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เอกสารแนบ 5

รายงานสถานะอุตสาหกรรมการบิน



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## Report of the Aviation Consultant

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**Thai AirAsia Co. Ltd.**  
**Bangkok, Thailand**

prepared by

**The S-A-P Group**  
**Bangkok and San Francisco**

report date

**16 January 2012**



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## ABBREVIATIONS AND DEFINITIONS

AirAsia Group	AirAsia Berhad, AirAsia X, PT Indonesia AirAsia, and Thai AirAsia Co Ltd
AOT	Airports of Thailand Public Company Limited
ASEAN	Association of Southeast Asian Nations
ASK	Available seat kilometer(s) (equals one passenger seat flown one kilometer)
CAAGR	compound average annual growth rate
CASK	cost per available seat kilometer
DCA	Thai Department of Civil Aviation
FSC	full-service carrier
FY	Fiscal Year
GDP	Gross Domestic Product
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMF	International Monetary Fund
km	kilometer(s)
LCC	low-cost carrier
n.a.	not available or not applicable
RASK	revenue per available seat kilometer
RPK	revenue passenger kilometer(s) (one revenue passenger flown one kilometer)
S-A-P	The S-A-P Group (Strategic Airport Planning Ltd)
Southeast Asia	Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Taiwan, Thailand, and Vietnam
Thai AirAsia	Thai AirAsia Company Limited
UNWTO	United Nations World Tourism Organization



## IMPORTANT NOTES

The S-A-P Group (Strategic Airport Planning Ltd) was asked by Thai AirAsia Company Limited to prepare this Report of the Aviation Consultant on Thai AirAsia Co Ltd and air travel in Southeast Asia. This independent expert report was prepared to be included in documentation (including, but not limited to any prospectus or offering circular) to support the Initial Public Offering of Thai AirAsia Co Ltd or its majority shareholder, Asia Aviation Public Company Limited, to occur in 2012.

The S-A-P Group (S-A-P) is an aviation consulting firm that specializes in the preparation of aviation activity forecasts and strategic business plans. Over the past 16 years, staff of The S-A-P Group have prepared forecasts of aviation activity in Australia (Sydney, Perth, Adelaide, Darwin), Indonesia (Jakarta), Malaysia, New Zealand (Auckland and Wellington), South Korea (Seoul), Thailand (Bangkok, Phuket, Chiang Mai, Chiang Rai, and Had Yai) and the United States (numerous).

This report includes forecasts and other forward-looking estimates. These forward-looking statements are necessarily based on various assumptions and estimates that are inherently subject to various risks and uncertainties relating to possible invalidity of the underlying assumptions and estimates and possible changes or development of social, economic, business, industry, market, legal, government, and regulatory circumstances and conditions and actions taken or omitted to be taken by others.

Assumptions relating to the foregoing involve judgments with respect to, among other things, future economic and competitive market conditions and future government and business decisions, all of which are difficult or impossible to predict accurately. This report contains information supplied by and analysis based on public and private sources. To the extent such sources have been cited herein, we hereby confirm that the S-A-P Group is allowed to reference such sources. While we believe that the information is correct, we cannot guarantee its validity. Some amounts in this report are rounded. Financial and operating data for some air carrier groups may include cargo and other activities.

We are not obligated to update this report after today's date. However, if we become aware of material changes affecting the items documented in this report, either (a) between the date of the report and the issue of the prospectus, or (b) after the issue of the prospectus and before the issue of the securities, then we agree to notify Thai AirAsia Company Limited.

STRATEGIC AIRPORT PLANNING LTD

Date of report: 16 January 2012

Bill A. Matz  
Managing Director



## REPORT OF THE AVIATION CONSULTANT

### Thai AirAsia Co Ltd

16 January 2012

## 1 AVIATION INDUSTRY OVERVIEW

### 1.1 Background

#### 1.1.1 *Aviation in the Asia-Pacific Region*

According to IATA (the International Air Transport Association), the Asia-Pacific region became the airline industry's largest market in 2009. Strong growth continued in 2010 as over a quarter of the world's travelers journeyed to, from, or within the Asia-Pacific region on commercial flights. The Asia-Pacific region's growth rates are forecast to remain robust over the next 20 years. If the number of people in Asia flew at the same rates per annum as their counterparts in the United States, the global aviation industry would triple in size.

The strong historical and projected future growth rates for the Asia-Pacific aviation industry are the result of several factors, including:

- Market liberalization efforts, which have allowed for the introduction of new entrant low-cost carriers (LCC) and increased competition, leading to reduced airfares and the introduction of new services and markets.
- Strong economic growth in most countries, leading to increased demand for domestic and international passenger services and for inbound transport of goods.
- Strong economic growth across the region and other parts of the world, leading to strong inbound international passenger services and demand for outbound cargo services.

#### 1.1.2 *Aviation in Thailand*

Aviation activity in Thailand has grown significantly over the past few decades, in part due to the same market liberalization and economic growth factors affecting Asia as a whole. Some of the general Asia trends have been even more pronounced in Thailand, in particular the trend toward LCC carrier service. These factors have resulted in average annual growth in traffic of 4.4% from 2005 to 2010, despite several interruptions in growth during that time due to political turmoil, natural disasters, and economic crises.

Aviation demand to, from, and within Thailand is driven by inbound tourism, as well as business-related travel and outbound tourism. Thailand's tourism infrastructure is particularly well-developed and attractive to tourists from around the world.

More than half of the aviation activity at the primary airports in Thailand is carried by the four largest Thailand-based airlines: Thai Airways International, Thai AirAsia, Bangkok Airways, and Nok Air.

Thai Airways International is the national carrier of the Kingdom of Thailand and largest airline in the country. It operates full service domestic, regional and international flights in a hub and spoke system from its base in Bangkok to destinations around the world and within Thailand. Thai Airways International was founded in 1960 as a joint venture between Thailand's domestic carrier, Thai Airways Company and Scandinavian Airlines System. The Thai government took full ownership of the carrier in 1977 and listed



shares on the Thai Stock Exchange in 1991. Thai Airways also has an LCC partner, Nok Air, which serves domestic routes in Thailand.

Thai AirAsia is an associate company of the AirAsia group of airlines, which includes Indonesia AirAsia and AirAsia X. AirAsia was founded in 2001 in Malaysia with a focus on low cost service. Thai AirAsia launched domestic operations in Thailand on February 2004 and serves domestic and regional destinations from its base of operations at Suvarnabhumi International Airport. The carrier serves destinations in Thailand and other countries using a fleet of 21 Airbus A-320 aircraft in a single-class configuration of 180 seats. Thai AirAsia is 51% owned by Asia Aviation PCL and 49% owned by AirAsia Berhad.

Bangkok Airways began scheduled services in 1986, becoming Thailand's first privately-owned domestic airline. The airline is 92% owned by Dr. Prasert Prasarttong-Osoth. In a unique capital investment for an airline, Bangkok Air in 1989 built its own airport on the island resort of Koh Samui, Thailand. The airline later developed airports in Sukhothai and Trat. From its base at Suvarnabhumi International Airport, the carrier operates 17 aircraft, including ATR 72-500s and Airbus A-319s and A-320s. Bangkok Air recently cancelled an Airbus A-350 aircraft order that would have allowed for operations to Europe.

Nok Air is an LCC that serves domestic routes in Thailand. The carrier is partially owned by Thai Airways International. Since its inception, Nok Air has operated largely independently from its parent company. Nok Air operates Boeing B-737-400 and B-737-800 and ATR 72-200 aircraft. The carrier's primary base of operations is Don Mueang International Airport. However, the carrier has temporarily relocated its operations to Suvarnabhumi International due to the recent flooding-related closure of Don Mueang airport.



## 1.2 Aviation Activity in Thailand

### 1.2.1 Historical Air Passenger Movements

As shown in Table 1, below, air passenger activity at commercial airports in Thailand<sup>1</sup> grew at an average annual rate of 4.4% from 2005 to 2010. Growth has been strong during several of the years in this period, but has varied significantly due to natural disasters and political disruptions in the country. Despite the disruptions, Thailand still experienced high compound average annual growth rates over the past several years.

Table 1

**HISTORICAL AIR PASSENGER MOVEMENTS**  
**Thailand**  
**2005-2010**

	2005	2006	2007	2008	2009	2010	CAAGR 2005-2010
Domestic passengers							
DCA airports	4,426,568	4,823,692	5,376,415	4,296,139	5,092,804	5,653,579	5.0%
AOT airports	<u>17,102,635</u>	<u>19,772,586</u>	<u>20,727,678</u>	<u>20,021,472</u>	<u>21,109,118</u>	<u>21,549,308</u>	4.7%
Subtotal	21,529,203	24,596,278	26,104,093	24,317,611	26,201,922	27,202,887	4.8%
International passengers (a)	<u>29,999,039</u>	<u>34,256,445</u>	<u>35,433,805</u>	<u>33,683,888</u>	<u>32,828,075</u>	<u>36,690,283</u>	4.1%
Total	51,528,242	58,852,723	61,537,898	58,001,499	59,029,997	63,893,170	4.4%

Sources: AOT and DCA, July 2011.  
(a) AOT airports.

As shown in Table 2, below, the largest share of passenger traffic in Thailand is carried by Thai Airways International. The second greatest number of passengers is served by Thai AirAsia, which is the only LCC that serves both domestic and international destinations from Suvarnabhumi International Airport. Thai AirAsia and Nok Air operate as LCCs on domestic routes in the country.

Since the start of LCC operations in the country in 2004, with the launch of Thai AirAsia, LCC operations at Thai airports have created significant changes to the market including reduced airfares and increased affordability of air travel in the country.

<sup>1</sup> Includes the airports managed by Airports of Thailand PCL (AOT) and the Thai Department of Civil Aviation (DCA) which, together, represent nearly all commercial airports in Thailand. A few small commercial airports are operated by the private sector.





