Obstacle Factor in Flight Safety and Security at the Air Force Base in Husein Sastranegara Airport Bandung

Muhammad Elang Ulul Azmi, Yusa Djuyandi, Akim

Abstract

Air Force Base Husein Sastranegara is a military air base carrying out training and operations support for the Air Force. There is a potential disruption, obstacle especially high buildings that continue to grow in the city of Bandung. The readiness of the Air Force base can be disrupted if the factor obstacle this is not resolved properly because it involves the security and safety of the flight in Husein Sastranegara Bandung. This study uses a qualitative method, where primary data is obtained from interviews with several informants and observations. The research was conducted at the Air Force Base and Husein Sastranegara Airport, and the City Government of Bandung. Data analysts used are descriptive qualitative by processing data, reading data and interpreting data for analysis. The findings of the study show that there are still potentials obstacle high-rise in the Husein Sastranegara Air Force Base, including the concerns of the TNI AU military aviators for the growth of high-rise buildings in the city of Bandung, so that safety and flight safety is disrupted, and this results in unpreparedness Air Force Base in holding operations and training for the national defense side.

Keywords: obstacles, aviation safety, security, defense

Muhammad Elang Ulul Azmi, Yusa Djuyandi, Akim. Obstacle Factor in Flight Safety and Security at the Air Force Base in Husein Sastranegara Airport Bandung. *Central European Journal of International and Security Studies* 12, no. 4: 236–259.

Introduction

In the concept of aviation, security and safety are the top priorities in the aviation world; there is no compromise and tolerance. The Government has committed that "Safety is Number One" is in accordance with Law Number 15 of 1992. The implementation of air transportation cannot be separated from the economic growth of the people using air transport services served and also the trend of global economic development. In line with national economic growth that is getting better, the role of the Government as a service provider and economic activities will change the role of being a regulator. As a regulator, the Government is only in charge of issuing various regulations, carrying out certification and supervision to ensure the implementation of air transportation that meets flight safety standards.

The Government seeks to create aviation security and safety, regularity and sustainability of civil aviation in Indonesia through the National Civil Aviation Security Program which aims to provide protection for passengers, aircrew, aircraft, officers on land and the public, and installation in the airport area from illegal acts. The government views the need for a new paradigm that aviation safety is a shared responsibility between the Government, Aviation Companies and service user communities. [1,2,3]

Air Force Base Husein Sastranegara is a "B" type Air Base which is under the Air Force I Operations Command, which carries out the task of preparing and carrying out guidance and operation of all units in its ranks, fostering aerospace potential and operating operations for other units. In order to carry out their duties, the Air Force Base in Bandung City, the capital of West Java Province, shares service functions with Husein Sastranegara Airport, which serves domestic and international flights, or also called enclave civil airports, which means airports located in the Air Force/military base. In certain circumstances, the Air Base can be used together as an airport. The use of airports or airbases is carried out by taking into account the needs of air transportation services, safety, security and smoothness of aviation, national security and defense as well as legislation[4].

As a military base, security and safety factors and every flight operation are needed, and this involves the conditions that must be met so that the flight runs smoothly and safely. One of the requirements that must be met in aviation is the factor obstacle which is one of the safety and security factors that must be considered for the operation of

a flight. Air Base is an area on land and/or in waters with certain limits within the territory of the Republic of Indonesia that is used for takeoff and landing activities of aircraft for the purposes of national defense by the TNI[4].

In an area or city that has or is close to an airport (airport), there is a provision that limits the height of the building called the Flight Operations Safety Zone (KKOP). In the KKOP there is no justification for the existence of buildings or objects that grow either fixed or mobile that are higher than the allowable height in accordance with the Aerodrome Reference Code and the Runway Classifications of an airport. The area of flight operation safety is very important to be applied to airports located in urban areas. Because most land use in the KKOP area in urban areas is housing, the building height in the KKOP area is considered to ensure flight safety. Thus, this KKOP can be one of the control tools in the arrangement of high-rise buildings in a city, especially around the Airport. Buildings or objects that grow include movable objects that are erected or installed by people including buildings, towers, chimneys, trees and transmission networks on land[5,6].

