Asia-Pacific Economic Cooperation

Develop Air Connectivity in the APEC Region

INDONESIA

Tourism Working Group | October 2016

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Asia-Pacific Economic Cooperation

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Glossary

The following section presents a list of commonly used expressions and abbreviations found in the report.

Connecting Potential – Common rates of passengers connecting beyond/behind when traveling through a hub to/from a particular region.

Induction/Stimulation – Initial spike in passenger demand when new non-stop service is offered due to better accessibility, shorter travel time, lower cost, etc.

List of Abbreviations

PDEW – Passenger daily each way (passenger demand in each direction between a select origin and destination).

SDEW – Seats daily each way (number of seats offered in each direction on a non-stop or one-stop flight segment).

OD – Origin and destination.

Airport Codes:

AAQ – Anapa, RUS

ACA – Acapulco, MEX

ADL – Adelaide, AUS

AER – Sochi, RUS

AGU – Aguascalientes, MEX

AKJ – Asahikawa, JPN

AKL – Auckland, NZ

ANF – Antofagasta, CHL

AOR – Alor Setar, MAS

AQP – Arequipa, CHL

ARH – Arkhangelsk, RUS

ASF – Astrakhan, RUS

ATL – Atlanta, US

AUS – Austin, US

AYP – Ayacucho, PE

BCD – Negros Occidental, PH

BDJ – Banjarmasin, INA

BHE – Blenheim, NZ BJX – Silao, MEX

BKI – Kota Kinabalu, MAS

BKK – Bangkok, THA

BLI – Bellingham, US

BMV – Buon Ma Thuot, VN

BNA – Nashville, US

BNE – Brisbane, AUS

BOS – Boston, US

BPN – Balikpapan, INA

BUR – Burbank, US

BWN – Bandar Seri Begawan, BD

BXU – Butuan, PH

CAN – Guangzhou, PRC

CBO – Cotabato, PH

CCP – Concepción, CHL

CEB – Cebu, PH

CEI – Chiang Rai, THA

CEK – Chelyabinsk, RUS

CEN – Ciudad Obregón, MEX

CGK – Jakarta, INA

CGO – Zhengzhou, PRC

CGQ – Changchun, PRC

CGY – Cagayan de Oro and Iligan, PH

CHC – Christchurch, NZ

CJA – Cajamarca, PE

CJC – Calama, CHL

CJJ – Cheongwon-gu, ROK

CJU – Jeju, ROK

CKG – Chongqing, PRC

CLT – Charlotte, US

CME – Ciudad del Carmen, MEX

CNS – Cairns, AUS

CNX – Chiang Mai, THA

CSX – Changsha, PRC

CTS – Hokkaido, JPN

CTU – Chengdu, PRC

CUN – Cancun, MEX

CUZ – Cusco, PE

CVG – Cincinnati, US

CXR – Nha Trang, VN

DAD – Da Nang, VN

DAL – Dallas, US

DCA – Washington, US

DEN – Denver, US

DFW – Dallas, US

DGO – Durango, MEX

DGT – Dumaguete, PH

DJB – Jambi City, INA

DLC – Dalian, PRC

DLI – Da Lat, VN

DME – Domodedovo, RUS

DMK – Bangkok, THA

DPS – Bali, INA

DRW – Darwin, AUS

DTW – Detroit, US

DUD – Dunedin, NZ

DVO – Davao City, PH

EAT – Douglas County, US

EWR – Newark, US

EZE – Buenos Aires, ARG

FAT – Fresno, US

FLL – Fort Lauderdale, US

FOC – Fuzhou, PRC

FSZ – Shizuoka, JPN

FUK – Fukuoka, JPN

GDL – Guadalajara, MEX

GEG – Spokane, US

GMP – Seoul, ROK

GUM – Tamuning and Barrigada, GUM

GYS – Guangyuan, PRC

HAK – Haikou, PRC

HAN – Ha Noi, VN

HGH – Hangzhou, PRC

HKG – Hong Kong, China, HKC

HKT – Phuket, THA

HND – Tokyo, JPN

HNL – Honolulu, US

HRB – Harbin, PRC

HUI – Hue, VN

HUZ – Huizhou, PRC

IAD – Washington, US

IAH – Houston, US

ICN – Seoul, ROK

ILO – Ilo, PE

IQQ – Iquique, CHL

IQT – Iquitos, PE

ISG – Ishigaki, JPN

ITM – Osaka, JPN

IWK – Iwakuni, JPN

JFK – New York, US

JHB – Johor, MAS

JJN – Quanzhou, PRC

JNZ – Jinzhou, PRC

JOG – Yogyakarta, INA

JUL – Juliaca, PE

KBR – Kota Bharu, MAS

KBV – Krabi, THA

KCH – Kuching, MAS

KGD – Kaliningrad, RUS

KHH – Kaohsiung, CT

KHN – Nanchang, PRC

KIX – Osaka, JPN

KKE – Kerikeri, NZ

KLO – Kalibo, PH

KMG – Kunming, PRC

KNH – Kinmen, PRC

KNO – Kuala Namu, INA

KOJ – Kirishima, JPN

KRR – Krasnodar, RUS

KUF – Samara, RUS

KUL – Kuala Lumpur, MAS

KWL – Guilin, PRC

KZN – Tatarstan, RUS

LAS – Las Vegas, US

LAX – Los Angeles, US

LED – Saint Petersburg, RUS

SVX – Yekaterinburg, RUS

LGA – NY–La Guardia, US

LGK – Padang Matsirat, Langkawi, MAS

LHW – Lanzhou, PRC

LIM – Lima, PE

LOP – Lombok, INA

LPF – Liupanshui, PRC

LPT – Lampang, THA

MBT – Masbate City, PH

MCC – Sacramento, US

MCO – Orlando, US

MDW – Chicago, US

MDZ – Mendoza, ARG

MEL – Melbourne, AUS

MEX – Mexico City, MEX

MFM – Macau, MAC

MIA – Miami, US

MLM – Alvaro Obregon, Michoacan, MEX

MNL – Manilla, PH

MRY – Monterey, US

MSP – Minneapolis–Saint Paul, US

MTT – Cosoleacaque, MEX

MTY – Apodaca, MEX

MZG – Magong City, CT

NBC – Nizhnekamsk, RUS

NGB – Ningbo, PRC

NGO – Nagoya, JPN

NKG – Nanjing, PRC

NKM – Nagoya, JPN

NNG – Nanning, PRC

NPE – Napier, NZ

NPL – New Plymouth, NZ

NRT – Tokyo, JPN

NSN – Nelson, NZ

NTG – Nantong, PRC

OAK – Oakland, US

OAX – Oaxaca, MEX

OKA – Naha, JPN

OOL – Gold Coast, AUS

ORD – Chicago, US

OVB – Novosibirsk, RUS

OZC – Ozamiz, PH

PDG – Sumatra, INA

PEK – Beijing, PRC

PEN – Penang, MAS

PER – Perth, AUS

PHL – Philadelphia, US

PHX – Phoenix, US

PIU – Piura, PE

PLM – Palembang, INA

PLW – Palu, INA

PMC – Puerto Montt, CHL

PMR – Palmerston North City, NZ

PNK – Pontianak, INA

POM – Port Moresby, PNG