Table 2

**HISTORICAL AIR PASSENGER MOVEMENTS, BY AIRLINE**  
**AOT Airports in Thailand**  
2006-2010 (period: 1 October to 30 September)

	2006	2007	2008	2009	2010	CAAGR 2006-2010
<b>Full Service/Mainline Carriers</b>						
Thai Airways International	22,463,733	23,308,495	22,342,145	22,517,047	21,637,221	-0.9%
Bangkok Airways	2,499,257	2,515,311	2,466,657	2,875,734	3,141,726	5.9%
Orient Thai Airlines	2,741,923	2,084,766	1,184,326	753,151	1,406,138	-15.4%
Cathay Pacific Airways	1,442,158	1,337,343	1,314,490	1,401,463	1,392,701	-0.9%
Emirates	926,827	996,814	918,992	1,001,111	1,220,538	7.1%
China Airlines	1,267,394	1,164,394	1,136,886	1,001,783	783,804	-11.3%
Korean Air	742,850	762,028	734,030	654,932	769,554	0.9%
Singapore Airlines	1,315,323	1,206,930	1,104,283	814,221	671,320	-15.5%
Eva Air	701,845	669,745	669,338	614,978	534,491	-6.6%
JALways	723,121	785,300	691,810	639,227	461,034	-10.6%
Silk Air	338,238	281,080	374,077	339,250	335,661	-0.2%
Others	10,745,676	11,338,372	12,056,040	11,677,400	14,265,712	7.3%
Subtotal	45,908,345	46,450,578	44,993,074	44,290,297	46,619,900	0.4%
<b>Low-Cost Carriers</b>						
Thai Air Asia	4,251,827	4,762,073	5,773,827	6,728,445	7,418,362	14.9%
AirAsia	580,111	583,362	297,512	329,197	413,618	-8.1%
Indonesia Air Asia	-	14,293	59,882	96,543	92,464	n.a.
AirAsia Group	4,831,938	5,359,728	6,131,221	7,154,185	7,924,444	13.2%
Nok Air	2,537,281	3,354,441	2,624,959	1,819,988	2,975,343	4.1%
Tiger Airways	492,265	476,539	146,270	187,508	255,673	-15.1%
Others	259,202	520,197	512,236	485,215	464,231	15.7%
Subtotal	8,120,686	9,710,905	9,414,686	9,646,896	11,619,691	9.4%
<b>Total</b>	<b>54,029,031</b>	<b>56,161,483</b>	<b>54,407,760</b>	<b>53,937,193</b>	<b>58,239,591</b>	<b>1.9%</b>

Source: AOT, October 2011.



Table 3, below, documents the airline market shares for passengers (domestic and international) at AOT airports<sup>2</sup> from 2006 to 2010.

Between 2006 and 2010, the share of passengers served by Thai AirAsia at AOT airports increased from 7.9% to 12.7%. The overall share of LCCs at the airports increased from 15.0% to 20.0% of total activities in the same period.

Table 3

**HISTORICAL AIR PASSENGER MOVEMENTS, BY AIRLINE MARKET SHARE**  
**AOT Airports in Thailand**  
2006-2010 (period: 1 October to 30 September)

<u>Full Service/Mainline Carriers</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
Thai Airways International	41.6%	41.5%	41.1%	41.7%	37.2%
Bangkok Airways	4.6%	4.5%	4.5%	5.3%	5.4%
All others	38.8%	36.7%	37.1%	35.0%	37.5%
<b>Full Service/Mainline Carriers</b>	<b>85.0%</b>	<b>82.7%</b>	<b>82.7%</b>	<b>82.1%</b>	<b>80.0%</b>
<u>Low-Cost Carriers</u>					
Thai Air Asia	7.9%	8.5%	10.6%	12.5%	12.7%
AirAsia	1.1%	1.0%	0.5%	0.6%	0.7%
Indonesia Air Asia	0.0%	0.0%	0.1%	0.2%	0.2%
AirAsia Group	8.9%	9.5%	11.3%	13.3%	13.6%
All others	6.1%	7.7%	6.0%	4.6%	6.3%
<b>Low-Cost Carriers</b>	<b>15.0%</b>	<b>17.3%</b>	<b>17.3%</b>	<b>17.9%</b>	<b>20.0%</b>
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: AOT, October 2011.

<sup>2</sup> Source: AOT, October 2011. AOT operates Suvarnabhumi and Don Mueang international airports in Bangkok and the international airports in Chiang Mai, Chiang Rai, Phuket, and Hatyai. Data by airline for other commercial airports is not available. AOT airport data represents 91% of total traffic in Thailand and all international traffic. Throughout this report, AOT data reflects AOT financial years (1 October to 30 September of the year noted).



### 1.2.2 Domestic Scheduled Passenger Services: Seats

Table 4, below, provides a summary of the carrier shares of departing domestic scheduled weekly passenger seats operated by carriers serving Thailand airports during October 2011<sup>3</sup>. As shown, Thai Airways International operated the greatest number of domestic seats at Suvarnabhumi International Airport (50.2% of total domestic seats) and nationwide (34.2%). LCC Thai AirAsia operated the second greatest number of domestic seats at Suvarnabhumi International Airport (31.4%) and nationwide (23.0%). From its base at Don Mueang International Airport, LCC Nok Air operated the third largest number of scheduled domestic seats nationwide.

Table 4

**DEPARTING DOMESTIC SCHEDULED PASSENGER SERVICES (SHARE OF SEATS)**  
**Departures from Airports in Thailand**  
Activity Period: 1-7 October 2011

Operating carriers	Weekly domestic departing seats; shares					Total
	Suvarnabhumi	Don Mueang	Phuket	Chiang Mai	All other	
	International	International	International	International		
Airport (BKK)	Airport (DMK)	Airport (HKT)	Airport (CNX)	airports		
Thai Airways Int'l	50.2%	--	43.0%	31.0%	24.0%	34.2%
Thai AirAsia	31.4%	--	26.0%	27.1%	22.0%	23.0%
Nok Air	--	68.0%	6.0%	13.4%	26.0%	18.7%
Bangkok Airways	18.4%	--	18.0%	12.0%	16.5%	14.0%
Orient Thai Airlines	--	32.0%	7.0%	10.4%	8.0%	8.7%
Nok Mini	--	--	--	6.1%	3.5%	1.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: The S-A-P Group, based on data from OAG, October 2011.

### 1.2.3 Domestic Scheduled Passenger Services: Average Seat Capacity

Thai Airways International domestic flights operated with an average of 251 seats per flight. LCCs Thai AirAsia and Nok Air operated with an average of 180 and 129 seats per flight, respectively.

<sup>3</sup> Includes scheduled services at all airports in Thailand, including AOT, DCA, and private sector commercial airports during 1-7 October 2011.



### 1.2.4 International Scheduled Passenger Services: Seats

Table 5, below, provides a summary of departing international scheduled weekly passenger seats operated by carriers serving Thai airports during October 2011<sup>4</sup>. As shown, Thai Airways International operated the greatest number of international seats at Suvarnabhumi International Airport and across the nation. The AirAsia Group operated the greatest number of international seats at Phuket International Airport (HKT) and Chiang Mai International Airport (CNX). Nationwide, the AirAsia Group carriers accounted for 9.7% of total international departing seats.

**Table 5**  
**DEPARTING INTERNATIONAL SCHEDULED PASSENGER SERVICES (SEATS)**  
**Departures from Airports in Thailand**  
Activity Period: 1-7 October 2011

Operating carriers	Weekly international departing seats; shares					Total
	Suvarnabhumi	Don Mueang	Phuket	Chiang Mai	All other	
	International Airport (BKK)	International Airport (DMK)	International Airport (HKT)	International Airport (CNX)	airports	
Thai Airways Int'l	36.0%	--	8.7%	--	--	32.8%
Thai AirAsia	6.3%	--	8.1%	31.0%	--	6.6%
AirAsia	1.1%	--	12.6%	31.0%	35.2%	2.6%
Indonesia AirAsia	0.5%	--	1.2%	--	--	0.5%
AirAsia Group	7.9%	--	21.9%	62.0%	35.2%	9.7%
Cathay Pacific Airways	4.2%	--	--	--	--	3.8%
Emirates Airlines	3.6%	--	--	--	--	3.3%
Bangkok Airways	0.2%	--	--	--	23.5%	2.5%
Qatar Airways	2.0%	--	5.0%	--	--	2.2%
Korean Air	1.5%	--	6.2%	7.8%	--	2.1%
Tiger Airways	1.0%	--	5.8%	--	35.2%	1.9%
China Airlines	2.0%	--	0.5%	--	--	1.9%
All others	41.6%	--	51.9%	30.2%	6.1%	39.8%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: The S-A-P Group, based on data from OAG, October 2011.

### 1.2.1 International Scheduled Passenger Services: Average Seat Capacity

Thai Airways International flights operated with an average of 311 seats per international departure, the AirAsia Group of carriers operated with an average of 180 seats, and all other carriers operated with an average of 226 seats.

<sup>4</sup> Includes scheduled services at all airports in Thailand, including AOT, DCA, and private sector commercial airports during 1-7 October 2011.



## 2 FORECASTS OF AVIATION ACTIVITY

Historical and forecast passenger growth rates for select air markets are provided in the sections that follow. The forecasts are based on industry publications that rely on econometric analysis of socioeconomic growth factors, global surveys of origins and destinations and infrastructure development, and other factors and analysis.

As with most aviation activity forecasts, significant levels of judgment are employed and actual results may be significantly different than the forecasts.

### 2.1 Historical and Forecast Global Air Travel Growth Rates

As shown in Table 6, which follows, global passenger air travel, as measured in revenue passenger kilometers (RPKs), grew at a compound average annual growth rate of 4.6% from 1985 to 2010.

According to The Boeing Company, passenger air travel in the Asia-Pacific region—as measured in RPKs—grew at one of the highest rates in the world during this period and is expected to experience continued strong growth rates in the coming years. Travel volumes in the Asia-Pacific region are already large, accounting for approximately 27% of global travel according to Boeing.

