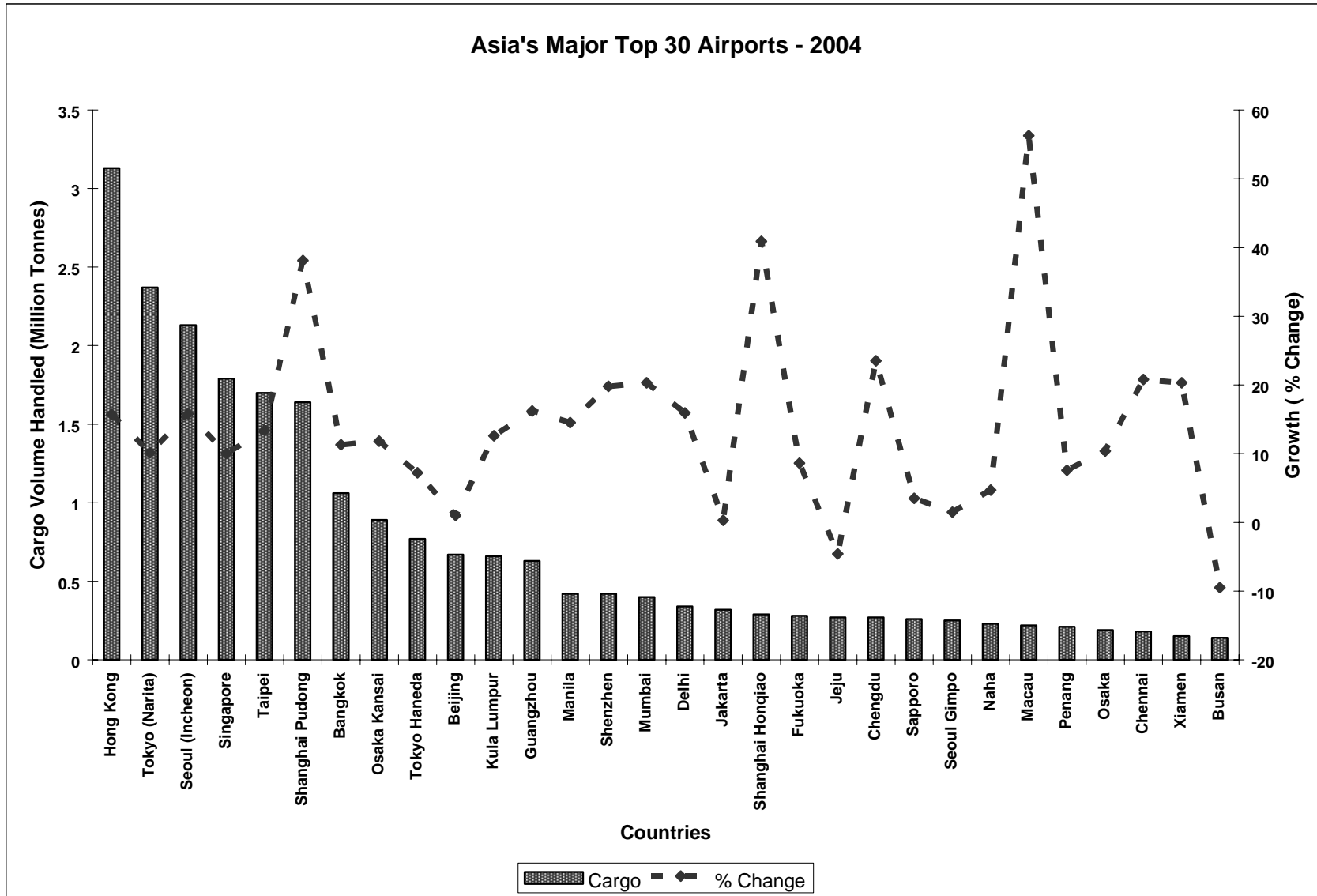
airport system to hold the growing demand of air cargo traffic as well as to compete in the regional hubs. The competitive lead of airport system in the region is depended on five major factors, which are related to the air transport activities.