PPQ – Paraparaumu, NZ

PQC – Phu Quoc, VN

PSP – Palm Springs, US

PUS – Busan, ROK

PVG – Shanghai, PRC

PVR – Puerto Vallarta, MEX

PXU – Pleiku, VN

PYX – Pattaya, THA

RDU – Raleigh, Durham, US

REP – Siem Reap, KHM

REX – Reynosa, US

RGN – Mingaladon, MMR

RNO – Reno, US

ROC – Rochester, US

ROT – Rotokawa, NZ

ROV – Rostov-on-Don, RUS

RSU – Yeosu, ROK

RTW – Saratov City, RUS

RXS – Roxas City, PH

SAN – San Diego, US

SCL– Santiago, CHL

SEA – Seattle, US

SFO – San Francisco, US

SGN – Ho Chi Minh, VN

SHA – Shanghai, PRC

SHE – Shenyang, PRC

SIN – Singapore, SGP

SIP – Simferopol, UKR

SJC – San Jose, US

SJD – San Jose del Cabo, MEX

SLC – Salt Lake City, US

SLP – San Luis Potosi, MEX

SMF – Sacramento, US

SNA – Santa Ana, US

SOC - Solo/Surakarta, INA

SPN – Saipan, US

SRG – Semarang, INA

STL – St. Louis, US

STW – Stavropol Krai, RUS

SUB – Surabaya, INA

SVO – Moscow, RUS

SVX – Koltsovo, RUS

SWA – Jieyang Chaoshan, PRC

SYD – Sydney, AUS

SYO – Sakata, JPN

SYX – Sanya, PRC

SZX – Shenzhen, PRC

TAC – Tacloban, PH

TAM – Tampico, MEX

TAO – Qingdao, PRC

TAV – Tau, ASM

TBP – Tumbes, PE

TDX – Trat, THA

TGG – Kuala Terengganu, MSA

TGZ – Chiapa de Corzo, MEX

TIJ – Tijuana, MEX

TKG – Bandar Lampung, INA

TLC – Toluca, MEX

TNA – Jinan, PRC

TPE – Taipei, CT

TPP – Tarapoto, PE

TRC – Torreon, MEX

TRU – Trujillo, PE

TSA – Songshan, CT

TSN – Tianjin, PRC

TTJ – Tottori, JPN

TXG – Taichung, CT

TYN – Taiyuan, PRC

UFA – Ufa, RUS

UIH – Qui Nhon, VN

UKB – Kobe, JPN

UPG – Makassar, INA

URC – Urumqi, PRC

USM – Koh Samui, THA

VCL – Chu Lai, VN

VDH – Dong Hoi, VN

VER – Veracruz, MEX

VII – Vinh, VN

VKO – Moscow, RUS

VOZ – Voronezh, RUS

VSA – Villahermosa, MEX

VVO – Vladivostok, RUS

WAG – Whanganui, NZ

WEH – Weihai, PRC

WLG – Wellington, NZ

WNZ – Wenzhou, PRC

WRE – Whangarei city, NZ

WUH – Wuhan, PRC

WUX – Wuxi, PRC

XIY – Xi'an, PRC

XMN – Xiamen, PRC

YEG – Edmonton, CDA

YGJ – Yonago, PRC

YHZ – Halifax, CDA

YKA – Kamloops, CDA

YLW – Kelowna, CDA

YNJ – Yanji, PRC

YOW – Ottawa, CDA

YPR – Prince Rupert, CDA

YQM – Moncton, CDA

YQR – Regina, CDA

YSJ – Saint John, CDA

YTS – Timmins, CDA

YUL – Montreal, CDA

YVR – Vancouver, CDA

YWG – Winnipeg, CDA

YXC – Cranbrook, CDA

YXS – Prince George, CDA

YXT – Terrace-Kitimat, CDA

YYB – North Bay, CDA

YYC – Calgary, CDA

YYJ – Victoria, CDA

YYZ – Toronto, CDA

YZP – Sandspit, CDA

YZR - Sarnia, CDA

ZAL – Valdivia, CHL

ZCL – Calera de Victor Rosales, MEX

ZQN – Queenstown, NZ

ZUH – Zhuhai, PRC

1. Introduction to the project

The APEC Secretariat and Economies have observed that the flow of goods, services, capital and people in the APEC Region is constrained by air connectivity limitations and gaps that exist between the APEC economies, particularly between the Americas and Asia Pacific. Improving connectivity is a long-term target of the APEC economies. The APEC Tourism Working Group (TWG) and Transport Working Group (TPTWG) are particularly interested in pursuing this long-term target.

This Project (the "Project") was proposed in 2014 by Thailand and co-sponsored by Australia; Indonesia; Malaysia; Peru; the Philippines; and Chinese Taipei and aims to develop air connectivity in the APEC Region and in turn stimulate a more efficient flow of goods, services, capital and people. The Project has the following objectives:

- To develop market demand-based recommendations for potential new routes, improved flight schedule connection times, and hubs between APEC economies based on analysis of air passenger flow, schedules and new aircraft range capability, including analysis of the number of seats, flights and air traffic.
- To help airlines and regulators develop more accurate demand predictions so they can in turn help APEC economies by providing better air connectivity services, capacity and schedules.

The Project was approved in December 2014, with IATA Consulting selected as the consultant in May 2015. IATA was mandated to complete the following tasks:

1. Develop market demand-based recommendations for potential new routes.
2. Provide recommendations to improve connections between flights at the main hubs linking the APEC economies.
3. Determine which APEC market-pairs could benefit from the introduction of new aircraft with extended range.

2. Approach followed and data used

This section explains the methodology applied by IATA and presents the data used to feed the various underlying analysis. To conduct the analysis, IATA took systematic steps identified in Figure 1.

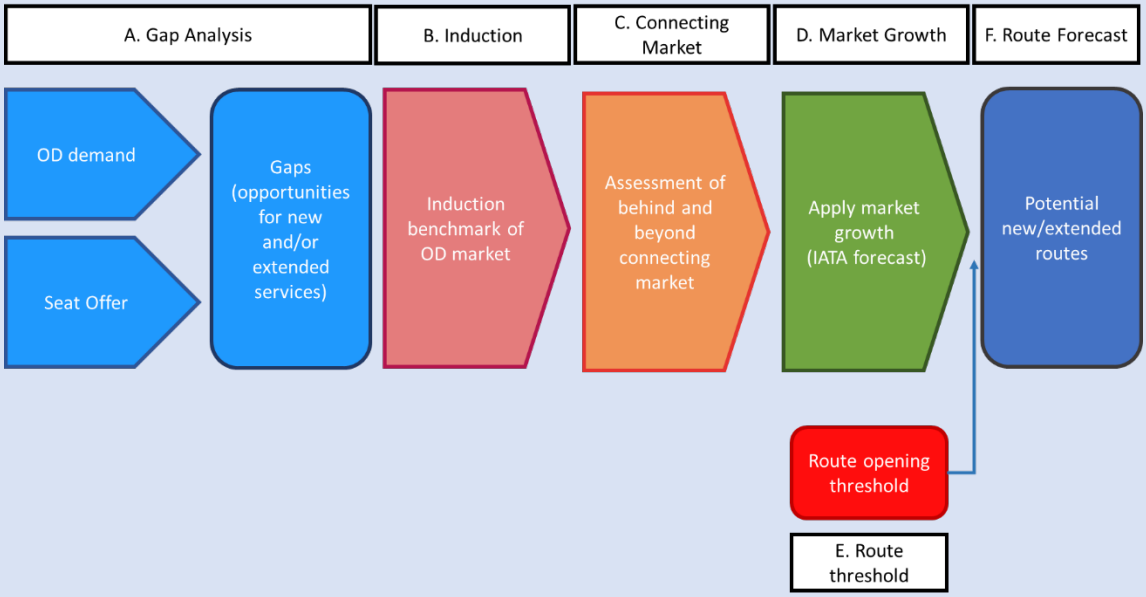

Figure 1: Process used to complete analytical work

The first step involved a demand-supply gap analysis aimed at identifying the unserved routes, presenting potential demand for future development. The size that this potential demand could actually represent if turned into direct service in the future was subsequently forecast, using realistic assumptions related to induction, connecting potential and demand growth.

