

Airport Factor in Flight Delays in Indonesia

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ABSTRACT

Airport is a vital subsystem in the air transport system which has an important and strategic role in smoothening air traffic, so that an airport must be designed to be always ready in all situations and conditions to serve airline flights securely, orderly, smoothly, and quickly. The frequent delay faced by Indonesian domestic scheduled airlines is not fully caused by internal factor of the companies. Instead, it can be caused by the airport factor. The problems faced by airports in Indonesia which have impacts on the performance of flight punctuality among other things are *capacity, slot time, quality of flight navigation devices, accessibility, professionalism of airport and ATC human resources, infrastructure, facilities, equipment, and the human resources handling security and safety of flights in airport*. This article recommends that an in-depth study should be carried out to map the interrelations between the airport factor in the flight delay related to facilities integration and the airport authority in the flight activities in Indonesia.

Key Words: airport, factor, flight delay and issue of development.

Introduction

The factor of technique becomes the dominant cause of the domestic scheduled flight delay in Indonesia, in addition to the factors of airport and weather. Serious improvement is needed in the technical aspects consisting of improvement in aircraft reliability or performance, improvement in aircraft management through a tighter and more effective control, and enhancement of fleet availability or sufficiency. The aspect of regulations related to technical-operational matters needs to be rediscussed to clarify the definition of technical, operational, and airport factors (Majid, 2011).

In the perspective of main aviation players, i.e. air transport operators as the core players in the airline business, the causes of flight delay comprise five factors or reasons: technical (*teknik*), operational (*operasional*), commercial (*komersial*), airport (*bandar udara*), and weather (*cuaca*)—abbreviated as *tokbanca* in Indonesian language. The five factors can be classified into two: internal factors (technical, operational, commercial) which are known as *avoidable delays* and external factors (airport, weather) which are known as *unavoidable delays* or flight delays that can not be controlled by the airline company.

Indeed, we can add another factor to be six factors, namely other factors beyond the five such as, turmoil, demonstration by employees (pilot, airport workers), airport closing due to security reasons (hijacking

or terrorism, etc.). Most of experts call these factors *force majeure*. For example, the strike done by Garuda Indonesia pilots in the end of July 2011 had an impact on the postponement or delay for a number of Garuda Indonesia flights, both which departed from Jakarta and which arrived at Jakarta. Another example is when the electricity at Soekarno-Hatta airport broken off for several seconds (around 10 to 20 seconds) in the end of 2010 that made the departure and arrival schedules of a number of flights confusing. Another more extreme example is when a massive demonstration disabled Svarnabhumi airport in Bangkok city in Thailand causing the airport closing and the postponement or cancelation of many flights. That event happened in 2009 during the clash between the government supporters and the supporters of Thaksin Sinawatra, the former overthrown Prime Minister.

The discussion on the flight delay tends to see from the airline company side (internal factors or *avoidable delays*) instead of from the outside of airline company, such as from the airport aspect. In fact, if we want to trace it further, it is possible that airport factor contributes significantly to the flight delay. In this article the writer tries to review the role and contribution of an airport to the flight delay. This article is resulted from a literature-based research and an observation on some cases of Indonesian domestic scheduled flights during 2011 and 2012.

Results And Discussions

1. Role of Airport in The Flight

In the aviation industry there is an inseparable triumvirate, in which the three are mutually filling, completing, and needing, namely *aircraft industry*, *airlines industry*, and *airport industry* (Laurensius Manurung, 2011). Air transport operators need the supply of fleet much from aircraft manufacturers as well as the support of sufficient airports for the activities of loading and unloading passengers and cargo, including taking off and landing guidance services by reliable and professional ATC or ATS.

Referring to the Act No. 1 Year 2009 concerning Aviation, the definition of airport is *a region in land and/or water with specific boundaries used as a place for aircrafts to land and take off, to load and unload passengers, to load and unload cargo, and a transit place for intra and intermodes of transportation equipped with facilities for flight safety and security as well as other main and supporting facilities.*

It is stated in the explanation section that in order to assure the airport organization as the center for air transport service activities and as the effective and efficient business unit that can actuate regional economy, thus it determines the requirements, procedures, and standard of an airport, national airport order, location, operationalization, airport facilities and personnel, work environment control, and flight operation safety area surrounding the airport for the sake of flight safety

and security, as well as environment long-lasting.