Table-6

**Asia's Major Top 30 Airports - 2004**

Airport	Airport Code	Ranking		Cargo Handled (Million Tonnes)	% Change
		Global	Asia		
Hong Kong	HKG	2	1	3.13	+15.7
Tokyo (Narita)	NRT	3	2	2.37	+10.1
Seoul (Incheon)	ICN	5	3	2.13	+15.8
Singapore	SIN	9	4	1.79	+10.0
Taipei	TPE	13	5	1.70	+13.4
Shanghai Pudong	PVG	14	6	1.64	+38.1
Bangkok	BKK	19	7	1.06	+11.3
Osaka Kansai	KIX	22	8	0.89	+11.8
Tokyo Haneda	HND	24	9	0.77	+07.2
Beijing	PEK	27	10	0.67	+01.0
Kuala Lumpur	KUL	28	11	0.66	+12.6
Guangzhou	CAN	30	12	0.63	+16.2
Manila	MNL	36	13	0.42	+14.5
Shenzhen	SZX	37	14	0.42	+19.8
Mumbai	BOM	42	15	0.40	+20.3
Delhi	DEL	50	16	0.34	+15.9
Jakarta	CGK	54	17	0.32	+00.3
Shanghai Hongqiao	SHA	59	18	0.29	+40.9
Fukuoka	FUK	60	19	0.28	+08.6
Jeju	CJU	62	20	0.27	-04.6
Chengdu	CTU	63	21	0.27	+23.5
Sapporo	CTS	65	22	0.26	+03.5
Seoul Gimpo	GMP	70	23	0.25	+01.5
Naha	OKA	74	24	0.23	+04.7
Macau	MFM	78	25	0.22	+56.3
Penang	PEN	79	26	0.21	+07.6
Osaka	ITM	87	27	0.19	+10.4
Chennai	MAA	89	28	0.18	+20.8
Xiamen	XMN	102	29	0.15	+20.3
Busan	PUS	106	30	0.14	-09.5

Source: - Airport Council International, 2004



### *Factors determines Airport Competitiveness*

There are five major factors determine airport competitiveness, namely: -

1. *Spatial Factors*: The increasing of regional development around the airport impacts to create International Trade Zones, Logistic and Convention Centres, Economic Free Trade Zones, Aviation related industrial complexes and other facilities. This factor enables the growth of an airport and crafts the competitive of airport in the region.
2. *Facility Factors*: The level of airport facilities and expandability of facilities at existing airports to augment the capacity in air cargo handling.
3. *Demand Factors*: The level of O-D (Origin-Destination) demand of traffic volumes for “Hub-Spoke” network development.
4. *Service Factor*: Service factor consists of level of service to users, types of airport operations and level of airport charges.
5. *Managerial Factor*: Economical consideration such as airport operating costs, Productivity and Revenue structure.

*Service Performance of Asian Airports*: Service performances of air cargo terminals were analyzed through secondary sources by various air cargo airport surveys. Hong Kong airport ranked the top in the service performance of air cargo followed by Singapore Changi airport, Narita, Taipei, Kansai and Pudong.

*Levels of Airport Charges*: Among the airport charges to users, aircraft landing fees normally taken as the most important indicators. To analyze this, a larger aircraft (B-747-400) series were taken (352 Tonnes) was chosen standard. From the analyses, the study found that Japanese airports showed a very high level of airport charges, while Kula Lumpur, Singapore Changi and Seoul Incheon airports were relatively low (Y.Park, 2003).