2.1 Data fueling the model

Principal data for the model originates from Airport IS. IATA's Airport IS system uses IATA billing and settlement plan data to provide detailed demand and supply information on total air traffic. This data has been available for over a 10-year historical period (since 2005).

Approximately 18,500 international APEC routes were analyzed in the execution of this study. Airport IS data was particularly relevant in the gap analysis and assumption development.

Academic articles and published ratios were also used to justify some of the assumptions, including induction and origin destination traffic captured through direct service.

For some of the other variables used in the final traffic determination, economic forecasts were extracted from IHS Global Insight, one of the world's largest commercially available economic databases.

Tourism data was extracted from the World Travel and Tourism Council.

2.2 Gap analysis

IATA applied a funnel approach in conducting the analysis. It first considered the market at the economy pair level, followed by city pairs leading to a market potential assessment (see figure below). Both seat supply and seat demand were considered in the analysis to identify gaps in air service.

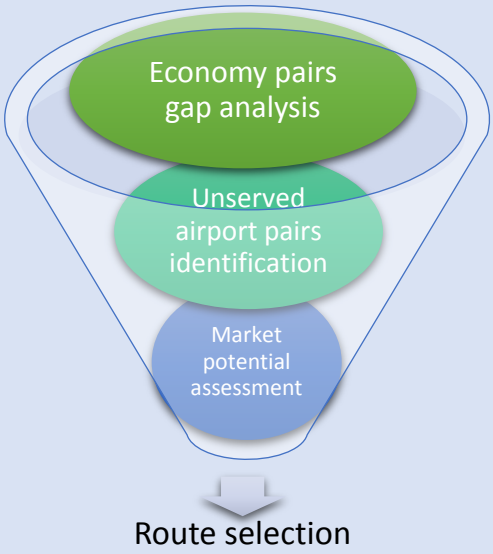

Figure 2: Funnel approach used to conduct analysis

The economy-pair analysis allowed IATA to identify unserved markets.

As an example, this analysis showed that there was an average daily demand of 815 Passengers Daily Each Way (PDEW) in 2015 that fly via existing connecting routings between Indonesia and Japan while an average of 1,886 direct (on non-stop service) seats were offered daily each way.

When extending the analysis down to the city pairs it was possible to identify the largest unserved markets between the two economies: 90 Passengers Daily Each Way (PDEW) travelled between CGK and LAX in 2015.

The top 30 underserved routes for Indonesia are presented in the table below.

Origin Airport	Origin Economy	Destination Airport	Destination Economy	2015 OD Demand (PDEW)	Non-stop seats in 2015 (SDEW)	1-stop seats in 2015 (SDEW)
CGK	Indonesia	LAX	United States	90	-	-
CGK	Indonesia	NGO	Japan	71	-	-
CGK	Indonesia	PUS	Republic of Korea	70	-	-
DPS	Indonesia	PEN	Malaysia	67	-	-
CGK	Indonesia	KHH	Chinese Taipei	64	-	-
CGK	Indonesia	JFK	The United States	63	-	-
CGK	Indonesia	HAN	Viet Nam	52	-	-
CGK	Indonesia	SFO	The United States	51	-	-
SUB	Indonesia	BKK	Thailand	41	-	-
DPS	Indonesia	NGO	Japan	39	-	-
CGK	Indonesia	BNE	Australia	38	-	-
DPS	Indonesia	HKT	Thailand	36	-	-
DPS	Indonesia	FUK	Japan	36	-	-
KNO	Indonesia	HKG	Hong Kong, China	36	-	-
DPS	Indonesia	SGN	Viet Nam	35	-	-
CGK	Indonesia	KCH	Malaysia	33	-	-
BDO	Indonesia	PEN	Malaysia	32	-	-
SUB	Indonesia	ICN	Republic of Korea	30	-	-
SRG	Indonesia	HKG	Hong Kong, China	30	-	-
CGK	Indonesia	LGK	Malaysia	30	-	-
CGK	Indonesia	CNX	Thailand	30	-	-
CGK	Indonesia	KBV	Thailand	30	-	-
CGK	Indonesia	ITM	Japan	29	-	-
DPS	Indonesia	HGH	China	29	-	-
DPS	Indonesia	CHC	New Zealand	28	-	-
JOG	Indonesia	HKG	Hong Kong, China	27	-	-
SUB	Indonesia	PVG	China	27	-	-
KNO	Indonesia	BKI	Malaysia	27	-	-
CGK	Indonesia	CJU	Republic of Korea	26	-	-
DPS	Indonesia	CTU	China	26	-	-

Table 1: Top 30 unserved routes from Indonesia, 2015 data

2.3 Induction

To determine realistic estimates of the success of new air service, various assumptions were considered and applied to current passenger demand.

Induction is a well proven concept that explains how new direct air service has a significant impact on increasing the total number of O&D passengers on a city pair market. This is due to product improvement: shorter travel time, greater convenience and more affordable ticket prices. The extent to which the market will be stimulated varies based on current levels of service (price and flight frequency) offered on a particular route. As stated in the Successful Air Service Development presentation (ICF International, 2014) a market's first non-stop flight can stimulate demand by 100% to 300%.

IATA quantified this induction value to show a relationship between two primary factors: region pair and the size of the market before a new route is initiated.

The table below shows the stimulation rates considered for this analysis of Indonesia. For some instances where inadequate data (less than 4 routes), to conduct a region pair analysis was available, other variables were considered, including the average of all routes, the average of long-haul routes or the average of short-haul routes, depending on the specific market.

Market	Base of 10,000 Annual Pax	Base of 25,000 Annual Pax	Base of 50,000 Annual Pax
All APEC Economies	130%	42%	18%
Long Haul	101%	36%	16%
Short Haul	150%	50%	21%
Australasia - South East Asia	159%	75%	44%
North America-Asia	104%	40%	
Asia - South East Asia	162%	53%	
Asia - North East Asia	155%	58%	27%
South East Asia - China	203%	78%	
South East Asia - North East Asia	125%		
Within Asia	160%	55%	24%
Within Southeast Asia	205%		

Table 2: Stimulation rates applied to the analysis

2.4 Connecting potential

Increasing the quality of connections through alliance agreements, codeshares, shorter journey times or fewer stops increases overall travel demand in connecting markets. It is a normal phenomenon for new routes to not only increase demand for the city pairs served but also for beyond and behind destinations that are now more easily accessible (Swan, 2008). On long-haul routes, typically two-thirds of the passengers will make a connection.