Asia-Pacific travel volumes are anticipated by Boeing to maintain strong growth rates in the future. Air travel within the Asia-Pacific region—as measured in RPKs—is projected by Boeing to grow at a compound average annual rate of 6.9% from 2010 to 2030. Boeing expects air travel (RPKs) to, from, and within the Asia-Pacific region to grow at a compound average annual growth rate of 6.7% during the same period.

Historical and forecast growth rates for passenger activity within select world regions for 1985 to 2030 are shown in Table 6, below.



Table 6

**HISTORICAL AND FORECAST ANNUAL PASSENGER GROWTH RATES**  
**Activity (in RPKs) Within Select Regions of the World**  
1985 to 2030

	CAAGR						Forecast 2010~2030
	Historical					<b>1985~2010</b>	
	1985~1990	1990~1995	1995~2000	2000~2005	2005~2010		
Global	6.8%	3.3%	5.7%	4.1%	2.9%	<b>4.6%</b>	5.1%
<b>Within regions</b>							
within China	16.7%	25.4%	5.4%	13.5%	13.5%	<b>14.7%</b>	7.5%
within Europe	8.7%	3.5%	7.5%	4.6%	2.7%	<b>5.4%</b>	4.0%
within Middle East	1.9%	1.3%	5.7%	4.6%	9.6%	<b>4.6%</b>	5.0%
within North America	4.6%	2.6%	5.3%	3.6%	-2.0%	<b>2.8%</b>	2.3%
within Northeast Asia	9.2%	6.1%	3.2%	0.9%	1.2%	<b>4.1%</b>	3.3%
within Oceania	7.1%	10.2%	2.9%	4.4%	4.5%	<b>5.8%</b>	4.7%
within South America	2.8%	3.2%	6.2%	3.7%	10.8%	<b>5.3%</b>	7.0%
within South Asia	2.1%	5.6%	1.0%	8.5%	14.5%	<b>6.2%</b>	9.4%
within Southeast Asia	11.1%	12.5%	-0.1%	7.6%	3.7%	<b>6.9%</b>	7.4%

Source: The Boeing Company, Current Market Outlook, 2003, 2009, and 2011.

Northeast Asia: Japan, North Korea and South Korea

South Asia: India, Pakistan, and Afghanistan

Southeast Asia: Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Taiwan, Thailand, and Vietnam



## 2.2 Historical and Forecast Air Travel Growth Rates in Southeast Asia

Southeast Asia is one of the world's most dynamic regions for air travel. Passenger air travel within Southeast Asia—as measured in RPKs—grew at a CAAGR of 6.9% from 1985 to 2010. Although growth rates in the Southeast Asia region slowed somewhat during the recent global economic downturn, passenger travel by air within the region is projected to grow strongly in the future, at a compound average annual rate of 7.4% from 2010 to 2030. By comparison, passenger travel within the Asia-Pacific region is forecast to grow at a compound average annual growth rate of 6.9% during the same period.

Historical and forecast growth rates for passenger activity within the Southeast Asia region and between the Southeast Asia region and select world regions are shown in Table 7, below.

Table 7

### HISTORICAL AND FORECAST ANNUAL PASSENGER GROWTH RATES Activity (in RPKs) Within and Between Southeast Asia and Select Regions of the World 1985 to 2030

	CAAGR						
	Historical					Forecast	
	1985~1990	1990~1995	1995~2000	2000~2005	2005~2010	1985~2010	2010~2030
Within Southeast Asia	11.1%	12.5%	-0.1%	7.6%	3.7%	<b>6.9%</b>	7.4%
<u>Between Southeast Asia and</u>							
China	12.4%	9.7%	5.0%	9.1%	3.3%	<b>7.8%</b>	8.3%
Europe	11.8%	7.3%	7.8%	3.0%	0.0%	<b>5.9%</b>	5.2%
Middle East	-6.2%	13.4%	3.1%	7.8%	13.7%	<b>6.1%</b>	6.7%
North America	13.8%	11.1%	4.4%	4.5%	-2.7%	<b>6.1%</b>	6.4%
Northeast Asia	15.2%	6.4%	1.8%	7.0%	0.9%	<b>6.1%</b>	6.0%
Oceania	14.7%	6.4%	6.9%	4.8%	2.0%	<b>6.9%</b>	5.9%
South Asia	0.5%	6.9%	6.2%	8.1%	6.9%	<b>5.7%</b>	8.5%

Source: The Boeing Company, Current Market Outlook, 2003, 2009, and 2011.

Northeast Asia: Japan, North Korea and South Korea

South Asia: India, Pakistan, and Afghanistan

Southeast Asia: Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Taiwan, Thailand, and Vietnam



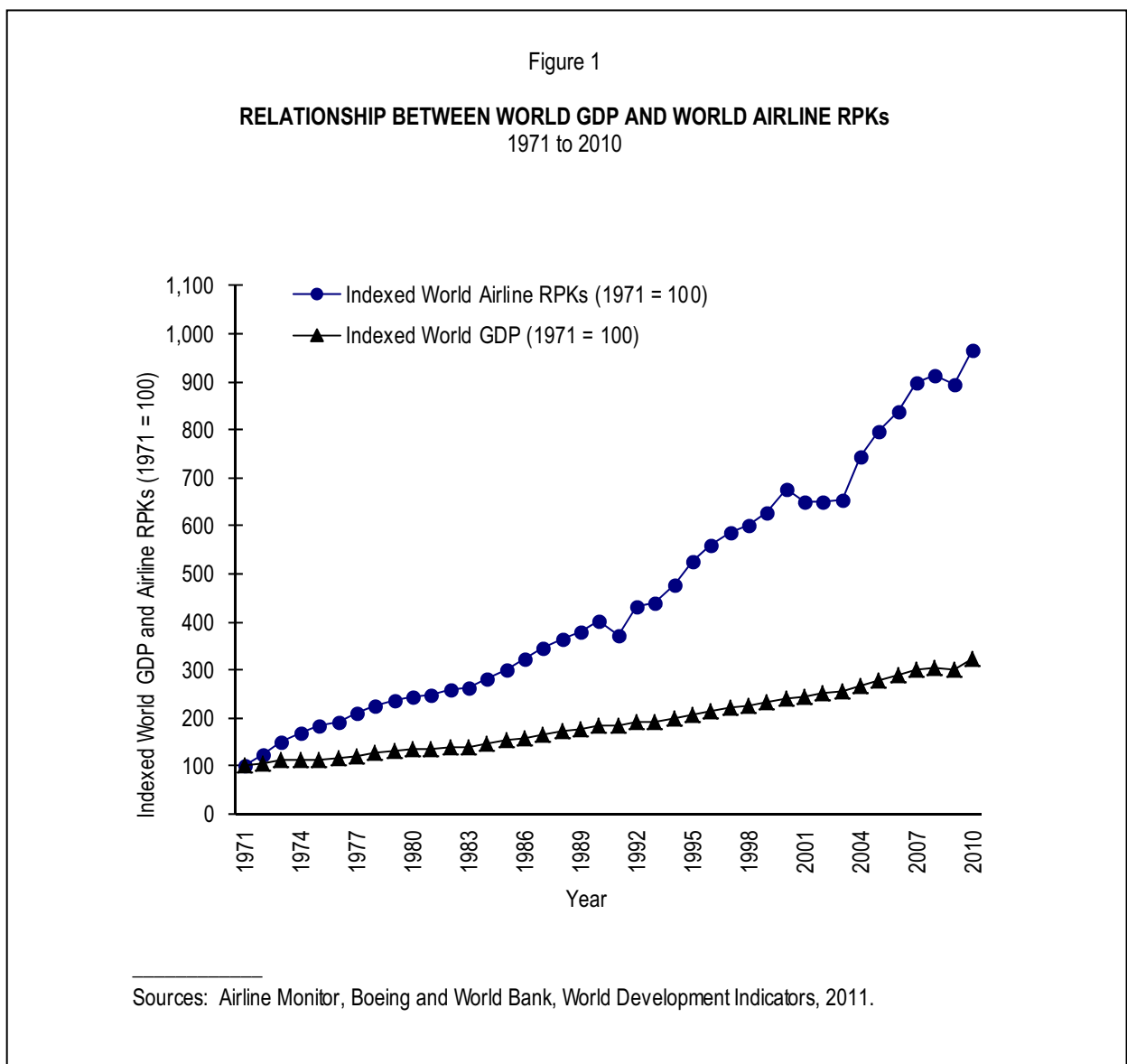
### 3 GROWTH FACTORS AND RELATIONSHIPS TO AIR TRAVEL

#### 3.1 Gross Domestic Product

##### 3.1.1 World GDP and Air Travel Activity

Historically, air travel activity has shown a strong relationship to overall economic activity, as measured by gross domestic product (GDP). Over the last four decades, world airline activity has grown at average rates per annum approximately double those of world GDP.

Figure 1, below, illustrates the historical relationship between GDP levels and airline activity. From 1971 to 2010, world GDP grew at a CAAGR of 3.1%, while world airline RPKs grew at a CAAGR of 6.0%.







### 3.1.2 Per Capita GDP and Air Travel Activity

Per capita income growth results from growth in gross domestic product (GDP) levels and employment. Increased disposable income results from growth in the middle class in countries that are experiencing increased per capita and household income levels.

In most areas of the world, per capita levels of GDP correlate with per capita air travel levels. Countries with high per capita levels of GDP tend to have high levels of air travel, while countries with low GDP per capita levels tend to have lower than average levels of air travel. Countries surrounded by water or with limited competing substitutes for transport tend to have higher-than-average travel levels than other countries do.

Figure 2, which follows, highlights this relationship for sixteen countries in the Asia-Pacific region. The propensity to travel in Thailand relative to the country's per capita income levels is high relative to other countries at similar levels of GDP per capita. This is attributable, in part, to the country's strong inbound tourism levels. The data indicate that as GDP per capita grows, as is expected to occur, travel demand should grow and continue to be high relative to other countries with similar levels of GDP per capita. (Note: the air travel revenue passenger kilometer (RPK) amounts include travel by both local residents and foreign visitors.)