It is also stated that in the airport organization there is a clear separation between the regulator and the airport operator with the establishment of Airport Authority and the opportunity for private institutions and regional government to take part in the airport organization.

Referring to the abovementioned Act, there are two things the witer wants to emphasize. *First*, the existence of an airport should be able to assure itself as the center of air transport service and as an effective, efficient business unit that can actuate regional economy. *Second*, there is a clear separation between the regulator and the airport operator as the consequence of the presence of airport authority. The second is in line with the aviation development carried out by the government which includes the aspects of regulation, control, and supervision. The presence of airport authority shows the government's seriousness as the regulator i.e. regulations and policy maker, which must be followed by the functions of supervision and law enforcement.

Decree of Transportation Minister No. 11 Year 2010 concerning National Airport Tatanan states that an airport plays some roles as: (a) a node in the air transport network, (b) gate of economic activities, (c) isolation opener, developer of border area and areas that are susceptible to disaster, (d) place for transport intermode activities, (e) booster and supporter of industrial

activities, and (f) vehicle to strengthen *Wawasan Nusantara* (the Archipelago concept of Indonesian maritime territory which includes all the water between the islands).

The management of airport as one of the air transport subsystems is committed to the principles of airport organization with the main duties comprising (1) delivering service to service users, and (2) maintaining the existing facilities so that the service level can be maintained or ready to operate (Suharno, 2009).

In the context of positioning an airline company as the core player in the aviation industry or in the air transport system, an airport must be able to play its role as the *main supporting* institution in the meaning that it becomes service provider, facilities provider for the smoothness of flight operation. Suharno (2009) thinks that one of the basic philosophies for the existence of an airport is that the airport service should be customer/user satisfaction oriented, provide security, orderliness, smoothness and comfort and it has added-value for the economy players through effective and efficient transport service delivery. The *supporting* function is the further explanation on the airport position as infrastructure together with the guiding function for air/airplane traffic service (ATC/ATS). Thus, an airport must have complete, sufficient and reliable facilities to smoothen the process of a flight operation. In another word, an airport must be designed to be always ready in any situation and condition to be able to serve

the flight securely, orderly, smoothly, and quickly.

Airport operator should be able to serve airport users, especially airlines, passengers, and cargo senders as well as possible. The main focus of service is oriented to air transport operators (airlines) with the basic asset in the form of aircraft and flight schedule that has been published. Meanwhile, the airlines themselves have promised to the users to fly securely/safely and punctually, and to deliver the best service. It is a problem when airlines in practice can not fulfill their promise, in this case the flight punctuality, due to airport factor. Therefore, readiness, cooperation, and good and harmonious coordination, and especially support from the airport, are necessary for realizing the flight punctuality.

2. Delays Due to Airport Factor

Many international airlines identify other factors that influence the flight delays beyond technical factor, operational factor, commercial factor, and weather, namely airport factor and the formality of CIQ clearance as follows.

Airport:

- a. ATC is late to give guidances to the aircraft.
- b. The airport facilities are not sufficiently supporting, for example limited parking area, insufficient lighting, gate limitation, etc.

- c. The computer devices or systems such as X-Ray equipment etc. are out of order.
 - d. The airport runway or all flight activities are temporarily closed or restricted due to politic situation or security of a nation, clearance of ice-snow, water, and sand (as well as dust) including *foreign on damage* (FOD) on the runway which are considered dangerous for flight safety.
- the capacity of airport both the capacity of runway and apron and the capacity of terminal building.

The problem of *over capacity* at the airport in Indonesia has become a priority to quickly overcome regarding its negative impact on the flight smoothness. Alexander T. Wells (2004) defines capacity as follows: *Capacity, in general is defined as the practical maximum number of operators that a system can serve within a given period of time. Capacity is in fact, a rate, similar to velocity. An automobile for example, might travel at a rate of 50 miles per hour, meaning that over an hour, traveling at this rate, the automobile will travel 50 miles. Traveling this rate for 30 minutes, the automobile will travel 25 miles, and so forth. Airport Capacity is measured in aircraft operations per hour. A single runway at an airport, might have an operating capacity of 60 operations per hour, meaning, over the course of an hour, the airport will be able to serve approximately 60 aircraft take offs and landings; in 30 minutes, the airport can serve 30 such operations, and so forth.*

CIQ Clearance:

- a. The departure requirements and procedures comprising the matter of cargo examination along with supporting documents; the matter of investigation on warehouse rent and export permit.
- b. The matter of export and import cargo examination for *custom clearance*.
- c. The examination process and quarantine permission against *perishable goods, live animal, etc.*
- d. The examination process against *heavy cargo, over size cargo, and dangerous goods*.