IATA's analysis found that connecting markets would stimulate at various rates depending on the region of origin and the hub airport being flown through. These ratios are applied in determining the impact of a new route on connecting flows.

Connecting rates to be applied in this project for flights connecting at the main Indonesian hub were estimated based on traffic from various regions flying through CGK, as shown in the table below.

	CGK
Australia	21.10%
Asia	21.00%
South East Asia	21.70%
China	7.80%
North Asia	13.90%

Table 3: Average rate of connecting passengers at hub airports in Indonesia

2.5 Demand growth

This refers to the consideration of the natural growth observed on a market segment. IATA Economics publishes a detailed inter- and intra-regional global traffic forecast. These demand growth forecasts were used to provide a regionally specific rate of growth to and from Indonesia between 2016 and 2018. Growth was typically seen to be around 5%. Demand growth also refers to the fact that approximately 80% of a market will choose a non-stop flight option if it is available (Belobaba, 2015).

2.6 Other

Other factors, including distance and available traffic rights, were used to refine the assessment of potential new service to be offered. Distance considers the feasibility of offering a non-stop flight with existing technology, using 15,000km as a maximum distance. Available traffic rights consider the bilateral agreements between economies and the current use of those bilateral rights.

2.7 Final route forecast

After conducting the gap analysis and applying the established rates from the various assumptions, the future market potential was estimated, as illustrated in Figure 3 below for the DPS-PEN route.

				1	2	4	
Origin Airport	Destination Airport	Destination Economy	2015 OD Non-direct Demand	OD Captured Though Deorect Service	OD Stimulation	Behind/Beyond Connecting Potential	Caculations
DPS	PEN	Malaysia	(A) 67	(B) 80%	(C) 79%	(D) 0%	
				(1) 54	43		(1) = AxB
				(2)			(2) = 1xC
			Subtotal	(3)	97		(3) = 1+2
		DPS - PEN Total Market Potential (2015 Base)				(4) 97	(4) = 3/(1-D)

Figure 3: Example of the various assumptions being applied to determine the potential for new air service.

3. Indonesia

A summary of Indonesia's economy and demographics, aviation demand, and airport-specific information is presented in this section.

3.1 Economy and demographics

Indonesia is located in South-eastern Asia, between the Indian Ocean and the Pacific Ocean. It has more than 17,000 islands, 922 of which are permanently inhabited.

3.1.1 Demographics

Indonesia's population is estimated at 249.9 million in May 2016. Indonesia's capital, Jakarta, lies on the island of Java. Approximately 58% of the total population live on Java Island which is the world's most populated island (Statistics Indonesia, 2016). The largest cities in Indonesia are Jakarta, Surabaya, Bandung, Bekasi and Medan in respective order. The most populated provinces in Indonesia are depicted in the figure below. West Java is the most populated province in Indonesia with a population of 43 million.

Rank	Province	Population	% of Total Population
1	West Java	43,021,826	18.10
2	East Java	37,476,011	15.77
3	Central Java	3,238,0687	13.63
4	North Sumatra	12,985,075	5.46
5	Banten	10,644,030	4.48
6	Jakarta	9,588,198	4.03
7	South Sulawesi	8,032,551	3.38

Figure 4: Most populated Indonesian provinces (Statistics Indonesia, 2016)

3.1.2 Economy

Indonesia's GDP growth rate has fallen from 6.2% per annum in 2011 to 4.8% per annum in 2015. GDP is forecasted to reach 5.2% in 2016 through Indonesia's economic reforms, such as public expenditure on infrastructure investment and policy reforms to stimulate private investments in the economy. It is further expected that lower interest rates will boost the growth of the economy. Compared to other Southeast Asian countries, Viet Nam's GDP is expected to react 6.7% and the Philippines' is expected to reach 6.0% in 2016 (ADB, 2016).

Indonesia's major exports include oil and gas (12.4%), animal and vegetable fats and oils (14%), and electrical equipment and machinery (10.45%) as of 2015. Indonesia's top trading partners according to percentage share of total exports include Japan (13.14%); China (10.00%); Singapore (9.52%); the United States (9.41%) and India (6.94%) (World Bank, 2014). Indonesia's economy has faced a decline of commodity prices and global demand since 2012 which have impacted its exports and overall economy (Statistics Indonesia, 2016).

3.1.3 Tourism

Tourism plays an important role in Indonesia's economy, representing spending of IDR379,452 billion (3% of total GDP) in 2015. Tourism is expected to rise by 5.5% in 2016 and to increase by 5.3% per annum between 2016 and 2026. The total contribution of travel and tourism (indirect and direct) is expected to reach 10.1% of GDP by 2026 (World Travel and Tourism Council).

Leisure travellers (72.8%) make up the majority of direct travel and tourism GDP. Business travel spending made up 27.2% of travel and tourism GDP in 2015. Approximately 79.22% of foreign visitors in 2014 came from the Asia Pacific region, 14.18% from Europe, 3.83 % from the Americas and 2.77% from the Middle East and Africa region (Statistics Indonesia, 2016).

In the past decade, Indonesia's tourism industry has suffered due to several bombing incidents. However, the government has reacted by increasing security measures and channelling funds to the Department of Culture and Tourism in Jakarta to support recovery efforts quickly and efficiently.

In 2015, the Indonesian government confirmed its decision to grant an additional 45 countries visa-free access to Indonesia for tourism purposes. Infrastructure development and policy changes have been implemented in order to attract greater numbers of tourists to Indonesia.

In 2016, Indonesia expects to welcome 12 million tourists and generate approximately USD12.6 billion in foreign exchange revenue.

It is estimated that nearly 9% of Indonesia's total workforce are related to the tourism and travel industry.

3.2 Aviation demand

Indonesia spreads across thousands of islands, as such aviation is integral to its society and economy.

3.2.1 Recent demand growth

Total passenger traffic growth between 2008 and 2014 displays an upward trend, with traffic having more than doubled in six years to 162 million passengers in 2014.