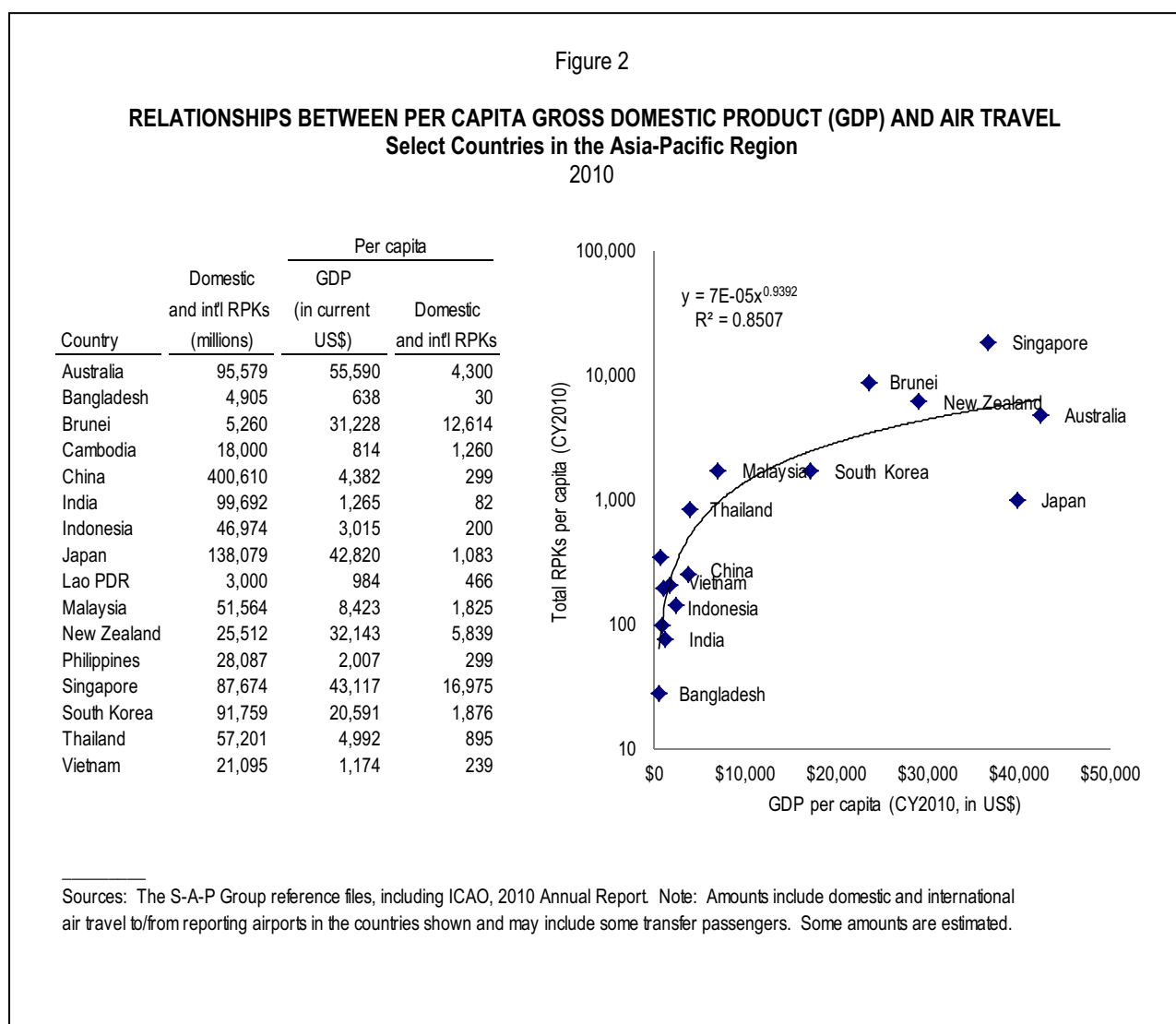
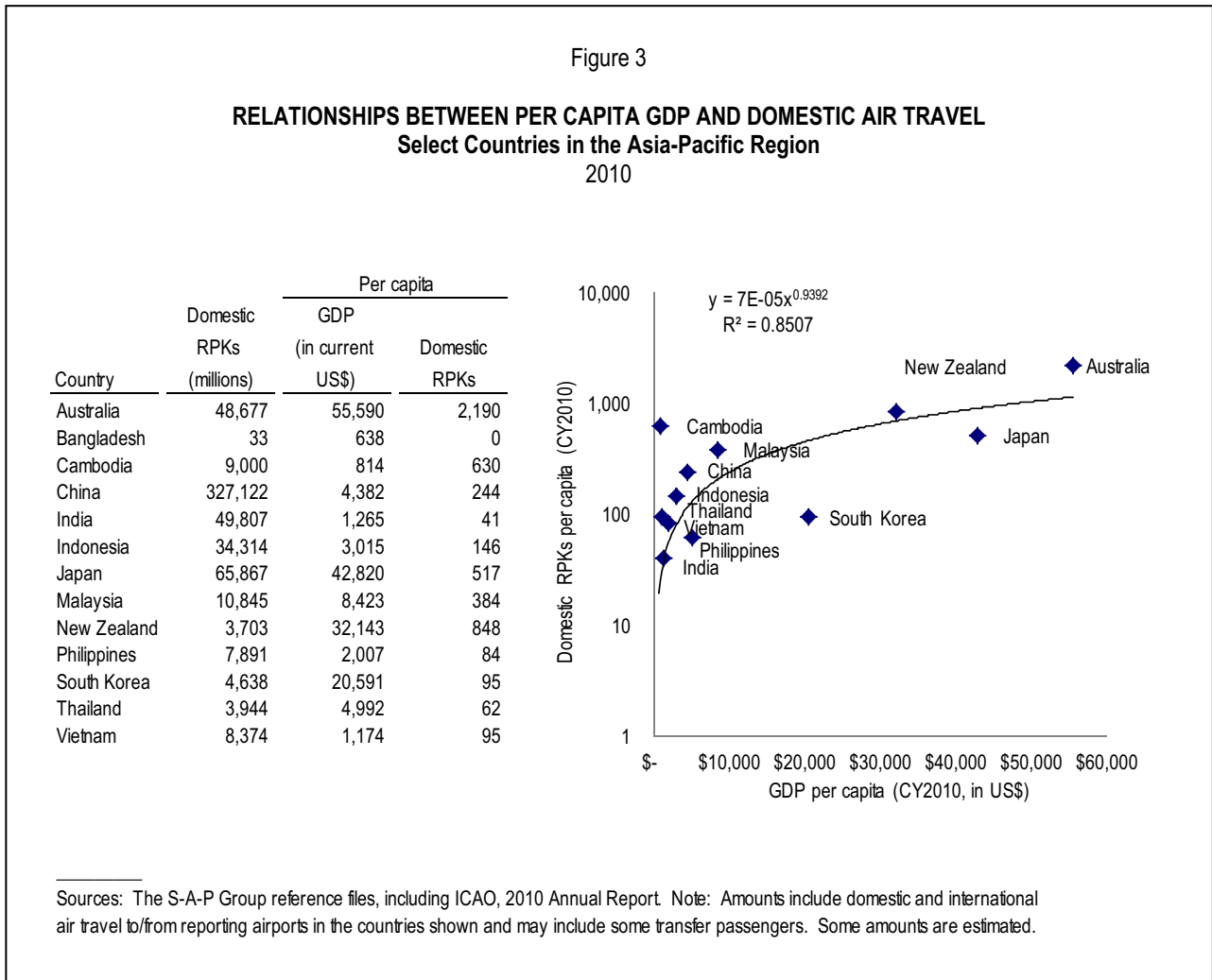




Figure 3, below, illustrates the per capita relationships between GDP and domestic air travel for thirteen countries in the Asia-Pacific region. Countries such as South Korea and Japan, which have competitive ground-based transportation systems, have lower-than-typical domestic air travel levels per capita.





### 3.1.3 GDP Growth in Select Countries in Asia

According to the International Monetary Fund (IMF), GDP (in national currency units) increased from 2005 to 2010 at a compound average annual growth rate of 16.6% for China, exceeding that of most other countries in the world, and Thailand's GDP<sup>5</sup> grew at a CAAGR of 7.3%. China's GDP per capita<sup>5</sup> is projected to grow 11.7% per year from 2010 to 2015 and that of Thailand is forecast to grow at 6.6% during the same period<sup>6</sup>.

As shown in Tables 8 and 9, below, which document key economic indicators for select countries in the Asia-Pacific region, several countries in the region had high rates of growth from 2000 to 2010 for GDP (in current US Dollars). The IMF projects that total current GDP for the Asian countries shown below will experience strong growth over the next five years.

Table 8  
**KEY ECONOMIC INDICATORS**  
**Select Countries in Asia**  
2000-2015

Country	GDP (current US\$ million) (a)			Estimated GDP (current US\$ million) (a)			CAAGR growth	
	2000	2005	2010	2011E	2013E	2015E	Actual	Projected
							2005~ 2010	2010~ 2015E
Indonesia	\$ 165,521	\$ 285,856	\$ 706,735	\$ 822,631	\$ 997,944	\$ 1,212,317	19.8%	11.4%
Thailand	\$ 122,725	\$ 176,352	\$ 318,850	\$ 332,470	\$ 397,986	\$ 460,501	12.6%	7.6%
Malaysia	\$ 93,789	\$ 138,022	\$ 237,959	\$ 247,781	\$ 288,978	\$ 336,195	11.5%	7.2%
Singapore	\$ 94,308	\$ 125,429	\$ 222,699	\$ 253,736	\$ 278,768	\$ 305,028	12.2%	6.5%
Philippines	\$ 75,912	\$ 98,829	\$ 188,719	\$ 202,865	\$ 233,397	\$ 269,226	13.8%	7.4%
Vietnam	\$ 31,176	\$ 52,931	\$ 103,574	\$ 118,567	\$ 143,272	\$ 176,312	14.4%	11.2%
Lao PDR	\$ 1,640	\$ 2,726	\$ 6,341	\$ 6,946	\$ 7,979	\$ 9,615	18.4%	8.7%
Cambodia	\$ 3,653	\$ 6,286	\$ 11,629	\$ 13,001	\$ 15,798	\$ 19,098	13.1%	10.4%
China	\$ 1,198,478	\$ 2,256,919	\$ 5,878,257	\$ 6,515,861	\$ 8,057,406	\$ 10,061,803	21.1%	11.3%
India	\$ 479,871	\$ 809,723	\$ 1,537,966	\$ 1,704,063	\$ 2,061,138	\$ 2,516,310	13.7%	10.3%

Source: IMF, World Economic Outlook Database (WEO), October 2011.