Problems that exist at the Air Force Base or Husein Sastranegara Airport found a potential barrier /factor obstacle caused by the lack of control of the establishment of high-rise buildings that were feared would disrupt the development of the Air Base/Airport. The Husein Sastranegara Airport is concerned about the development of the cities of Bandung and Cimahi which in the past ten years have changed so rapidly. In Cimahi it is not impossible that a growing building will begin to stand. At the other end of the track is the TSM [Trans Studio Mall] and Trans Luxury and Ibis hotels and is it not possible for the building to grow again? The most prominent and potentially disturbing is the Cimindi Overpass connecting Cimahi and Bandung City. The height of the bridge is relatively the same as the surface of the runway Husein whose position is 3,000 meters above sea level and if the runway is extended this will become an obstacle, and this means the Air Base / Husein Sastranegara airport cannot develop anymore to meet the desired flight traffic. [7]

From previous research, it was proven that there were still several buildings in the KKOP area that exceeded the maximum height that had been set, Husein Sastranegara Airport could be said to be less safe for flight operations because most of the land use in the Husein Sastranegara airport KKOP area was housing. The insecurity of Husein

Sastranegara airport for flight operations was reinforced by the many obstacles that spread throughout the KKOP region. In addition there are several buildings towering in the KKOP area that exceed the maximum height that has been set[8].

Obstacle Factor in Flight Safety and Security

Meanwhile, international arrangements are set by the International Civil Aviation Organization (ICAO) which is regulated through provisions in the form of Annexes. The Flight Operational Safety / KKOP area is regulated in Annex XIV[9], concerning Aerodrome, especially in Vol. 1. Chapter 4 regulates "Obstacle Restriction and Removal" or restricted and Displacement Obstacle, provide conditions that:

> "The objectives of the specifications in this chapter are to do find the airspace around aerodromes to be maintained free from obstacles so as to permit the intended airplane operations at the aerodromes to be carried out safely and to prevent the aerodromes from becoming unusable by the grout of obstacles around the aerodromes. This is achieved by establishing a series of obstacles limitation surfaces that define the limits to which objects may project into the airspace ".

Objects which penetrate the obstacle limitation surfaces contained in this chapter may be in certain circumstances of an increase in the obstacle clearance altitude/height for an instrument approach procedure or any associated visual circling procedure"[9]

The obstacle is defined as any object that is above or standing on the surface of a restriction area obstacle specified, including runway strips, runway end safety area, clearway, and taxiway strips and any object that enters the boundary surface obstacle[10].

What happens if factor obstacle this is ignored and left high-rise buildings growing without anyone overseeing or providing sanctions especially if the regulations that have been made are ignored by the community or parties related to aviation safety and security? The worst possibility is a flight accident because the obstacle is not resolved properly. One of the objectives of air traffic services is to prevent collisions between aircraft and obstacles in the maneuvering area. [11] Some airports in development, for example through an extension of the runway such as at Si langit Airport in Medan, where the operation of the airport as an airport with international flights requires important conditions, among others, the trimming, Obstacle which is possible to be a barrier so as not to interfere with flights that will be landed by Boeing 737 aircraft. [12]

Looking at the above conditions, it is necessary to objectively observe issues obstacle so that a comprehensive research result on factors will be obtained an obstacle in aviation security and safety.