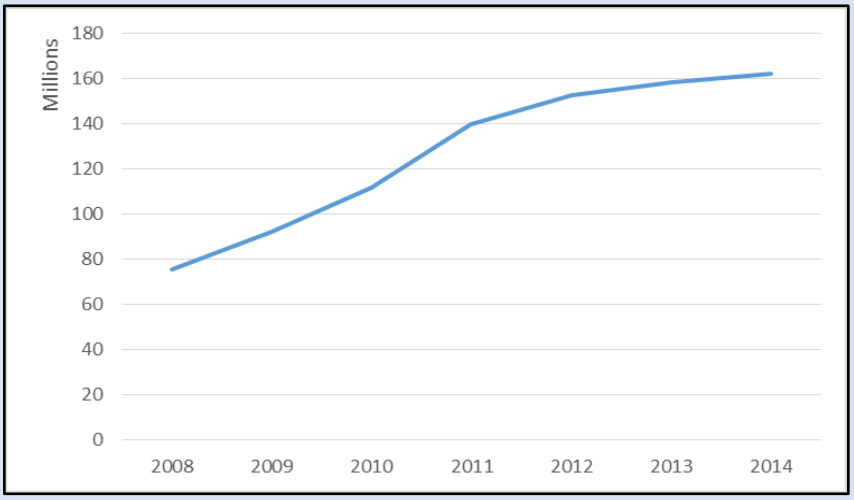

Figure 5: Total Air Traffic Indonesia 2005-2015 (Source: ACI, 2016)

3.2.2 Current air services to Indonesia

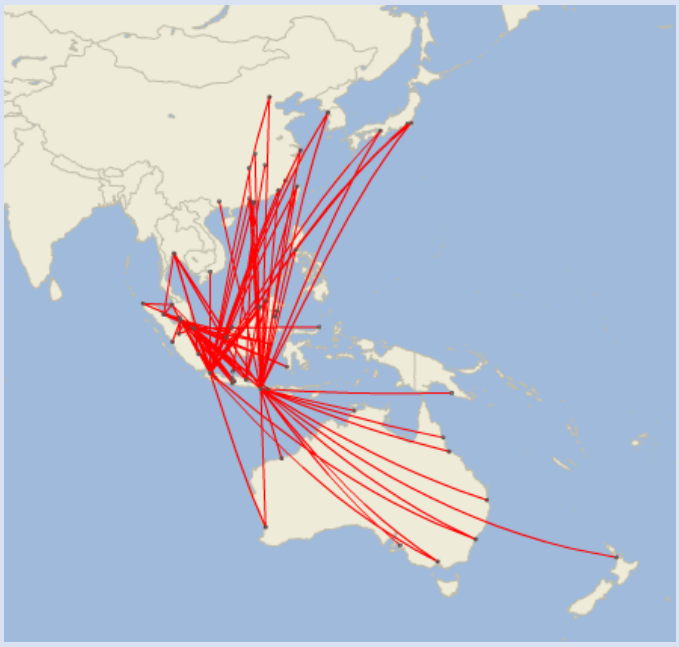

Figure 6: Non-stop service to and from Indonesia and top international APEC destinations March 2016 (Source: Airport IS)

3.2.3 Aviation and the economy

Economic Footprint

The aviation sector contributes to 4.19% GDP as of the 3rd quarter of 2015. From an employment perspective the sector supports 148,300 people directly and indirectly, and a further 1,412,900 people through the catalytic effects.

3.2.4 Government position on aviation

The Indonesian government is in favor of aviation growth. In 2016, Indonesia has confirmed its support to the ASEAN open sky agreement. There are five Indonesian airports will commit to the open sky policy, namely CGK, KNO, SUB, DPS, and UPG.

Both the national and state-owned government airport operators are keen to establish public-private partnerships to maintain and develop infrastructure.

Indonesia is transparent with its bilateral agreements, making the available capacity and other details publicly available.

3.3 Airport-specific information

3.3.1 Busiest airports in Indonesia

Rank	Airport	Most Recent Annual Traffic Statistics (2014 or 2015)	% of Total Indonesian Market
1	CGK	54,053,905	29.13%
2	SUB	17,478,521	9.42%
3	DPS	17402,397	9.38%
4	UPG	8,682,930	4.68%
5	KNO	8,006,757	4.32%
6	BPN	7,700,880	4.15%
7	JOG	6,6361,126	3.43%

Table 4: Top 7 busiest airports in Indonesia (Source: Albatross Airport, 2016).

Figure 7: Map of Indonesia's busiest airports (Source: Google maps)

Jakarta Soekarno–Hatta International Airport (CGK)

Soekarno–Hatta International Airport is the main airport serving the greater Jakarta area on the Java Island. It is located 20 kilometres west of Jakarta city center. The airport has two operating terminals and a third terminal to start operations in the second quarter of 2016. A fourth terminal has been proposed and due for completion by 2021.

Juanda International Airport (SUB)

Juanda International Airport is one of the major airports in Indonesia. It is located approximately 12 kilometres away from Surabaya. SUB is also one of the busiest airports in Indonesia and will become one of the main airports in Indonesia under the ASEAN Open skies agreement. The airport currently has two terminals, one for international, Garuda Indonesia, and AirAsia flights, and the other allocated to domestic flights of other airlines. A third terminal is under construction and due for completion by the end of 2016.

Denpasar Bali International Airport (DPS)

Denpasar International Airport is located 13 kilometres south of Denpasarin southern Bali. It is located close to tourist attractions in Bali and the resort centre of Kuta. DPS is Indonesia's third busiest international airport. The airport currently operates two terminals for both domestic and international flights.

Sultan Hasanuddin International Airport (UPG)

Sultan Hasanuddin International Airport is located 20 kilometres northeast of Makassar's city centre. It is the main gateway for flights to the eastern part of Indonesia. It has the capacity to accommodate 7 million passengers per year.

Kuala Namu Airport (KNO)

Kuala Namu Airport (Medan) officially opened on 27 March 2014. It is located in Deli Serdang, North Sumatera, 39 kilometres from Medan. It is the second largest airport in Indonesia after Soekarno-Hatta International Airport with a capacity of 22,180,000 passengers per year.

3.4 Major airlines information

Lion Air

Lion Airlines is a no-frills airline that services predominately the domestic market. It is the largest privately owned airline in Indonesia and the second largest low-cost airline in Southeast Asia. Lion Air has a fleet of 112 which includes the Boeing 737-900ER, the Boeing 737-800NG, the Boeing 747-400

and the Airbus A330-300 aircrafts. It delivers 183 routes domestically and internationally to nations such as China; Singapore; Malaysia; and Saudi Arabia (Lion air, 2016).

Garuda Indonesia

It is a state-majority owned airline. Garuda is the flag carrier for Indonesia and is focused on serving the international market. It has more than 100 new aircrafts within the age of 0-5 years, including Boeing 777-300 ER, 737-800 NG, Airbus A330-200, Airbus A330-300, 1000 CRJ NextGen and ATR 72-600 (Garuda Indonesia, 2016).

Sriwijaya Air

Sriwijaya Air is the third largest air carrier in Indonesia. It predominately serves the domestic market and offers several international routes to Malaysia, Timor Leste, China and Sri Lanka. Its headquarters are based in Jakarta at CGK. It has a fleet of 35 Boeing 737 series including the Boeing 737-800W NG, Boeing 737-400, and Boeing 737-300. Each month, it carries approximately 800,000 passengers from CGK to its various destinations. It also provides freight transportation services.

Wings Abadi Air

Wings Air provides services only to the domestic market in Indonesia. It operates 49 aircrafts comprised of two types: the ART72-500 and ATR72-600. The company is a wholly owned subsidiary of Lion Air.

4. Medium-term new route opportunities

This section of the report is dedicated to explaining the potential future air service developments to and from Indonesia within the APEC region over the next three years. Service gaps, route traffic forecasts, and high-level feasibility analysis conducted are hereby presented.

4.1 Service gaps

As part of the process, air services to Indonesia were considered at both economy pair and city pair levels.

4.1.1 Economy pair analysis

The following table outlines the supply and demand for air travel between Indonesia and other APEC economies. The data essentially shows the economy pairs where

- non-stop service is sufficiently supplied (in green),
- air service is adequate but may need to be improved in the long term (in yellow), and

- air service is at a shortfall and should be improved in the medium term (in red).