Some amounts are estimated.

(a) Gross domestic product, current prices (U.S. dollars). Values are based upon GDP in national currency and the exchange rate projections provided by country economists for the group of other emerging market and developing countries. Exchange rates for advanced economies are established in the WEO assumptions for each WEO exercise.

<sup>5</sup> in national currency units.

<sup>6</sup> Source: IMF, World Economic Outlook Database, April 2011.



Table 9  
**KEY ECONOMIC INDICATORS**  
**Select Countries in Asia**  
2000-2015

Country	Per Capita GDP (current US\$) (a)			Estimated Per Capita GDP (current US\$) (a)			CAAGR growth	
	2000	2005	2010	2011E	2013E	2015E	Actual	Projected
							2005~	2010~
Indonesia	\$ 807	\$ 1,300	\$ 3,015	\$ 3,421	\$ 4,052	\$ 4,816	18.3%	9.8%
Thailand	\$ 1,983	\$ 2,825	\$ 4,992	\$ 5,174	\$ 6,120	\$ 6,997	12.1%	7.0%
Malaysia	\$ 4,030	\$ 5,213	\$ 8,423	\$ 8,624	\$ 9,725	\$ 10,939	10.1%	5.4%
Singapore	\$ 22,791	\$ 28,500	\$ 43,117	\$ 48,285	\$ 51,254	\$ 54,179	8.6%	4.7%
Philippines	\$ 987	\$ 1,159	\$ 2,007	\$ 2,117	\$ 2,342	\$ 2,597	11.6%	5.3%
Vietnam	\$ 402	\$ 637	\$ 1,174	\$ 1,328	\$ 1,566	\$ 1,882	13.0%	9.9%
Lao PDR	\$ 304	\$ 464	\$ 984	\$ 1,059	\$ 1,173	\$ 1,363	16.2%	6.7%
Cambodia	\$ 288	\$ 455	\$ 814	\$ 901	\$ 1,073	\$ 1,272	12.4%	9.3%
China	\$ 946	\$ 1,726	\$ 4,382	\$ 4,833	\$ 5,917	\$ 7,316	20.5%	10.8%
India	\$ 460	\$ 716	\$ 1,265	\$ 1,412	\$ 1,663	\$ 1,978	12.0%	9.4%
Average (b)	\$ 816	\$ 1,345	\$ 2,980	\$ 3,296	\$ 3,950	\$ 4,771	17.2%	9.9%
Average (c)	\$ 1,260	\$ 1,769	\$ 3,360	\$ 3,667	\$ 4,228	\$ 4,863	13.7%	7.7%

Source: World Bank, World Development Indicators, and IMF, World Economic Outlook Database, October 2011.

Some amounts are estimated.

(a) Gross domestic product, current prices (U.S. dollars). Values are based upon GDP in national currency and the exchange rate projections provided by country economists for the group of other emerging market and developing countries. Exchange rates for advanced economies are established in the WEO assumptions for each WEO exercise.

(b) All Asian countries shown. (c) All Asian countries shown, except India and China.



### **3.2 Effects of Economic Growth on Air Travel in Asia**

Rising wages and broadening distribution of wealth in rapidly developing countries such as China and other countries in Asia will likely result in an increasing share of the population with the ability to travel by air.

#### *3.2.1 China*

According to the IMF, China's GDP (in national currency units) grew at an average annual rate of 14.9% from 2000 to 2010. Although growth slowed somewhat during the recent economic downturn, growth was still high relative to most other countries in the world, and China's GDP<sup>7</sup> grew 16.7% from 2009 to 2010. The Civil Aviation Administration of China projects that the number of airline passengers in China will more than double between 2010 and 2020 as economic growth in the country stimulates air travel demand.

Aviation activity to, from, and within China rose from 2.3 million passengers in 1978 to 564.3 million in 2010. Total domestic airline passenger traffic in China is now the world's second largest, following that of the United States. As the country's growth continues, China serves as a large and growing regional neighbor with opportunities for trade, cooperation, travel, and tourism with Thailand.

#### *3.2.2 Thailand*

Thailand's GDP<sup>7</sup> grew 11.7% from 2009 to 2010. As Thailand and its neighbors have continued growing through the economic and other crises and as other Asian countries have recovered and are expecting future growth, Thai- and foreign-based carriers have the opportunity to benefit from the air travel demand spurred by regional economic growth.

Currently, only a small share of the Thai population travels by air. S-A-P anticipates that as the economy develops and the middle class grows and becomes a larger share of the population, air travel demand will increase. S-A-P also anticipates that as the middle class grows in Thailand's secondary cities, demand for service from these cities to new domestic and international destinations will increase. This service can be supported by the increased use of small, regional jets.

Continued strong growth of GDP and per capita income, declining poverty rates and increasing disposable income is anticipated by S-A-P to generate strong demand for airline services in Asia and Thailand.

### **3.3 Population Growth and Urbanization**

Population growth rates have particularly large impacts on the large populous countries in Asia as even small percentage growth rates result in large increases in total population numbers. Population growth in large countries such as China that are also experiencing strong economic growth will result in increased demand for air travel.

Urbanization rates can serve as an indicator of propensity to travel by air because urban dwellers have higher-than-average income levels and are located in closer proximity to airports than are non-urban dwellers. The development of existing and new urban centers is expected to create new destinations for regional travel in Asia

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<sup>7</sup> in national currency units. Source: IMF, World Economic Outlook Database, April 2011.



Population and urbanization shares (the share of a country's population living in urban areas) for countries in the Asia-Pacific region are expected to grow over the next 10 years, as shown in Table 10, below.

Table 10

**POPULATION INDICATORS**  
**Select Countries in Asia and the Pacific**  
Multiple Years

Country	Population		Urbanisation (share of total population)		Cities of 1 million persons or greater	
	2010 Actual	2010~'15 CAAGR	2010 Actual	2020 Forecast	Number of cities (a) 2005 actual	Share of urban population 2005 actual
	Indonesia	234,377,000	1.3%	44.3%	48.1%	7
Philippines	94,013,000	2.0%	48.9%	52.6%	2	22.0%
Vietnam	88,257,000	1.2%	30.4%	37.0%	3	50.0%
Thailand	63,878,000	0.6%	34.0%	38.9%	1	32.3%
Myanmar	61,187,000	2.0%	33.7%	40.7%	1	27.0%
Malaysia	28,251,000	1.7%	72.2%	78.5%	1	8.0%
Cambodia	14,289,000	1.0%	21.1%	23.8%	1	50.0%
Lao PDR	6,443,000	1.9%	33.2%	44.2%	--	0.0%
Singapore	5,165,000	1.7%	100.0%	100.0%	1	100.0%
Total/average SE Asia	595,860,000	1.4%	46.4%	51.5%	17	34.1%
India	1,215,939,000	1.3%	30.0%	33.9%	40	40.0%
China	1,341,414,000	0.5%	47.0%	55.0%	93	43.0%
World Total	6,818,066,000	1.1%	50.4%	54.4%		

Sources: IMF World Economic Outlook Database, April 2011, and UN, World Urbanization

Prospects: The 2010 Revision Population Database, October 2011.

Urbanization: World Urbanization Prospects, the 2009 Revision: Highlights. New York, 2010

Note: 2010~2016 population growth rates represent IMF forecasts.

(a) Cities or agglomerations.



### 3.4 Trade and Tourism

#### 3.4.1 Global Trade and Air Travel

Increased intra-regional business and reduced trade barriers between countries generate cross-border travel demand. High levels of trade and other commercial activities lead to increased demand for travel, including travel by air for business and tourism. Countries with competitive aviation industries and strong pricing competition generate increased levels of aviation activity per capita. Most countries in Asia have been moving toward increased business relationships, reduced trade barriers, increased trade and tourism, and increased air travel levels.

#### 3.4.2 Tourism and Air Travel in Southeast Asia

International travel and tourism rates for countries in Southeast Asia have, as shown in Table 11, below, increased at strong rates from 2009 to 2010. As tourists from China and other Asia countries continue to travel within the region, air travel in the region can be expected to continue to experience healthy growth.

As shown below, Thailand in 2010 attracted the second greatest number of tourist arrivals amongst countries in Southeast Asia and the third greatest number amongst countries in Asia.

Table 11

**INTERNATIONAL TOURIST ARRIVALS**  
**Arrivals at Select Countries**  
2010

Country	Arrivals	Growth
	2010	2009~2010
Malaysia	24,577,000	3.9%
Thailand	15,936,400	12.6%
Singapore	9,161,000	22.3%
Indonesia	7,003,000	10.7%
Vietnam	5,050,000	34.8%
Philippines	3,520,000	16.7%
Cambodia	2,399,000	17.3%
China	55,665,000	9.4%
India	5,584,000	8.0%

Sources: World Tourism Organization (UNWTO), June 2011,  
and Thailand Department of Tourism, October 2011.