Airport factor has significant role or contribution to the flight delays of which, in the writer's opinion, there are at least three things to keep on guard against. *First*, the professionalism of airport human resources. *Secondly*, the readiness of airport equipment and facilities including computer system or IT support. And *thirdly*,

The experience of Garuda Indonesia shows that the target of on time performance (OTP) in 2008 as many as 85% can not be achieved to the full. From five *service areas* owned by Domestic, Asian, Japan-Korean-Chinese, Australian, and Midle East companies, only two could achieve or exceed the OTP target, namely Asian area (89.09%) and Japan-Korean-Chinese area (91.64%). The rest of three areas could not

achieve the target: Domestic area (83.14%), Australian area (82.30%), and Middle East area (58.71%) (Indra Setiawan, 2009).

In the case exemplified by Garuda Indonesia in 2008, the dominant factors causing flight delays other than *previous delay* factor (delay due to late arrival of the aircraft) are respectively as follows: *Airport facilities* (24%), *Technical delay* (21%), *Flight operation* (20%), *Station handling* (11%), *Commercial* (11%), *Weather* (7%), *System* (3%), and *Others* (3%).

Regarding that Garuda's case, it is clear that the factors causing delays or making OTP target unachieved highly varied. However, the factor of activity rate or density of an airport which IATA Delays Code identifies as *airport facility* (in this case is in Middle East area, such as King Abdul Aziz airport in Jeddah) also contributes to Garuda Indonesia's flight delays.

Likewise, the experience of Garuda Indonesia in the pilgrimage (*hajj*) flights during 2008 and 2009 shows there are still some problems related to the frequency of not achieving OTP due to technical factors, aircraft rotation, slot time, late arrival, and others. The main root of delay problem in the pilgrimage flights faced by Garuda Indonesia which refer to the airport factor are *slot time* (the availability of *gate/runway* and schedule), and *late arrival* (airport specification, airport facilities, and airport density).

The airport factor identified by Garuda using the terminology of *slot*

time and *late arrival* in the experience of hajj pilgrimage flights during 2008 and 2009 can be explained as follows (Damar Bramantyo, 2010).

In 2008 there were three times of delay due to *slot time*. It was because of changes in departure and arrival time which were arranged fully by the airport authority of Saudi Arabia. In 2009 there were four flights of which schedules were changed. In the problem of *late arrival*, a mistake happened due to changes in the departure schedule from Jeddah and Madinah airports, so that the arrival at the destined embarkation missed the plan/schedule.

In 2009 pilgrimage flight of Garuda experienced some obstacles as follows:

- a. Gate congestion (King Abdul Aziz airport, Jeddah)

It is a classic problem. This can happen especially on the first ten days in the second phase because of the over-crowded aircraft movement and limited *parking space*.

- b. Frequency limitation for pilgrim flights.

The renovation of King Abdul Aziz pilgrimage terminal has not finished yet, thus making the available gates become just ten. This has an impact on the policy of airport authority to reduce the frequency of pilgrimage flights per day. For Indonesia, especially Garuda Indonesia, from the need of 13 flights per day, the frequency was limited to be maximum nine times per day.

c. Finger print and eye scan

These obstacles are because of a very long immigration process. These are the impact of the implementation of finger print and eye scan policy for every pilgrim.

d. Fuel filling problem

The construction of King Abdul Azis airport which does not pay attention to the hydrant system for filling fuel to aircraft has caused certain parking areas can not use the hydrant system for fuel filling. Therefore, the fuel filling should use a fuel truck, causing delay up to two hours.

e. Limited number of buses at Jeddah airport

Limited means of bus transportation to the aircraft is still an obstacle. Only 17 buses available are not enough.

In essentials, there is a problem of pilgrimage flight delay faced by Garuda Indonesia that is contributed by airport factor (*airport facility*), which in this case includes: the effectiveness of schedule provided by Jeddah and Madinah (*slot time*), the availability of gate both in Jeddah airport and Madinah airport (*slot time*), insufficient facilities at Jeddah airport and Madinah airport (*late arrival*), quickness of Jeddah airport and Madinah airport in handling the density/activity at Jeddah and Madinah airports (*late arrival*), and the insufficient specification of Jeddah and Madinah airports (*late arrival*).