Origin Economy	Demand (PDEW)	Non-Stop Seat Offer (SDEW)	One-Stop Seat Offer (SDEW)	Ratio of Demand to Supply
Australia (AUS)	3,820	4,947	2	77%
Brunei Darussalam (BD)	184	295	0	62%
Canada (CDA)	89	0	0	**
Chile (CHL)	2	0	0	*
People's Republic of China (PRC)	2,638	1,944	303	117%
Hong Kong, China (HKC)	2,041	3,525	0	58%
Indonesia (INA)	212,180	326,095	46,827	57%
Japan (JPN)	1,831	1,917	0	96%
Republic of Korea (ROK)	1,019	1,535	0	66%
Malaysia (MAS)	8,678	14,637	1	59%
Mexico (MEX)	4	0	0	*
New Zealand (NZ)	192	25	0	768%
Papua New Guinea (PNG)	16	18	0	88%
Peru (PE)	2	0	0	*
The Republic of the Philippines (PH)	350	367	0	95%
Russia (RUS)	16	0	0	*
Singapore (SGP)	8,635	14,456	0	60%
Chinese Taipei (CT)	1,077	1,298	527	59%
Thailand (THA)	2,001	2,330	0	86%
United States (US)	393	0	0	***
Viet Nam (VN)	373	178	0	210%

Table 5: Total demand- to-supply ratio PDEW (Source: IATA analysis of Airport IS Data)

*** Delineates an economy pair with no air services that has inadequate demand to consider air services in the long term**

**** Delineates an economy pair with no air services that may have adequate demand for service in the long term (next 10 years)**

Typical ratios found in highly liberalized international markets with adequate capacity for demand ranges from 60% to 80%.

In some cases, the demand-to-supply ratio is under 60%, however this is still adequate as the low percentage figure may be representative of high rates of connecting passengers flying between economies (not shown in the above table – only OD traffic is displayed).

Where demand-to-supply ratios are higher than 80%, seat offer should be increased between economy pairs (e.g. Indonesia and the Philippines at 95% where the non-stop supply is barely enough to cover the total demand between the economies).

Based on the above analysis at the economy level, Indonesia may have an opportunity to improve service to four economies in the long term (highlighted in yellow in the above table), and could take actions to improve service with eight economies, namely China; Japan; New Zealand; Papua New Guinea; the Philippines; Thailand; the United States and Viet Nam in the medium term (highlighted in red).

The following section will look into greater details at these shortfalls in supply at a city-pair level.

4.1.2 City pair analysis by APEC economy

When considering the shortfall in service on city-pair level, 22 city pairs have a demand of 30 PDEW or greater with no non-stop service. These city pairs listed by economy are seen in the table below. The section following the table provides a narrative description of the phenomenon seen at a combined economy-pair and city-pair level for the economies where air service development is a possibility.

Origin Airport	Origin Economy	Destination Airport	Destination Economy	2015 OD Demand (PDEW)
CGK	Indonesia	BNE	Australia	38
KNO	Indonesia	HKG	Hong Kong, China	36
SRG	Indonesia	HKG	Hong Kong, China	30
CGK	Indonesia	NGO	Japan	71
DPS	Indonesia	NGO	Japan	39
DPS	Indonesia	FUK	Japan	36
DPS	Indonesia	PEN	Malaysia	67
CGK	Indonesia	KCH	Malaysia	33
BDO	Indonesia	PEN	Malaysia	32
CGK	Indonesia	LGK	Malaysia	30
CGK	Indonesia	PUS	Republic of Korea	70
SUB	Indonesia	ICN	Republic of Korea	30
CGK	Indonesia	KHH	Chinese Taipei	64
SUB	Indonesia	BKK	Thailand	41
DPS	Indonesia	HKT	Thailand	36
CGK	Indonesia	CNX	Thailand	30
CGK	Indonesia	KBV	Thailand	30
CGK	Indonesia	LAX	United States	90
CGK	Indonesia	JFK	United States	63
CGK	Indonesia	SFO	United States	51
CGK	Indonesia	HAN	Viet Nam	52
DPS	Indonesia	SGN	Viet Nam	35

Table 6: APEC routes to Indonesia with over 30 PDEW with no non-stop service (Source: IATA analysis of Airport IS data).

4.2 High-level feasibility considerations

City pairs with 30 PDEW (14,235 annual passengers one-way) were considered as the minimum threshold for analysis. There are 22 city pairs to and from Indonesia met this criterion.

As a way to further define a potentially viable route, IATA used two metrics: distance and market size. Due to aircraft range restrictions, city pairs more than 15,000km from each other were eliminated. The second criterion used the application of induction and connection of potential rates (unique to each region and route type) to the existing OD demand in order to determine whether the route would garner demand of a minimum 158 PDEW for ultra-long-haul routes (over 12,000km), 110 PDEW for long-haul routes (between 4,000km and 12,000km), or 75 PDEW for short-haul routes (under 4,000km) in the coming three years with behind and beyond potential and OD stimulation factored in (see section 4.3 below for a detailed breakdown of the factors)

This filtering process led to the selection of three routes that are presented in the table below with more details in the next section.

Origin Airport	Origin Economy	Destination Airport	Destination Economy	2015 OD Demand	2015 Estimated Market Potential	Distance viable for non-stop flight with current technology	Market size adequate for non-stop service in the medium term	Proposed Route
CGK	Indonesia	HAN	Viet Nam	52	106	✓	✓	Yes
DPS	Indonesia	PEN	Malaysia	67	97	✓	✓	Yes
CGK	Indonesia	LAX	United States	90	136	✗	✓	No
CGK	Indonesia	NGO	Japan	71	88	✓	✗	No
CGK	Indonesia	PUS	Republic of Korea	70	87	✓	✗	No
CGK	Indonesia	PUS	Republic of Korea	70	87	✓	✗	No
CGK	Indonesia	KHH	Chinese Taipei	64	83	✓	✓	Yes
SUB	Indonesia	BKK	Thailand	41	82	✓	✗	No
CGK	Indonesia	SFO	United States	51	78	✓	✗	No
CGK	Indonesia	BNE	Australia	38	78	✓	✗	No
KNO	Indonesia	HKG	Hong Kong, China	36	76	✓	✗	No

Table 7: Summary of high-level route feasibility considerations

4.3 Proposed route analysis

Based on the filtering process applied above, IATA identified three routes that could be established through Indonesia in the medium term. This section decomposes the route potential and presents a forecast of the current demand in the medium term.

4.3.1 Route #1 DPS-PEN

DPS - PEN 2015 total route potential definition:

				1	2	4	
Origin Airport	Destination Airport	Destination Economy	2015 OD Non-direct Demand	OD Captured Though Deorect Service	OD Stimulation	Behind/Beyond Connecting Potential	Caculations
DPS	PEN	Malaysia	(A) 67	(B) 80%	(C) 79%	(D) 0%	
				(1) 54	43		(1) = AxB
				(2)			(2) = 1xC
			Subtotal	(3)	97		(3) = 1+2
		DPS - PEN Total Market Potential (2015 Base)				(4) 97	(4) = 3/(1-D)

Based on 2015 demand figures, IATA estimates that the DPS-PEN route presents a potential of 97 PDEW for a direct service between the two cities.