### 3.4.3 *Historical Foreign Visitor Arrivals in Thailand*

As shown in Figure 4, below, tourist arrivals in Thailand have grown over the past decade despite significant disruptions due to various causes:

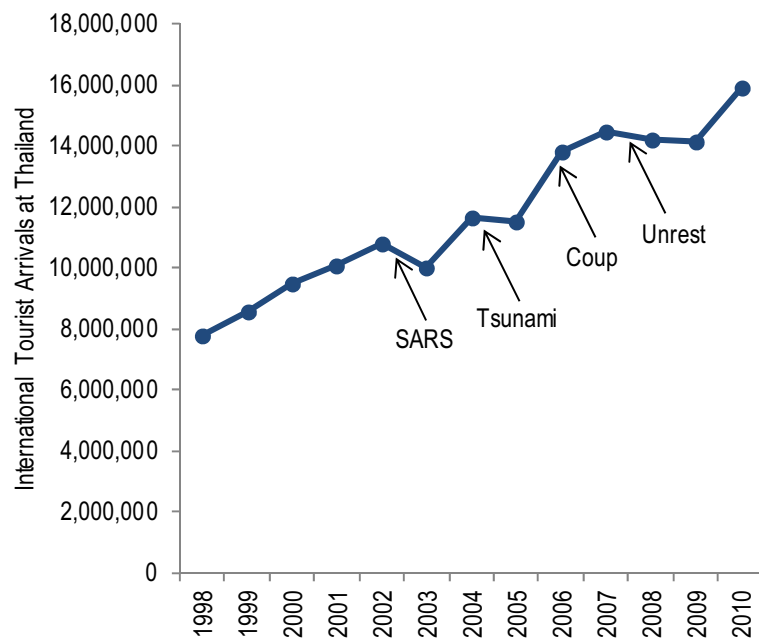
- In late 2002, the first case of SARS (Severe Acute Respiratory Syndrome) appeared in Asia and spread rapidly to other areas during 2003. Tourism in Thailand and throughout Asia declined significantly due to public fears about the disease and official travel restrictions designed to identify and reduce the spread of infected travelers.
- The tsunami resulting from the 2004 Indian Ocean earthquake killed an estimated 230,000 people in the region. Thailand was one of the four most affected countries and tourism declined significantly after the tsunami. Although much of the tourism infrastructure was not extensively damaged, the psychological effects on potential tourism resulted in declines in tourism even to beach areas that were not impacted from the tsunami.
- In September 2006, the Royal Thai Army staged a coup d'état against the government of Prime Minister Thaksin Shinawatra.
- In 2008, ongoing political change and unrest in Thailand resulted in an escalation of protests and violence, including protests that closed Suvarnabhumi and Don Mueang international airports during late 2008, causing disruptions to immediate tourist activity and ongoing tourism during 2008 and 2009.





Figure 4

**INTERNATIONAL TOURIST ARRIVALS**  
**Thailand**  
1998 to 2010



Source: Thailand Department of Tourism, October 2011.



### 3.4.4 Mode of Transport for International Arrivals at Thailand

As shown in Table 12, below, air service is the most frequently employed mode for entry to Thailand.

Table 12

**MODE OF TRANSPORT**  
**International Arrivals at Thailand**  
2010

	<u>Arrivals</u>	<u>Share</u>
Air	12,377,874	77.7%
Land	3,072,585	19.3%
Sea	485,941	3.0%
Total	<u>15,936,400</u>	100.0%

Source: Thailand Department of Tourism, October 2011.

### 3.4.5 Visitor Arrivals in Thailand by Country of Residence

Table 13, below, provides a summary of the foreign visitor arrivals, by country of residence, in Thailand during 2009 and 2010. Amongst Asian countries, visitor arrivals from China, Malaysia, Korea and India grew rapidly from 2009 to 2010. We believe that a share of this growth can be attributed to the availability of LCC services to Thailand.



Table 13

**INTERNATIONAL TOURIST ARRIVALS**  
**Thailand**  
2009 to 2010

Nationality	International Tourist Arrivals				
	2009		2010		Growth
	Number	Share	Number	Share	2010~2009
Malaysia	1,757,813	12.4%	2,058,956	12.9%	17.1%
Laos	655,034	4.6%	715,345	4.5%	9.2%
Singapore	563,575	4.0%	603,538	3.8%	7.1%
Vietnam	363,029	2.6%	380,368	2.4%	4.8%
Indonesia	227,205	1.6%	286,072	1.8%	25.9%
Philippines	217,705	1.5%	246,430	1.5%	13.2%
Cambodia	96,586	0.7%	146,274	0.9%	51.4%
Myanmar	79,279	0.6%	90,179	0.6%	13.7%
Brunei	8,353	0.1%	7,073	0.0%	-15.3%
Subtotal (ASEAN)	3,968,579	28.0%	4,534,235	28.5%	14.3%
China	777,508	5.5%	1,122,219	7.0%	44.3%
Japan	1,004,453	7.1%	993,674	6.2%	-1.1%
Korea	618,227	4.4%	805,445	5.1%	30.3%
Taiwan	362,783	2.6%	369,220	2.3%	1.8%
Hong Kong	318,762	2.3%	316,476	2.0%	-0.7%
Others	25,878	0.2%	25,895	0.2%	0.1%
Subtotal (other Asia)	3,107,611	22.0%	3,632,929	22.8%	16.9%
South Asia	826,437	5.8%	995,321	6.2%	20.4%
Oceania	737,459	5.2%	789,632	5.0%	7.1%
Europe	4,059,988	28.7%	4,442,375	27.9%	9.4%
Americas	853,381	6.0%	844,644	5.3%	-1.0%
Middle East	483,983	3.4%	569,334	3.6%	17.6%
Africa	112,403	0.8%	127,930	0.8%	13.8%
Subtotal	7,073,651	50.0%	7,769,236	48.8%	9.8%
Total	14,149,841	100.0%	15,936,400	100.0%	12.6%

Source: Thailand Department of Tourism, October 2011.



### **3.5 Airline Service and Fares**

#### *3.5.1 Medium-Haul and Long-Haul Opportunities*

The introduction of larger aircraft as well as smaller aircraft that can fly further is projected by S-A-P to help to increase opportunities for international service to and from Thailand to other parts of the world.

#### *3.5.2 Airfares and Low Cost Carriers*

Over the last decade, price competition has increased as LCCs have grown in market share and airlines struggling with financial challenges and competition have improved efficiency and lowered travel costs. S-A-P anticipates that downward pressure on fares will continue, resulting in increasing demand.

### **3.6 Other Aviation Growth Factors**

#### *3.6.1 Geographical Characteristics*

Countries with widely distributed population centers or with large surrounding bodies of water or mountains tend to have higher-than-average aviation activity levels. The combination of Asia's large geographic size, the separation of many parts of Asia by bodies of water, and the general lack of competitive sea or land transport alternatives provide an ideal market for air travel.

Unlike in the US and Europe, where extensive road and rail networks provide a competitive substitute for air transport, modal competition is less common in Southeast Asia. The introduction of widely available low air fares in the Asia-Pacific region has greatly reduced the cost barrier to air travel and created a competitive transport substitute for ground travel for many people.

#### *3.6.2 Liberalization of Air Travel*

S-A-P anticipates that Asia-Pacific nations, especially those in Southeast and North Asia, will continue to remove regulatory restrictions on air services, leading to increased competition and lower airfares and cargo pricing.

#### *3.6.3 Transportation Infrastructure*

S-A-P anticipates that governments and the private sector will continue to make the necessary investments in airport capacity, air traffic control systems, and aircraft to foster tourism and other economic development. Airport capacity and airline capacity changes mutually support growth in one another. The rapid growth of air passenger demand in Asia has encouraged some governments and airport operators to develop new airport capacity to accommodate the increased demand.

Countries with limited forms of competitive ground transport options, such as road or rail, often have above average levels of aviation activity per capita. Just as cellular phone networks in developing countries that utilize the airways for communication can be less resource-intensive to develop than landline infrastructure can be, air carrier networks can similarly bypass roadway and railway development to facilitate long distance travel more quickly and efficiently than land-based options can.

As a result of investments in terminal and airfield capacity and increased aviation activity demand, airports in the Asia-Pacific region have experienced strong growth rates over the past decade. According to Airports Council International, Suvarnabhumi International Airport was, in terms of passenger movements in 2010, the 17th busiest airport in the world and the fifth busiest airport in Asia.



## 4 COMPETITIVE LANDSCAPE

Potential business constraints to the future growth of Thai AirAsia include the competitive strength of large, well-established Asian carriers, as well as continued strong competition from other LCCs.

### 4.1 Key Financial and Operating Performance for Select Carriers

Table 14, which follows, provides key performance data for select full-service and low-cost carriers.