See table 1 in attachment regarding the types of problem causes in relation to the delay of Garuda Indonesia pilgrimage flights in 2009.

3. Condition of Airports in Indonesia and Issue of Development

Since the implementation of national aviation deregulation in 2000, the growth of flight in Indonesia has increased significantly. As an illustration, the growth of domestic passengers is very high on average 15% to 20% with the number of aircrafts operated and ordered by national airlines is predicted to increase sharply from 697 units in 2010 to 923 units in 2015 (Budihadianto, 2011). INACA (2011) mentioned that the number of passengers transported by scheduled airlines in 2009 was as many as 43,808,033 people and increased sharply in 2010 to become 51,775,656 people. The volume of cargo transported was 350,222 tons (2009) increasing to be 749,203 tons (2010), with the seat load factor 82% (2009) and 81.73% (2010). The number of aircraft departure was 390,554 (2009), increasing to be 417,717 (2010). The condition is much different compared with the condition in 2000/2001 in which the number was still below 20 million passengers per year.

Likewise, for international flight, the number of passengers transported was 5,004,056 people (2009) increasing to be 6,614,937 people (2010), the volume of cargo transported was 46,485 tons (2009) increasing to be 79,549 tons (2010), seat load factor 71.44 % (2009) and 72.18%

(2010), and the number of aircraft departure was 42,870 in 2009 and 50,793 in 2010.

The “booming” growth of passengers and air cargo of course can not be separated from the role and support of airport which should be able to counterbalance that “speed” and “boom”. In another word, the high growth of flight should be followed with the readiness/availibility of supporting infrastructures, such as an airport.

Today the number of airports in Indonesia is 233, other than 20 special airports that are in operation. Referring to the Decree of Transportation Minister No. 11 Year 2010, airports in Indonesia are classified into general airport, special airport, government-managed airport, and airport managed by a state-owned company in the form of limited company. Of the 233 existing airports, 164 airports are managed by service agencies under Directorate General Air Transportation Ministry of Transportation, 13 airports are managed by PT Angkasa Pura I, 12 airports are managed by PT Angkasa Pura II, and 44 new airports (30 location determinations, 8 relocated, 4 special airports for public, and 2 civil enclaves) (Directorate Aiport, Directorate General Air Transportation, Ministry of Transportation, 2011).

Of the 233 Indonesian airports, attention is paid more on commercial airports managed by PT Angkasa Pura I and PT Angkasa Pura II as many as 25 airports, with the major international airports comprising Jakarta (Soekarno-Hatta),

Surabaya (Juanda), Denpasar (Ngurah Rai), Makassar (Sultan Hasanuddin), Batam (Hang Nadim), Medan (Polonia), Balikpapan (Sepinggan), Palembang (Sultan Mahmud Badaruddin II), Padang (Minang Kabau), Pekanbaru (Sultan Syarif Kasim II), Pontianak (Supadio), and Manado (Sam Ratulangi).

There are three airports in Indonesia with the most passengers, namely Soekarno-Hatta Jakarta (more than 20 million passengers per year), Juanda Surabaya and Ngurah Rai Denpasar (5 to 20 million passengers per year). While the other nine major airports have 1 to 5 million passengers (Directorate General Air Transportation, 2009).

In quantity, the number of airports in Indonesia is relatively enough, although there is still possibility to build new airports as the consequence of strong dynamic of regional autonomy, such as the plan to build an airport in Karawang, West Java, Kertajati Airport in Majalengka, West Java, and Labuhan Airport in Banten. The biggest problems related to airport as a vital subsystem in the air transport system that have been identified for the last five years are *capacity (Table 2 and 3), slot time in the golden time, quality of flight navigation devices, accessibility to and from airport, professionalism of airport and ATC human resources, as well as the most crucial problems in infrastructures, facilities, equipment and human resources for flight security and safety in airport.*

Table 2 Capacity vs Realization of 13 Airports Managed by PT Angkasa Pura I

Year	Capacity (Pax)	Realization (Pax)
2008	30,700,440	36,403,511
2009	30,700,440	40,673,172
2010	30,700,440	49,237,437

Source: Directorate General Air Transportation, 10 March 2011

According to the writer's experience in various seminars, discussions, and interview with air transport business players, especially airlines, they are generally complaining about slot time, capacity of aircraft park, capacity of waiting room/terminal, up to the readiness of airport equipment/facilities, in this case Soekarno-Hatta airport and Juanda Airport in Surabaya. The facts show that airlines with LCC business orientation are competing to get departure schedule early in the morning (at 5 or 6) or known as "golden time", causing passenger congestion at the departure terminal and congestion of vehicle coming in and out the parking area.