At the Air Force Base / Bandung Husein Sastranegara Airport, issues obstacle have become a concern for the Air Force and the managers of Husein Sastranegara Airport and the Regional Government of Bandung City and West Java Province. This is because the condition of the aerodrome Air Force Base / Husein Sastranegara Airport is in a position that is less likely for airlines. The role of stakeholders in relation to aviation security and safety is urgently needed so that the problem does not increase and further increases the risk of flight security and safety at the Air Force Base / Husein Sastranegara Airport. Some regulations have been made by the Bandung City Government concerning the building height requirements, the construction of BTS towers but due to several things so that there are still many new buildings with many floors that still violate the rules that have been made.

Faced with its urgency, the research on factor obstacle this is very important given the safety and safety of aviation is still a concern of the government and related agencies. As a military base, conditions aerodrome that is safe for aviation are crucial in the operation of military aviation which means that there is a link between aviation security and safety against national defense, especially in terms of national air defense. The Husein Sastranegara Air Force Base, which is the base of operations, is required to provide readiness to operate the Air Force base at any time, so conditions of aerodrome that the very safe and Husein Sastranegara Air Base are securely included in the factor obstacle that has the potential to threaten the safety of flights, especially military flights as a base for national defense (national air defense).

Based on the background described earlier, a problem can be formulated, namely what is the factor Obstacle in aviation security and safety at the Air Force Base / Husein Sastranegara Airport at Bandung.

Literature Review

Aviation safety and security

According to Mastra[13], Aviation Security is the security of civil aviation against actions that interfere with the illegal law. This situation is achieved through a combination of actions, human resources, and equipment. More specifically said, the security of international civil aviation to ensure the protection and safety of passengers, flight crew,

and personnel in the area, general public, aircraft and airport facilities that serve civil aviation against unlawful acts that cause interference carried out on land or in flight.

In relation to aviation, safety is a condition that can harm humans and damage to goods can be reduced and can be maintained at or below, an acceptable level by (through) continuing the process of hazard recognition and safety risk management. Hazard recognition is a requirement that must be met before implementing a safety risk management process, that is before there are symptoms that lead to an accident, incident or incident related to safety[13].

Safety is a top priority in the aviation world; there is no compromise and tolerance. The Government has committed that "Safety is Number One" is in accordance with Law Number 15 of 1992. The implementation of air transportation cannot be separated from the economic growth of the people using air transport services served and also the trend of global economic development. In line with national economic growth that is getting better, the role of the Government as a service provider and economic activities will change the role of being a regulator.

As a regulator, the Government is only in charge of issuing various regulations, carrying out certification and supervision to ensure the implementation of air transportation that meets flight safety standards. The Government has a national Civil Aviation Security Program which aims at aviation security and safety, regularity and sustainability of civil aviation in Indonesia by providing protection for passengers, airplane crews, airplanes, ground officials and the public, and installation in the Airport area from unlawful acts. The government views the need for a new paradigm that aviation safety is a shared responsibility between the Government, Aviation Companies and service user communities.

Obstacle

The aviation industry (air transportation system) is an important component of our national economy that provides movement of people and goods throughout the world, which is also important for economic growth. This is an economic sector that is growing rapidly, providing a number of social and economic benefits. For aircraft to move from one place to another, the aerodrome was built to facilitate the movement. According to the International Civil Aviation Organiza-

tion, Aerodrome can be described as a location on the earth's surface designed for every aircraft activity that might involve landing, taking off the plane.

Meanwhile, airplanes are any machine that can get support in the atmosphere from air reactions other than air reactions to the earth's surface. Civil Aviation defines airspace around the aerodrome to be kept free of obstacles so as to enable the operation of aircraft intended at the aerodrome to be unusable by the growth of obstacles around the aerodrome. The Nigerian Civil Aviation Authority (NCAA) is a government agency mandated to regulate and stop the construction of any form whose height and location are hazardous or constitute a barrier to safe operations[14].