This potential would grow to 113 by 2018 as displayed in the short term forecast in the following table. This forecast uses the 2015 estimated demand and applies to it the IATA inter- and intra-regional global traffic forecast published by our Economics Division.

Economy Pair	City Pair	2015 Base	2016	2017	2018
Indonesia-Malaysia	DPS-PEN	97	102	107	113

4.3.2 Route #2 CGK-HAN

CGK - HAN 2015 total route potential definition:

				1	2	4	
Origin Airport	Destination Airport	Destination Economy	2015 OD Non-direct Demand	OD Captured Though Deorect Service	OD Stimulation	Behind/Beyond Connecting Potential	Caculations
CGK	HAN	Viet Nam	(A) 52	(B) 80%	(C) 100%	(D) 22%	
				(1) 42	42		(1) = AxB
				(2)			(2) = 1xC
			Subtotal	(3)	83		(3) = 1+2
		CGK - HAN Total Market Potential (2015 Base)				(4) 106	(4) = 3/(1-D)

Based on 2015 demand figures, IATA estimates that the CGK-HAN route presents a potential of 106 PDEW for a direct service between the two cities.

This potential would grow to 113 by 2018 as displayed in the short term forecast in the following table. This forecast uses the 2015 estimated demand and applies to it the IATA inter- and intra-regional global traffic forecast published by our Economics Division.

Economy Pair	City Pair	2015 Base	2016	2017	2018
Indonesia-Viet Nam	CGK-HAN	106	112	118	124

4.3.3 Route #3 CGK-KHH

KHH-CGK 2015 total route potential definition:

				1	2	4	
Origin Airport	Destination Airport	Destination Economy	2015 OD Non-direct Demand	OD Captured Though Deorect Service	OD Stimulation	Behind/Beyond Connecting Potential	Caculations
CGK	KHH	Chinese Taipei	(A) 65	(B) 80%	(C) 38%	(D) 14%	
				(1) 52	20		(1) = AxB
				(2)			(2) = 1xC
			Subtotal	(3)	71		(3) = 1+2
		CGK - KHH Total Market Potential (2015 Base)				(4) 83	(4) = 3/(1-D)

Based on 2015 demand figures, IATA estimates that the CGK-KHH route presents a market potential of 83 PDEW for a direct service between the two cities.

This potential would grow to 121 by 2018 as displayed in the short term forecast in the following table. This forecast uses the 2015 estimated demand and applies to it the IATA inter- and intra-regional global traffic forecast published by our Economics Division.

Economy Pair	City Pair	2015 Base	2016	2017	2018
Indonesia-Chinese Taipei	CGK-KHH	83	88	92	97

4.4 Proposed scheduled operations

This section considers the above route through three main operational/feasibility criteria:

- air service agreements
- airline network strategies and fleets
- route economics

Additionally, proposed operational aspects of the route are presented including an indicative start date based on market maturity, a proposed airline to serve the route, type of aircraft to be used, flight frequency, and estimated load factors.

4.4.1 Route #1 DPS-PEN

The DPS-PEN route could be served by AirAsia using the 180 seats A320 aircraft. Considering the estimated market potential of 107 PDEW in 2017 and assuming the new service will capture 80% of the market, the new service could start with five times per week and operate at an estimated average load factor of 67% as illustrated below:

Route (non-directional)	Minimum Opening Date	Airline	Aircraft	# of Seats	Frequency per Week	Number of Pax per Flight	Load Factor
DPS-PEN	2017	AirAsia	A320	180	5	120	67%

4.4.2 Route #2 CGK-HAN

The CGK-HAN route can be considered by Garuda Indonesia making use of the B737-800 aircraft configured with 160 seats. With a 5-weekly service to start with in 2017, it is estimated the load factor will be a healthy 83%:

Route (non-directional)	Minimum Opening Date	Airline	Aircraft	# of Seats	Frequency per Week	Number of Pax per Flight	Load Factor
CGK-HAN	2017	Garuda Indonesia	B737-800	160	5	132	83%

4.4.3 Route #3 CGK-KHH

The CGK-KHH route is ideal for Garuda Indonesia to operate on the route. This service can bring connecting traffic to CGK and on to Garuda's extensive domestic and international network. Considering the market potential estimated for 2017 of 92 PDEW. A 5-weekly service could be offered from route opening. The proposed service would operate at an estimated average load factor of 81% as illustrated below with a Garuda Indonesia B737-800 aircraft:

Route (non-directional)	Minimum Opening Date	Airline	Aircraft	# of Seats	Frequency per Week	Number of Pax per Flight	Load Factor
CGK-KHH	2017	Garuda Indonesia	B737-800	160	5	129	81%

In terms of air service agreements, IATA does not foresee any issues for this route to be operated based on the current high-level policies in place between the two economies.

5. Conclusions and opportunities

In addition to the development of new air services in the medium term, other opportunities for air service development such as connectivity improvement, route frequency increases, and long-term developments are also presented.

5.1 Connectivity improvement

This section identifies poorly connected markets that could be better served by improved connecting times, hence granting additional access to already existing yet less accessible connecting markets.

Almost 80% of the APEC international flights to/from Indonesia used CGK and DPS airports. Hence, IATA examined flights operating to and from CGK and DPS for this analysis. A small selection of improvements can be identified for CGK suggested based on optimal connecting time-related considerations. The connections in DPS are currently well aligned and no significant improvements can be identified at this point in time. Below is a summary of the potential optimizations for CGK:

- Garuda Indonesia flight 898 from CGK to CAN currently leaves CGK at 08:40. Should the departure time move back by 30 minutes to 09:10, it will allow extra connections from seven domestic destinations: SUB, LOP, PLM, DPS, PDG, TKG and BDJ.
- The morning Garuda Indonesia flight 866 departure to BKK currently leaves CGK at 9:40. By moving back the departure time by 45 minutes to 10:25 will allow nine more domestic connections from PLW, JOG, SOC, SRG, PLM, PNK, SUB, DJB, and TKG.
- Currently the Garuda Indonesia flight 713 from SYD arrives into CGK at 15:45. If the arrival time can be brought forward to 15:00, it will allow better onwards domestic connections to SIN, BKK, PNK, SUB, KNO, JOG, PLM and SRG.

5.2 Route frequency increase

IATA considered all of the international non-stop routes from Indonesia to determine whether the current non-stop supply adequately matches the demand. Numerous city pairs from Indonesia with inadequate non-stop service were identified.

Due to the fact that most aircrafts only fly at an average 80% load factor, the ideal demand-to-supply ratio should be under 85%. All of the identified routes in the table below have demand-to-supply ratios of greater than 85%.