Why do many airlines like to fly early in the morning? The information received by the writer say that the airlines get incentive or discount from airport management, and the second reason is related to the strategy of LCC airlines who offer low tariff to passengers provided that passengers are willing to go to airport early in the morning. Ticket price using subclasses system has unique characteristics and trend, i.e. quota per class limited by relatively

short time. The later day the higher the price and otherwise the earlier day the lower the price. Buying a ticket today or this hour will be more expensive than buying it several days before. Ticket regulations are more rigid, and less information with minimum level of service.

In the round table discussion held by Research and Development Body on Transportation on 4 August 2011, there was information that PT Angkasa Pura I and PT Angkasa Pura II had planned to develop an airport they would manage in response to any complain from users, especially airlines and passengers. For example, some airports managed by PT Angkasa Pura I in its program year 2011-2013 and 2012-2014 have been scheduled to be developed, among others are:

- a. Ngurah Rai Airport in Bali will be developed to become 129,000 M2 targeting 24.6 million passengers per year (up to 2025), as well as a highway to/from Ngurah Rai airport in cooperation with Jasa Marga, BTDC and Pelindo.
- b. Sepinggan Airport in Balikpapan will be developed to become 100,000 M2 with capacity for 10 million passengers per year (2025)
- c. Terminal 2 of Juanda Airport will be built on the south side of runway as wide as 29,000 M2, with capacity for 14 million passengers per year, as well as train track to the airport.

- d. Terminal extension will be carried out at Adi Sutjipto Airport in Yogyakarta: international terminal is used for domestic terminal extension, administration office will be demolished to become international terminal, and there is a plan to build a new airport in Kulon Progo.
- e. At Syamsuddin Noor Airport, expansions of terminal and parking area will be done by demolishing the administration office, a new terminal and supporting facilities are planned to be built in the north side of new apron to become 36,600 M², with capacity for 4.3 million passengers per year.
- f. At Achmad Yani Airport in Semarang, there will be a new terminal and supporting facilities built on the north side of runway to become 21,500 M² with capacity for 3 million passengers per year, an apron constructed by DJU, and access road constructed by the Provincial Government of Central Java.
- g. Facilities development for flight safety, such as procurement of MSSR radar in Ambon (2011-2012), Manado (2012), and Kendari (2012); VHF-ER installation in Pangkalan Bun (2012), Tarakan, and Luwu (2012); ATC System installation in Balikpapan (2011), Surabaya, and Bali (2009); tower set installation at Frans Kaisiepo Airport (2011), Adi Sutjipto Airport (2010), and Adi Sumarmo Airport (2011); VOR/ILS installation for Adi Sutjipto Airport (2011); runway sweeper procurement at UPG, BIK, and SRG (2011); salvage procurement for Juanda and Sultan Hasanuddin airports (2011); procurement of 12 units of crash car for BDJ, SUB, BPN, DPS, SOC, JOG, SRG, UPG, MDC, KOE, BIK, and BIL airports.
- h. Development of flight security facilities, such as: procurement of X-Ray for all airports (2011); installation of hold baggage screening for Ngurah Rai airport (2013);

Table 3 Capacity vs Realization of 8 Airports Managed by PT Angkasa Pura II in 2010

No.	Airport	Terminal Capacity	Realization
1.	Soekarno-Hatta, CGK	15,332,000	44,355,998
2.	Polonia, MES	900,000	6,189,575
3.	Minang Kabau, PDG	1,000,000	2,054,141
4.	SSK II, Riau	700,000	2,280,567
5.	PLM, Sumsel	1,000,000	2,108,413
6.	PNK, Kalimantan Barat	900,000	1,825,827
7.	PGK, Bangka Belitung	350,000	1,096,530
8.	DJB, Jambi	250,000	936,286

Source: PT Angkasa Pura II, 18 May 2011

procurement of electricity power (generator) for JOG and BDJ airports (2011); UPS installation for DPS airport and other airports (2015).