Mainline carriers	US\$ millions		Operating Margin	US cents		Pax load factor	Pax (millions)	Aircraft in fleet	US\$ millions		FY ending
	Operating Revenue	Operating Profit		RASK	CASK				Oper rev per aircraft		
<b>Asia</b>											
Japan Airlines (Japan)	\$16,018	\$2,216	13.8%	18.48	15.92	69%	34.8	174	\$ 92.1		Mar 11
ANA Group (Japan)	\$15,963	\$797	5.0%	18.44	17.52	67%	45.7	152	\$ 105.0		Mar 11
Air China (China)	\$12,203	\$1,617	13.2%	11.36	9.86	80%	46.2	255	\$ 47.9		Dec 10
Cathay Pacific (SAR China)	\$11,523	\$1,813	15.7%	9.95	8.39	83%	26.8	121	\$ 95.2		Dec 10
China Southern Airlines (China)	\$11,317	\$930	8.2%	8.05	7.39	79%	76.5	324	\$ 34.9		Dec 10
China Eastern Airlines (China)	\$11,089	\$841	7.6%	8.87	8.20	78%	67.8	248	\$ 44.7		Dec 10
Singapore Airlines (Singapore)	\$10,957	\$959	8.8%	10.14	9.25	78%	16.6	110	\$ 99.6		Mar 11
Korean Air (South Korea)	\$9,923	\$949	9.6%	12.49	11.29	76%	22.9	131	\$ 75.7		Dec 10
Thai Airways Intl (Thailand)	\$5,822	\$717	12.3%	7.70	6.75	74%	18.2	90	\$ 64.7		Dec 10
China Airlines (Taiwan)	\$4,401	\$470	10.7%	11.05	9.87	81%	n/a	65	\$ 67.7		Dec 10
<b>Average (Asia Top 10)</b>	<b>\$10,922</b>	<b>\$1,131</b>	<b>10.5%</b>	<b>11.65</b>	<b>10.44</b>	<b>77%</b>	<b>39.5</b>	<b>167</b>	<b>\$ 72.8</b>		
<b>Average (Europe Top 10)</b>	<b>\$11,780</b>	<b>\$305</b>	<b>2.9%</b>	<b>12.46</b>	<b>12.20</b>	<b>77%</b>	<b>31.3</b>	<b>175</b>	<b>\$ 61.2</b>		
<b>Average (N. Amer. Top 10)</b>	<b>\$12,316</b>	<b>\$680</b>	<b>7.7%</b>	<b>10.03</b>	<b>9.30</b>	<b>81%</b>	<b>51.6</b>	<b>344</b>	<b>\$ 35.7</b>		
<b>Low-cost carriers</b>											
<b>Asia</b>											
Jetstar/Jetstar Asia (Australia, Singapore)	\$2,241	\$134	6.0%	7.48	7.04	79%	14.6	61	\$ 36.7		Jun 10
AirAsia (Malaysia)	\$1,231	\$333	27.0%	5.05	3.69	76%	16.1	50	\$ 24.6		Dec 10
IndiGo (India)	\$750	\$132	17.6%	6.56	5.40	84%	8.5	27	\$ 27.8		Mar 11
Skymark Airlines (Japan)	\$678	\$163	24.1%	12.42	9.43	82%	4.4	13	\$ 52.1		Mar 11
Cebu Pacific Air (Philippines)	\$646	\$143	22.2%	6.22	4.84	75%	10.5	29	\$ 22.3		Dec 10
spiceJet (India)	\$644	\$29	4.5%	6.65	6.35	81%	6.8	21	\$ 30.7		Mar 11
Spring Airlines (China)	\$510	\$71	13.9%	5.96	5.13	95%	5.9	18	\$ 28.3		Dec 10
Tiger Airways (Singapore, Australia)	\$469	\$36	7.6%	5.98	5.53	85%	4.8	18	\$ 26.1		Mar 11
Air Do (Japan)	\$448	\$21	4.7%	n/a	n/a	80%	n/a	10	\$ 44.8		Mar 11
Thai AirAsia (Thailand)	\$391	\$61	15.6%	5.15	4.35	78%	5.7	19	\$ 20.6		Dec 10
<b>Average (Asia Top 10)</b>	<b>\$801</b>	<b>\$112</b>	<b>14.3%</b>	<b>6.83</b>	<b>5.75</b>	<b>82%</b>	<b>8.6</b>	<b>27</b>	<b>\$ 31.4</b>		
<b>Average (Europe Top 10)</b>	<b>\$2,658</b>	<b>\$162</b>	<b>5.2%</b>	<b>8.03</b>	<b>7.55</b>	<b>73%</b>	<b>21.6</b>	<b>80</b>	<b>\$ 42.4</b>		
<b>Average (N. Amer. Top 8)</b>	<b>\$2,957</b>	<b>\$241</b>	<b>8.6%</b>	<b>0.07</b>	<b>0.06</b>	<b>82%</b>	<b>21.6</b>	<b>131</b>	<b>\$ 22.7</b>		

Source: The S-A-P Group, based on industry sources, September 2011.  
 Europe Mainline includes Lufthansa Group, Air France-KLM Group, IAG (British Airways, Iberia), SAS Group, Turkish Airlines SWISS, Aeroflot-Russian Airlines, Alitalia, TAP Portugal, Austrian.  
 N. America Mainline includes United Continental Holdings, Delta Air Lines, AMR Corp, US Airways, Air Canada, Alaska Air Group, SkyWest Airlines, Republic Airways Holdings, Aeromexico, Copa Airlines.  
 Europe LCCs include Air Berlin, Ryanair, EasyJet, Virgin, Thomson Airways, Aer Lingus, Norwegian, Vueling Airlines, WIZZ Air, and Icelandair Group.  
 N. America LCCs include Southwest Airlines, JetBlue Airways, AirTran Airways, WestJet Airlines, Spirit Airlines, Virgin America, Allegiant Air, and Interjet



## 4.2 Development of Low Cost Carriers

Historically, much of the focus of the global airline industry has been on creating opportunities to increase revenues. The success of LCCs around the world, however, has led many traditional passenger carriers to increase their focus on increasing operating efficiencies, start their own LCC subsidiaries, and compete against the many new LCCs that have initiated operations.

Based on the Boeing Company's analysis of global scheduled airline data for October 2011, overall scheduled airline operations showed signs of moderating, but strong growth, with LCCs now having a worldwide scheduled capacity share of 26%, with an additional 7.7 million seats in the global LCC network compared with October 2010. Similar volume growth was experienced by the intra-Asia market. LCC presence within the Asia-Pacific region grew rapidly, increasing capacity by 2.29 million available seats to 18.9 million, an increase of 14%. Low-cost seats to and from the Asia-Pacific region increased 21% during the period.

Although the introduction of significant levels of LCC activity occurred later in Asia than in the US and Europe, LCC activity in Asia has grown rapidly over the past decade and continues to grow rapidly. Southeast Asia has seen the launch of a high share of Asia-based LCC operators, the result of relaxed aviation policies in the region. The introduction of widely available low fares in the Asia-Pacific region has greatly reduced the cost barrier to air travel and created a competitive transport substitute for many people.

LCCs typically have operating costs, as measured in CASKs, that are substantially lower than those of FSC. Although LCC RASKs are also often lower than those of full-service carriers, as LCC activities grow their market shares and markets start to mature, LCC revenues tend to increase, as evidenced by improvements in their RASK.

### 4.2.1 Effects of LCC on the Asian Aviation Industry

The introduction and growth of LCCs have had several effects on the Asian aviation industry:

- LCC competition has encouraged established carriers to operate more efficiently, thereby driving down average fares and stimulating demand across the entire market. Established carriers may choose to launch strong competitive responses to LCCs, including significant decreases in fares, increases in seat capacity and flight frequency, and the start of new point-to-point flights, among others. Several Asian network carriers have introduced, or are planning to introduce their own LCCs.
- Airport operators in Malaysia and Singapore have created dedicated LCC passenger terminal facilities, which can lead to reduced airline operating costs and airport service fees that are paid by passengers. Some airport operators in the region are providing aeronautical charge discounts for new routes and for efficient use of airport facilities, such as quick aircraft turnarounds.
- The rapid growth in air travel that LCCs generate is encouraging some governments and airport operators to liberalize bilateral aviation agreements and to develop new airport capacity to accommodate the increased demand.



Table 15, which follows, documents LCC seats as a share of weekly scheduled departing seats between and within select Asia-Pacific countries.

Table 15

**LCC SEATS AS A SHARE OF TOTAL SCHEDULED MOVEMENTS**  
**Select Asia-Pacific Countries**  
Activity Period: 1-7 October 2011

Destination	Domestic	Intra-regional (a)	
		International activity from all countries noted	International activity from Thailand
Australia	23%	19%	7%
Cambodia	16%	14%	13%
China	2%	7%	13%
Taiwan	--	3%	--
India	57%	18%	8%
Indonesia	47%	38%	37%
Japan	26%	3%	--
Malaysia	59%	52%	56%
New Zealand	15%	25%	--
Philippines	74%	28%	18%
Republic of Korea	32%	6%	10%
Singapore	n.a.	30%	43%
Thailand	53%	19%	n.a.
Vietnam	17%	14%	18%

Source: The S-A-P Group analysis, based on data from OAG, October 2011.  
(a) International activity from/to the 14 countries noted.

### 4.3 Airline Infrastructure

Many airlines in Asia have plans for significant changes to their aircraft fleets. As new, higher-efficiency aircraft are integrated into an airline's operations, long-term operating costs typically are reduced and, depending on the financial structure of the implementation, lower overall costs per passenger can result, leading to decreased average airfares and associated increases in demand.

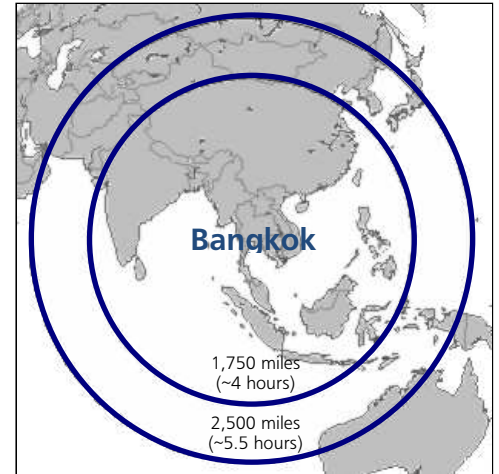
The size of new aircraft available currently has grown significantly, particularly with the development of the Airbus A-380, which can hold over 800 passengers in a single-class configuration. Fleet modernization programs can also provide airlines with reduced fuel and other operating costs, including lower aircraft maintenance expenses. Operating a limited number of aircraft types can lead to reduced aircraft training and spare part costs.



#### 4.4 Asian Aviation Industry Growth Prospects

We believe that Southeast Asia's domestic and international markets will enjoy strong long-term growth rates for several reasons:

- Proximity to major populations. Approximately 50% of the world's population lives within a 2,500 nautical mile radius from Bangkok, indicating the potential size of the regional aviation market. However, as a result of low GDP per capita throughout most of the region and other factors, a large proportion of the population has, historically, been unable to afford air transportation. As mentioned previously, we expect the affordability of air travel to grow with increases in GDP per capita, which should result in higher population penetration.
- Location on major trade routes. Southeast Asia is well positioned between Europe and the Pacific region, as well as between North Asia and South Asia.
- Proximity to China. With its strong economic growth and increasingly relaxed restrictions on travel to foreign destinations, travelers from the world's most populous country will create significant demand for leisure and business travel to Southeast Asian countries.
- Proximity to Australia. Australia has one of the most mature economies in the region, with a high GDP per capita, high levels of disposable income, higher propensity to travel per capita, and strong tourism connections with Thailand and other regions in Asia.
- Location between South Asia and China. The region's role as a destination for visitors from China (the world's most populous country) and South Asia, which includes India (the world's second most populous country), Pakistan (sixth), and Bangladesh (seventh) will grow in prominence as the people of these countries start to travel more frequently.
- Transport substitution. As income levels increase and air transport costs decrease, we expect air transport will substitute for land and sea-based transport modes such as rail, buses, and ferries. As shown in a previous figure, Thailand has a low per capita income compared to other countries in South East Asia, but a relatively higher propensity to travel than other countries with similar income levels. Therefore, we expect that as incomes increase in Thailand, residents will be able to make use of low-cost air carriers for their travels. As a result, we anticipate that air travel will increase at strong rates.
- Liberalization of aviation agreements. Southeast Asian countries have become more liberal with their aviation agreements, both within ASEAN and with other countries.
- Tourist infrastructure. The region's well-developed tourist infrastructure will continue to attract leisure travelers.
- Urbanization. The share of the population in Southeast Asian countries living in cities is generally expected to continue to increase.