Aerodrome constraints identification

In a study carried out by Ayeni, et.al.[14] As shown in Figure 1, there are five (5) things on land identified as (OLS Obstacle Limitation Surface) with Aerodrome. A brief definition and significance of OLS are as stated below:

a. The surface of the Take-off Climb: climbing surface take-off that is set for each runway direction used for take-off.
b. Approach Surface: The surface approach is designed and made for each direction of the runway used for aircraft landing.
c. Transitional Surface: Transitional surfaces are designed and made for any base used for aircraft landing.
d. Inner Horizontal Surface: The plane is located 45 meters above the surface height aerodrome in a horizontal dimension[9]. This is a sign/benchmark as a controller that will be given to eliminate or cover new and existing obstacles to aircraft maneuvering visually around the aerodrome.
e. Cone Surface: This surface is tilted up and out of the inner horizontal surface outer boundary. It is at a slope of 5%, with an altitude of 80 to 145 m[9].

In addition to the feature location in Surface Limitation Obstacles (OLS) as a parameter to identify obstacles, the height of features in OLS can also be used to determine whether the feature is an obstacle or not.

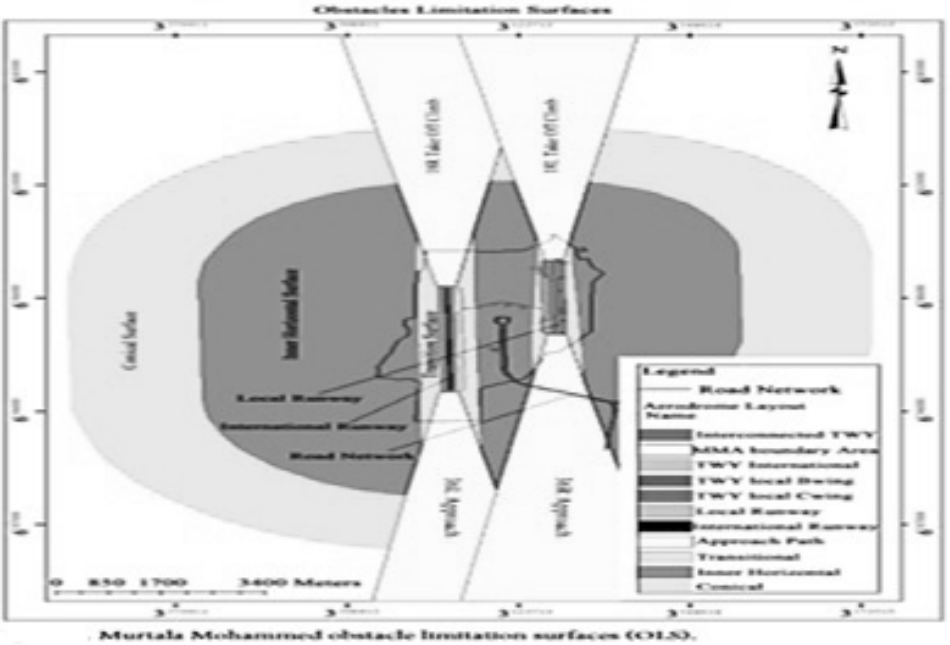

Figure 1. Murtala Mohammed obstacle limitation surfaces (OLS). Source: Ayeni[14]

Research Methods

Research design

This study uses qualitative research methods. Here, the researcher uses a descriptive qualitative research method because this research explores the phenomenon of factors obstacle around the Air Force Base / Husein Sastranegara Airport Bandung. The qualitative method according to Creswell[15] is a process of research and understanding based on a methodology that investigates a social phenomenon and human problems. Qualitative methods are carried out to analyze a problem through case studies which are used as the basis of the location of the problem so that the phenomenon can be studied naturally and as is.

Data sources and data collection techniques

A study requires data to be researched, in this sub-chapter needs to discuss what is the research data, data sources and how the techniques used to collect data. The data referred to in this study are primary data and secondary data, namely:

a. Primary data. The primary data in this study are the data obtained by the author directly from the results of interviews and the results of observations on the object of research.
b. Secondary data. Secondary data or secondary sources are sources that do not directly provide data to data collectors, for example through other people or documents. Researchers get ready-made data collected by other parties in various ways or methods either through written documents, studies and news related to the research topic.