- i. Manpower in aviation is of crucial problems faced by PT Angkasa Pura I, because to fulfill it will need not just a little time and there are limited manpower providers. In terms of quantity, the number of personnel assigned in the following units is still far below the ideal need: ATS, AMC, Aviation Security, PK-PPK officers, and flight technician. The total personnel existing now is only 1,908 people, while the ideal number needed is 5,083, thus there is a shortcoming as many as 1,885 people in total.

The problem faced by PT Angkasa Pura I is basically faced by PT Angkasa Pura II as well. The difference is that PT Angkasa Pura II has Soekarno-Hatta airport which is the biggest and busiest airport in Indonesia, so that attention from public and international world is paid more to Soekarno-Hatta airport. PT Angkasa Pura II as the management of commercial airports in the west region of Indonesia has had “re-grand design” of Soekarno-Hatta international airport which in its grand launching is mentioned as new airport city, an airport with a new concept, to be constructed in 2012 and targeted to complete in 2015.

Capacity expansion, accessibility, and modernization of Soekarno-Hatta airport are of urgent things regarding

the airport capacity is designed to accommodate 18 to 25 million passengers per year. Meanwhile, the number of passengers in 2010 had achieved 44 million people. As well as for ATC management which will become ATC single provider, it should be improved soon in terms of quality, quantity, professionalism of the officers, and navigation devices. Electricity infrastructure and telecommunication network at Soekarno-Hatta airport should also be prepared and fixed properly in order to improve the reliability and preparedness of Soekarno-Hatta airport to face the global aviation era 2015 (ASEAN Open Skies).

Some problems faced by PT Angkasa Pura II related to flight security devices are:

- a. Some facilities of X-Ray baggage, cabin, and cargo are still single view, with the condition/quality of X-Ray averagely 70%; some are vulnerable to heat causing hang; many monitors are blurred making the officers difficult to distinguish organic substance from inorganic one.
 - b. The existing walk through metal detectors (WTMD) comprise various brands, and generally the position of light emitting diode (LED) is on the gate (the ideal position of LED is in the right/left side of the gate); the sensitivity level is still good enough, but some can not be set maximally anymore.
3. Hand held metal detectors (HHMD) used are of METOR and GARRET

brands, with the condition/quality around 70%; only two units of explosives metal detectors existing at Soekarno-Hatta and Polonia airports.

The development program or modernization for the airports managed by PT Angkasa Pura II from 2010 up to 2014 among others are:

- a. Soekarno-Hatta international airport; it has achieved around 44.3 million passengers per year (2010) while the capacity is to accommodate 22 million passengers per year; Terminal 3 ultimate will be developed as wide as 180,000 up to 200,000 M², so that the total width will be 540,758 M²; runway 3 will be developed as wide as 3.600 X 60 M (1014); the apron will be able to accommodate 112 aircrafts with additional apron T3 as wide as 57,600 M², so that the total width of apron will be 945,290 M²
- b. Polonia Airport Medan; so far the capacity is just for 1 million passengers per year, while the realization has achieved 6.2 million passengers per year. The future development is to remove it out of Medan city, namely Kuala Namu (New Medan Airport) which is designed to accommodate 10 million passengers supported by a terminal as wide as 115,000 M², runway as wide as 3.750 X 60 M, so that it can be used for A.380 aircrafts to land, apron as wide as 300,000 M² with capacity to accommodate 33 aircrafts. The progress of its development has achieved 72%. Master Plan of Kuala Namu airport is designed to have airport area as wide as 1,365 Ha, terminal as wide as 224,298 M² (ultimate), paralel runway as wide as 3.750 X 60 (2 locations), apron as wide as 664,000 M².
- c. SSK II PKU airport will be developed to be able to serve 2.5 million passengers per year with terminal as wide as 16,000 M², can be used for B.737 aircrafts to land with runway as wide as 2,240 X 45 M, apron as wide 82,500 M² which can accommodate 14 aircrafts. The progress of development has achieved 88%.
- d. SMB II-PLM airport will be developed to be able to serve 2.5 million passengers per year with effective terminal as wide as 16,500 M².
- e. Sultan Thaha-DJB airport; the existing terminal will be enlarged to be 13,015 M² so that it can accommodate 1.5 million passengers per year, runway will be expanded to be 2,250 X 30 M so that it can be used for B.737 aircrafts to land, apron will be enlarged to be 39,273 M² so that it can accommodate 8 aircrafts.
- f. RHF-TNJ; terminal will be developed to become 8,348 M² to serve 1 million passengers per year, runway will be expanded to be 2,250 X 30 M, and apron will be enlarged to be 37,517 M² (7 aircrafts).