#### 4.5 Potential Constraints to Asia Aviation Industry Growth

The opportunities for industry-wide aviation activity growth could be offset by:

- Increased fuel prices and/or unfavorable currency exchange levels could constrain aviation demand if air and other travel costs increase and travelers' disposable income levels decrease.
- Regional conflicts or scares. Civil unrest, terrorist events, or other events could constrain future activity levels.
- Travel restrictions. Government restrictions on travel, by limiting the number of entry/exit visas issued or by imposing high visa costs, could limit future aviation growth.
- Insufficient airport or airspace capacity. Socioeconomic or other constraints could result in delays or changes in plans by governments regarding planned infrastructure expansion.
- Environmental factors. Natural and man-made environmental events, such as haze, volcanic ash, and natural disasters, could impact future activity levels.
- Infrastructure constraints at regional airports. Potential constraints to airline travel growth could arise due to limited growth of infrastructure at regional airports outside of Thailand. Within Thailand, airport infrastructure is not expected to be a constraint due to the remaining capacity still available at the new Suvarnabhumi International Airport as well as the excess capacity at the old Bangkok airport, Don Mueang, which currently is serving approximately three million passengers, while at its peak served over thirty million.

### 5 REGULATORY ENVIRONMENT

#### 5.1 Domestic Airline Regulation Structure in Thailand

Aviation in Thailand is regulated by the Department of Civil Aviation. The Department is in charge of "promoting, developing and regulating civil aviation affairs of Thailand to meet international standards and form extensive civil aviation network and services that will satisfy market demand, promote tourism as well as national economic growth and make Thailand a hub of aviation in South-East Asia." Air service operations are approved and regulated by the department for domestic airlines operating in Thailand and international airlines serving Thailand.

The responsibilities of the Department include the following:

1. To implement the Air Navigation Act, Act on Certain Offences against Air Navigation and other civil aviation laws relating to licensing of pilot, aircraft mechanic and air traffic controller, aircraft registration, licensing of aerodrome and temporary landing area, authorization for setting up airlines, to monitor and inspect civil aviation activities to comply with the required standard and regulations, to prevent the sabotage of aircraft and airport as well as aircraft hijacking and to investigate aircraft accident.
2. To promote and develop national civil aviation infrastructure in order to build up nationwide air transport network and boost national aviation industry.
3. To systematize the civil aviation in accordance with regulations and universal standard to fully safeguard the rights of consumers and operators.
4. To set up and run affiliated airports to provide the public with quality services and to ensure safety of aircrafts, passengers and other activities pertaining to transport of goods, luggage and postal items by air.



5. To cooperate with domestic and international organizations or agencies concerning civil aviation, to deal with international conventions and agreements such as bilateral and multilateral negotiations and signing of agreements on air traffic rights and aircraft standards and to act as a search and rescue centre for aircraft and vessel in distress.

The administration of most domestic airports is the responsibility of the Director of the Airports of the Department of Civil Aviation. Samui, Sukhothai, and Trat Airports are administered by Bangkok Airways Company Limited. Suvarnabhumi, Don Mueang, Chiang Mai, Mae Fah Luang-Chiang Rai, Hat Yai and Phuket International Airports are under AOT. U-Tapao Pattaya International Airport is the responsibility of the Royal Thai Navy.

## **5.2 International Regulations**

International flight into, from or over Thailand territory are subject to the current Thailand regulations relating to civil aviation. These regulations correspond in all essentials to the standards and Recommended Practices contained in Annex 9 to the Convention on International Civil Aviation. To fly over or take-off or land in the territory of Thailand, foreign aircraft/airline is required to obtain prior per mission. Application for such permission shall be made to the Director of Air Transport Control Division as address in designated Authorities. No aircraft entering or leaving the Kingdom shall land before or depart except at or from a Customs Airport.

Scheduled international air services may be operated by a foreign airline into or in transit across Thailand in pursuance the International Air Services Transit Agreement, provided that the states in which the airline is registered is a contracting party to this agreement, or to an agreement between Thailand and the States in which the airline is registered.

## **5.3 Liberalization of the Aviation Industry**

Studies have shown that the liberalization of air services can lead to new and better air services, thereby increasing trade in airlines services, gains in consumer welfare and economic growth. Liberal aviation agreements allow for increased competition on routes and lower airfares, thereby stimulating additional activity.

Traffic growth subsequent to liberalization of air services agreements between countries typically averaged between 12% and 35%, significantly greater than during years preceding liberalization. In a number of situations, growth exceeded 50%, and in some cases reached almost 100% of the pre-liberalization rates. The creation of the Single European Aviation Market in 1993 led to an average annual growth rate in traffic between 1995 and 2004 that was almost double the rate of growth in the years 1990 to 1994.

Countries across the Asia-Pacific region and in particular, Southeast Asia, are liberalizing broadly the international bilateral agreements that can, in their extreme, regulate items such as the precise number and type of carriers that can operate, the number of total seats that can be provided, and the levels of airfares that can be charged.

The December 2008 lifting of restrictions on the Kuala Lumpur-Singapore route offers a good example of the impact that the easing of aviation market restrictions can have. Capacity (as measured by weekly flight frequencies, according to OAG) on this route for the month of September 2009 increased 72.5% as compared to September 2008 levels.



## 5.4 ASEAN Member States and Open Skies

The trend of deregulation and liberalization in Asia is expected to continue, particularly amongst countries that are part of ASEAN.

ASEAN was established in 1967 with initially five member countries: Indonesia, Malaysia, Philippines, Singapore and Thailand. Its membership increased over time with Brunei joining in 1984, followed by Vietnam in 1995, Laos and Myanmar in 1997 and Cambodia in 1999. ASEAN was formed to promote regional peace, prosperity and stability.

### 5.4.1 *Within ASEAN*

Subsequent to an aviation liberalization roadmap adopted by ASEAN member states in 2004, in November 2010, the member states reaffirmed their collective commitment to building an ASEAN Single Aviation Market by 2015. The November 2010 ASEAN Multilateral Agreement on the Full Liberalisation of Passenger Air Services (MAFLPAS) and its two Protocols provides for further expansion of the scope of the ASEAN Multilateral Agreement on Air Services (MAAS) to include other ASEAN cities. The agreement and its protocols provides for designated airlines of a Member State to provide air services from any city with international airport in its territory to any city with international airport in the territory of the other Member States and vice-versa with full third, fourth, and fifth freedom traffic rights.

Aviation traffic freedoms are defined as follows:

First Freedom: the right to fly over a foreign country without landing there. Also known as the Technical Freedom, it is nearly universal, although some countries maintain restrictions and fees and designated routes may apply.

Second Freedom: the right to stop in another country solely for the purpose of refueling or carrying out maintenance in a foreign country on the way to another country. Because of longer range of modern airliners, second freedom rights are comparatively rarely exercised by passenger carriers today, but they are widely used by air cargo carriers, and are more or less universal between countries

Third Freedom: the right to fly and carry passengers from one's own country to another. This is known as the "first commercial freedom" and is the first right that requires more in-depth negotiation.

Fourth Freedom: the right to fly from another country to one's own. Third and fourth freedom rights are almost always granted simultaneously in bilateral agreements between countries.

Fifth Freedom: the right to fly between two foreign countries during flights while the flight originates or ends in one's own country. Known as "beyond rights", it covers for example, a Thai airline flying from Bangkok to Sydney Australia, then on to Auckland New Zealand.

Sixth Freedom: the right to fly from a foreign country to another one while stopping in one's own country for non-technical reasons. Airlines in Asia use sixth-freedom rights extensively to fly passengers between Europe and Australasia (also known as the Kangaroo Route).

Seventh Freedom: the right to fly between two foreign countries while not offering flights to one's own country.

Eighth Freedom: the right to fly between two or more airports in a foreign country while continuing service to one's own country, for example, a Thai airline flying from Beijing to Shanghai to Bangkok.



Ninth Freedom: the right to fly inside a foreign country without continuing service to one's own country, for example, a Thai airline flying from Beijing to Shanghai.

#### 5.4.2 *Outside of ASEAN*

Chinese government aviation officials have signed an agreement with ASEAN to build a more liberal air service framework between China and the ASEAN countries. Other developments contributing to the eventual achievement of open skies are potential similar agreements forthcoming between ASEAN and India as well as ASEAN and Korea.

China, Japan, and South Korea have indicated an interest in developing a unified aviation market comprising the ten ASEAN members plus China, Japan, India and South Korea, which could lead to the creation of an East Asian-plus-India Common Market. In addition, South Korea, China, and Japan have been working on a "North Asia Triangle" Open Skies agreement.

### 5.5 **Open Skies Agreements with Thailand**

Open skies agreements in effect in Thailand include agreements with the following countries:

- Bahrain
- Brunei
- Cambodia (ASEAN Agreement 2010)
- China (through ASEAN agreement with China)
- Indonesia (ASEAN Agreement 2010)
- Kuwait
  
- Laos (ASEAN Agreement 2010)
- Malaysia (ASEAN Agreement 2010)
- Myanmar (ASEAN Agreement 2010)
- Pakistan (MOU with limited open skies for cargo)
- Philippines (ASEAN Agreement 2010)
- Singapore
  
- South Korea
- Sri Lanka
- Switzerland
- United States of America
- Vietnam