*Demand Competitive Strength:* Airport demand is based on operational time, number of airlines operating, flight frequency and their network. Y.Park, 2003 study reveals that Asian airports are operating round the clock, except Tokyo (Narita) and Seoul Incheon airport have a curfew from 2300 hrs to 0600 hrs. Further the study also analyses the airlines operations, flight frequency and their networks to see the demand competitive strength. It was found that Hong Kong airport is ranking the top and plays a strong position in terms of air transport demand competitiveness followed by Narita, Incheon, Singapore Changi, Taipei, Kula Lumpur and Shanghai Pudong. Demand competitiveness of various Asian airports is depicted in the tabular form below-

Table-7

**Asian Airports Demand Competitiveness**

Airports	Operational Timings	No Of Airlines Operating	Flight Frequency per week	Net works
Japan (Narita)	Night Curfew	48	6504	309
Hong Kong	24 Hrs	56	6139	298
Singapore	24 Hrs	57	5282	268
Taipei	24 hrs	34	5072	255
Kula Lumpur	24 Hrs	36	3558	222
Japan (Kansai)	Night Curfew	49	3104	199
Seoul Incheon	Night curfew	46	2959	189
Shanghai Pudong	24 Hrs	25	1151	139

*Processing of Trade Documents:* Process of trade documents is vital indicator for clearance of air cargo. This service is done by the regulatory agency (Customs). In the customs clearance times, the economies of Asian region are quite similar to those of other developing economies but taken together developing countries are significantly slower than that of developed countries. We can see the custom clearance of various countries for air transport mode.

### Customs Clearance Timings - Air Cargo

<b>Countries</b>	<b>Average Days for Custom Clearance</b>
France	1
Germany	1
Greece	1
Netherlands	1
Spain	2
Sweden	1
United States	2
<b>Average sample of Developed Countries</b>	<b>1.3</b>

<b>Asian Countries</b>	<b>Average Days for Custom Clearance</b>
China	4
Hong Kong	2
Indonesia	3
Malaysia	4
Philippines	4
Singapore	2
Taiwan	4
Thailand	5
Vietnam	5
<b>Average Sample of East Asian countries</b>	<b>3.7</b>

<b>Other Developing Countries</b>	<b>Average Days for Custom Clearance</b>
Argentina	7
Brazil	10
India	8
Russia	10
Mexico	4
Mozambique	5
Zimbabwe	4
<b>Average Sample of other Developing countries</b>	<b>6.9</b>

Source: International Exhibition Logistic Associates 2002

### International Trade Performance of Asian Regions

Developments in transport and infrastructure are highly influenced by external factors, such as economic, trade and population trends. International transport (Air)

and infrastructure (Airport) developments are strongly linked to trends in international trade volumes, economic integration and socio-economic development, which impacts the nations to grow and achieve the economic growth and development. The share of exports and imports from Asian countries were outperforming during the last one decade due to the globalization and liberalization of the economy and the 'Open-Skies Policies of civil aviation. This has shaped to share roughly 35.0% to 40.0% (measured in US dollars in value terms) in the international trade. In 2003, most of the Asian region were showing remarkable performance in the generation of export and import revenue (Table-8).

Table: 8

**Asian Region's Export & Import Value Performance-2003**  
(In US \$ Million)

<b>Country</b>	<b>Export</b>	<b>Import</b>
China	832851	787590
Japan	473911	383000
Korea	196026	189109
Malaysia	121868	98909
Singapore	144121	127996
Thailand	80521	75809
Cambodia	2109	2932
Myanmar	2743	3448
Indonesia	60995	32544
Philippines	43466	47041
Vietnam	21349	25705
Afghanistan	204	1389
Bangladesh	6324	9529
Brunei	4067	1851
India	61559	81705
Maldives	112	470
Nepal	651	995
Pakistan	11767	15492
Sri Lanka	5246	7563

Source – UNCTAD, 2003

### **Conclusion**

In viewing the performance of air traffic growth in Asian region, air cargo business has a good potential, especially china and India are striding to share the air cargo in the region. Globalization of trade has become the driving force of economic growth and led to increase in the integration of national boundaries. This doctrinal shift has endorsed many developing and less developed economies to achieve sustained economic growth in the region. Further, the liberalized aviation environment has fashioned copious new international highways in the sky and earmarked great improvement and transformation in the speed and accessibility of the nation's businesses to the global suppliers and customers. In performing these, the competitiveness of the nation's businesses will augment additional inflow of foreign direct investment, which will be attracting to achieve the country's economic development. In addition, it also chains in the expansion of urbanization, revenue generation, industrial developments and employment opportunities to act as engine for economic growth and development in the region.

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