- g. Depati Amir-PGK airport; terminal will be enlarged to be 12,170 M² to serve 1.3 million passengers per year, runway will be expanded to be 2,250 X 30 M, apron will be enlarged to be 37,720 M² (7 aircrafts).
- h. Husein Sastranegara-BDO airport; terminal will be enlarged to be 8,650 M² to accommodate 1 million passengers per year, the strength of runway construction will be enhanced.
- i. Supadio-PNK airport; terminal will be enlarged to be 25,000 M² to be able to serve 2.5 million passengers per year, terminal special for cargo will be built, runway will be expanded to be 2,250 X 45 M.
- j. BIM-PDG airport; terminal will be enlarged to be 19,500 M² to be able to accommodate 2.5 million passengers per year, runway will be expanded to be 3,000 X 45 M.

4. Strategic Issues

An airport has fairly significant contributions to flight delays, thus the airport authorities should always improve their performance in serving national airlines. Airport and airlines should make a synergy to provide the users (in this case passengers and cargo senders), with the best product/service i.e. safety, punctuality, and service in general. The synergy between the two parties should be supported by the government as the aviation authority, especially in the aspects of regulation, control, and supervision. The government

as regulator should periodically carry out audits and other kinds of supervision/evaluation on the the performance of airlines and airports. It is necessary to carry out these activities to assure that the process runs appropriately and results in the best product oriented to customer satisfaction.

In line with the thoughts above, airport management, airport authority, and airlines should pay attention to various strategic issues or ongoing market trend, such as safety and security issue, growth in number, capacity building (terminal/airport), low cost carriers, low cost terminals, including ASEAN Single Aviation Market 2015 that can not be avoided.

The construction and development of the existing airports are not only a local prestige nor instant response, but they should be intended to develop and increase the airport capacity both infrastructures and facilities that support the development of hub system for a good network of national aviation either based on LCC or on full service carriers, include the development of main hub, secondary hub, and pioneer routes, anticipate the increasing growth of national aviation industry. In addition, the airlines and airport should always improve the quality of human resource and develop a national education institution to encourage the rise of wordclass airlines and airports.

Those issues should be well paid attention, especially by the airports, because some problems still become a gap in improving the performance of

national aviation. Facts in the field show (Manurung, 2010) that there have been no alignment and synergy of strategic planning between airlines and airport industry in Indonesia; business innovations by airlines are not fully supported with infrastructure development and capital for airport business; the high growth of air traffic (aircraft movement, passenger and cargo) has not been supported by the growth of airports, especially their capacity.

Rediscussion and agreement are needed to position airport as a factor that has contribution to flight delays with a clear definition or criteria which is not ambiguous with technical matters and flight operation.

To this end, it can be concluded that the airport factor comprising land side and air side is an external factor in the perspective of air transport operator which IATA Delay Code gives a code of number 8 called Used for Air Traffic Control (ATC) Restrictions and Airport or Governmental Authorities Caused Delays. This code is used to illustrate the delay caused by limitation/policy of ATC and airport or the government (airport) authority. Another name is airport facility. This is to show the support from the airport management or authority in the form of readiness and facilities in order to smoothen the air traffic or flight operation. Included in airport facility are readiness and ability of ATC. (see table 4 in attachment)

Conclusion

The performance of flight punctuality is determined by many factors comprising internal factor of the airline companies such as technical, operational and commercial factors, as well as external factors such as airport and wheather factors, and so forth.

Airport factor has fairly significant contribution to the flight delays or to the unachieved *on time performance* (OTP). Therefore, airport (management and authority) should understand this problem as a part of performing the role and function of an airport to smoothen the air traffic.

A secure, smooth, and on time flight reflects a collective success of the parties involved in flight operation, including the role, support, and readiness of airport.

The biggest problems related to airport as a vital subsystem of Indonesian air transport system that have been identified during the last five years are capacity, *slot time*, quality of flight navigation devices, accessibility to and from airport, professionalis of airport and ATC human resources, including the most crucial problem concerning infrastructures, facilities, devices and human resources for flight security and safety at the airport.

In order to overcome those problems, willingness and ability of the airport management and airport authority are needed to anticipate and act quickly and properly, and make a harmonious synergy with airlines industry so that those

problems do not happen again in the future. The most important is the willingness of airport management and authority to well practice *good corporate governance* such as strengthening the aspects of transparency and accountability.