Origin Airport	Origin Economy	Destination Airport	Destination Economy	2015 OD Demand (PDEW)	Non-Stop Seats in 2015 (SDEW)	Demand Excess over Supply (PDEW)	Ratio of Demand to Non-Stop Supply
DPS	Indonesia	HND	Japan	128	20	108	645%
DPS	Indonesia	PVG	China	259	185	75	140%
CGK	Indonesia	PEK	China	191	117	74	163%
DPS	Indonesia	PEK	China	293	225	68	130%
DPS	Indonesia	AKL	New Zealand	92	25	67	368%
CGK	Indonesia	HKT	Thailand	99	49	50	203%
CGK	Indonesia	KIX	Japan	139	102	37	137%
SUB	Indonesia	TPE	Chinese Taipei	116	85	31	137%
CGK	Indonesia	PEN	Malaysia	249	222	27	112%
UPG	Indonesia	SIN	Singapore	72	51	21	142%
SUB	Indonesia	PEN	Malaysia	87	77	10	113%
SUB	Indonesia	DMK	Thailand	41	34	7	121%
DPS	Indonesia	NKG	China	35	28	7	126%
CGK	Indonesia	MEL	Australia	123	117	6	105%
KNO	Indonesia	JHB	Malaysia	69	64	4	107%
CGK	Indonesia	PER	Australia	100	97	3	103%
BTJ	Indonesia	PEN	Malaysia	53	51	2	104%
SOC	Indonesia	SIN	Singapore	52	52	-1	99%
CGK	Indonesia	PVG	China	241	243	-2	99%
CGK	Indonesia	BKI	Malaysia	116	118	-2	98%
BPN	Indonesia	SIN	Singapore	75	81	-6	93%
CGK	Indonesia	SGN	Viet Nam	168	178	-10	95%
DPS	Indonesia	NRT	Japan	297	307	-10	97%

Table 8: List of routes with potential for frequency increase

Strategies to improve the non-stop service could involve adding an additional weekly frequency or increasing the size of the aircraft serving the route. Each route has different operational constraints depending on the distance and type of market being served (short-haul vs. long-haul or business vs. leisure market).

5.3 Long-term new route opportunities

As the growing economy continues to drive air traffic growth, some routes identified in section 4 are expected to become viable in the longer term:

Origin Airport	Origin Economy	Destination Airport	Destination Economy	2015 OD Demand	2015 Estimated Market Potential	Distance viable for non-stop flight with current technology	Market size adequate for non-stop service in the long term
CGK	Indonesia	NGO	Japan	71	88	✓	✓
CGK	Indonesia	PUS	Republic of Korea	70	87	✓	✓
SUB	Indonesia	BKK	Thailand	41	82	✓	✓

Table 9: Long-term route opportunities

5.4 Development of aircraft technology

The latest aircraft available on the market, Airbus' A350-900 and Boeing's B787-9, are capable of flying ultra-long-haul routes. The technical capabilities of these aircrafts will allow new direct routes to be operated between APEC economies across the Pacific. The following map illustrates the range limit[1] of A350-900 and B787-9:

Figure 8: Range limit for the latest generation of aircraft from Jakarta (Source: GCMap)

[1] For illustration only. Based on published range for the base model of each aircraft type. Specific operating conditions may affect the range of the aircraft.

6. Recommendations to improve air connectivity

The various recommendations to improve air connectivity both generically and specifically for each APEC member economy are presented in this section.

6.1 Generic recommendations

This chapter provides recommendations applicable to all economies such as greater liberalization of air routes by allowing more access and the elimination of curfews and operational restrictions.

- Continue to liberalize the air services market to other APEC economies, allowing the fullest access to Indonesian airports.
- Encourage airlines, especially Garuda Indonesia, to explore the opportunities on the ultra-long-haul market when they take delivery of new generation of long-haul aircraft.

6.2 Specific recommendations

- Address terminal capacity issues at CGK, SUB, DPS airport.
- International to domestic minimum connecting time at CGK is with 120 minutes very long and this issue should be addressed to enhance the hub function of CGK.
- Ensure adequate planning is in place for major international airports to cater for long-term traffic growth.
- Closely work with the airline industry to enhance sustainability and profitability of the industry.

6.3 How the APEC economy's regulator can help

- Work closely with different stakeholders, for example Indonesia Tourism Authority, the Chamber of Commerce etc., to gain a deeper understanding of the development of the aviation demand.
- Ensure that the major international airports have an adequate investment and improvement program to cater for future traffic demand.
- Explore the possibility of relaxing visa requirements for tourists.
- Reduce Passenger Movement Charge on international air passengers.

7. Appendix

7.1 Overview of IATA and IATA Consulting

7.1.1 IATA

IATA – The International Air Transport Association was founded in 1945 as the prime vehicle for inter-airline cooperation in promoting safe, reliable, secure and economical air service for the benefit of the world's consumers. IATA is fully committed to supporting the commercial aviation industry's stakeholders and governments in their efforts to achieve profitability and long-term viability.

IATA's mission:

- To represent, lead and serve the airline industry.

IATA's vision:

- To be the force for value creation and innovation, driving a safe, secure and profitable air transport industry that sustainably connects and enriches our world.

IATA in numbers:

- 250+ member airlines
- 83% of total air traffic
- $387B processed by IATA financial systems
- 1,400+ employees
- 54 offices in 53 countries

7.1.2 IATA Consulting

IATA Consulting overview

IATA Consulting has comprehensive experience in the full array of business challenges facing the aviation sector. Serving the airline industry for 70 years, IATA has developed unrivalled practical experience, which we bring forth to provide the best solutions to our clients.

With our depth and breadth of aviation industry experience, we assist clients to maximize the value of their operating model, realize growth ambitions and gain insights that translate into sustainable competitive advantages.

IATA Consulting has expertise in the following areas:

SAFETY & FLIGHT OPERATIONS

Solutions for aviation organizations and airlines to improve safety, efficiency and air transport management.

ENVIRONMENT & ECONOMICS

Solutions for fulfilling the vision of a safer, more competitive and sustainable aviation industry.

AIRLINES

Solutions to achieve real and lasting results in every aspect of airline commercial and operational management.

AIRPORTS, PASSENGERS & SECURITY

Solutions to plan your airport efficiently to avoid costly mistakes and profit from untapped opportunities.

GROUND HANDLING & CARGO

Solutions to optimize your operations and improve your safety and security while reducing costs.

Our Clients

IATA Consulting has successfully demonstrated its capabilities by providing airlines, airports, tourism offices and other organizations with accurate, unbiased and reliable high quality information and analysis to help them define and understand their markets, while ensuring their long-term facility development and financial success.

IATA is trusted by multiple clients all over the world including airlines, airports, governments and aviation institutions.

Why IATA Consulting was chosen for this project

IATA has, over time, recruited and retained some of the most highly experienced and capable aviation consulting resources within the aviation industry. Due to its position at the heart of the industry, IATA has access to exceptionally skilled and informed subject matter experts and specialists. IATA Consulting's objective is to make a positive difference in its clients' performance, while delivering quality services to all industry stakeholders.

IATA Consulting provides its customers with vast knowledge and expertise in all sectors of the industry worldwide. Our approach has been finely tuned to leverage IATA's global presence and industry thought leadership position in the development of tailored solutions that fit with local cultural considerations and embody international best practices. Our consultants rely on international state-of-the-art standards, unmatched access to data, and products and expert resources to provide cost-efficient and highly informed solutions.

IATA is backed by a robust set of decision support tools, Airport IS and Pax IS have been essential to undertake this study.

Airport IS and **Pax IS** are the most comprehensive aviation databases available in the marketplace, capturing 100% of traffic around the world and bringing together total market supply and demand under a single platform. The data provided is accurate and reliable as it is captured through IATA's Billing and Settlement Plan (BSP).

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