In-depth study and research are necessary to ascertain the definition of airport factor, airport performance, including airport evaluation and audit related to the service function of airport toward airlines, especially in the case of flight delay.

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Attachment

Table 1 Types of Problem-Causing Factors in Garuda Indonesia Pilgrimage Flights

No	Statement on the Causing Factor	Answer		% of Answer		Remarks.
		Yes	No	Yes	No	
1	(Technical) PT. Garuda Indonesia performs punctual maintenance on the aircrafts regularly.	28	2	93.3%	6.7%	NP
2	The quality of improvement carried out by PT. Garuda Indonesia is fairly good.	26	4	86.6%	13.4%	NP
3	The quality of repair on the aircraft damage is satisfying enough.	14	16	46.7%	53.3%	P
4	(Slot Time) The effectiveness of schedule provided by the authority of Jeddah and Madinah.	10	20	33.3%	66.7%	P
5	The availability of gate at Jeddah airport and Madinah airport.	2	28	6.7%	93.3%	P
6	(Aircraft Rotation) The correctness of PT. Garuda Indonesia in making aircraft rotation.	20	10	66.7%	33.3%	NP
7	(Late Arrival) The sufficient facilities at Jeddah airport and Madinah airports.	7	23	23.3%	76.7%	P
8	The quickness of Jeddah and Madinah airports in handling the density of Jeddah and Madinah airports.	11	19	36.6%	63.4%	P
9	Specifications of Jeddah and Madinah airports are sufficient.	6	24	20%	80%	P
10	(Others) The stability of flight against uncertain weather condition.	13	17	43.4%	56.6%	P
11	The readiness of cabin crew.	21	9	70%	30%	NP

Note: NP (No problem), P (Problem)

Source: Damar Bramantyo, 2010

Table 4 Details of Airport Factor

No.	Dimension	Indicators
1.	Airport facilities	<ul style="list-style-type: none"> · Aircraft parking area · Lighting · Availability of gate · Capacity of runway · Aircraft fueling · Transportation facility of bus to the aircraft · Ground Support Equipment (GSE)
2.	Devices, systems, and procedures	<ul style="list-style-type: none"> · Computer devices · System implemented · Work procedures
3.	Air Traffic Control (ATC)	<ul style="list-style-type: none"> · Readiness and completeness of ATC · Reliability and professionalism of ATC officers · Quality of flight navigation devices and system
4.	Policy and regulation system	<ul style="list-style-type: none"> · Effectiveness of flight schedule/departure slot time · Airport specification and layout · Speed and responsiveness of airport in handling flight density/activity · Airport/runway closing due to political reasons and flight security/safety
5.	<i>CIQ Clearance</i> (Formality of Immigration Customs and Quarantine at the Airport)	<ul style="list-style-type: none"> · Cargo and supporting documents examination · Investigation on warehouse rent and export permit · <i>Custom clearance</i> for export and import cargo · Quarantine examination and permit against <i>perishable goods, live animal, etc</i> (special cargo) · Examination on <i>heavy cargo, over size, and dangerous goods.</i> · Examination on passenger's passport and visa, etc.

Source: Resume of FGD experts



	KAPASITAS	UTILITAS	PENGEMBANGAN	KETERANGAN
Terminal	22 JPT T1 : 119.663 m ² T2 : 189.095 m ² T3 : 32.000 m ² Total : 340.758 m ²	44.3 JPT	Terminal 3 ultimate : 180.000-200.000 m ² Total : 540.758 m ²	Anggaran : Rp.1.28 T Anggaran 2011 : Rp.250 M
Runway	A380 3.660 x 60 (selatan) 3.600 x 60 (utara)	Boeing 777-300	Runway 3 3.600 x 60	Tahun 2014 : APBN
Apron	102 A/C 887.690 m ²	102 A/C	112 A/C Apron T3 : 57.600 m ² Total : 945.290 m ²	Anggaran 2011 : Rp.158 M

Source: PT. Angkasa Pura II, 10 March 2011

Figure 1 Development Program of Soekarno-Hatta International Airport



Source: Directorate General Air Transport, 10 March 2011

Figure 2. Construction and Development of Strategic Airports which have been running



Source: Directorate General Air Transport, 10 March 2011

Figure 3 Construction and Development of Strategic in 2011