Data sources in the form of agency surveys related to data obstacle, local government regulations and the RUTR of Bandung City. Besides that, secondary data sources are also through literature/literature/ journal data.

Informant

In-depth interviews were conducted with informants, the determination of informants was chosen using the purposive technique. The purposive technique belongs to the non-probability group. A purposive technique is a data source sampling technique with certain considerations, for example, the person is considered to know the most about what we expect, or maybe he is the ruler so that it will be easier for researchers to explore the objects / social situations under study. So that it is expected to provide information about factors obstacle in-flight safety and security. The data sources are in the form of interviews with related parties such as Husein Sastranegara Commander, Chief of ops Husein Sastranegara Airforce Base, leaders and staff of Husein Sastranegara Airport and with the Husein Sastranegara Airport authority / PT. AP I Husein Sastranegara as well as with public policy makers such as the City of Bandung and its devices.

Data collection techniques

According to Creswell[15], in qualitative research methods, data is usually collected with several qualitative data collection techniques, namely interviews, observation, documentation, and audio-visual material. The steps in data collection include efforts to limit research, gathering information through observation and interviews, both structured and not, documented, visual materials and attempts to hold protocols to record/record information.

Data collection techniques are the most strategic step in research because the main purpose of the research is to obtain data. Without knowing the data collection techniques, the researcher will not get data that meets the specified data standards[16]. In this study, data collection techniques are through:

1. Interviews, researchers can do face to face interviews with participants, interview them by telephone or engage in focus group interviews15. In this study, interviews were conducted with relevant parties from the Air Force Base and Husein Sastranegara Airport, as well as with the relevant Regional Governments such as the Bandung City Transportation Agency.
2. Documents, in the form of public documents such as newspapers, online news, papers, office reports or private documents such as diaries, letters, emails. In this study, the author takes document data through public documents such as online news, papers, reports, journals, regulations and the like.
3. Observation (Observation). Most will be carried out at the Air Force Base / Husein Sastranegara Airport Bandung as the party that will be in direct contact with the flight.

Analysis and Discussion

The growth of the city through the growth of residential and business areas raises its own problems for the world of aviation, especially in Husein Sastranegara, especially the growth of many story buildings that are possible to become an obstacle for airlines, both military, and civil flights. In several publications in the mass media, it was stated that there had been (or perhaps many) violations of the rules for the construction of many story buildings (hotels, apartments, and offices) which violated the rules in the city of Bandung regarding building requirements. As in 2016, the Mayor of Bandung sealed a hotel around Dago that violated the rules, proposed six hotels but nine hotels were built and incidentally the hotel is located in the east about 3 km from Husein Sastranegara Airport straight with R / W 29. [17] Also there is a fact that in 2015 there were also 15 buildings with many floors that did not have a permit, violated the application for construction and some were in the flight path leading to Husein Sastranegara, [18] and most recently in 2017 the city of Bandung also sealed an apartment that violated licensing where it filed 4 floors but built 7 floors in the Hegarmanah area of Bandung City. [19]

In connection with the results of research, it can be said that many things become homework for all stakeholders who are concerned and have an interest in flight safety and security in Husein Sastranegara. How coordination and communication between stakeholders and the role of the community are very important in maintaining the growth of buildings, especially high-rise buildings, does not continue to develop without control from the Air Force, Airport and the City Government of Bandung. KKOP Husein Sastranegara which is one of the guidelines in the management of buildings around the aerodrome Husein will be an indicator of how high-growth buildings are in the city of Bandung.

An indicator of an obstacle in flight at Husein Sastra Negara

In Husein Sastranegara, the indicator guideline obstacle is the Aviation Operations Safety Zone made by the Transportation Agency or by the Air Force Husein Sastranegara. (Figure 2)

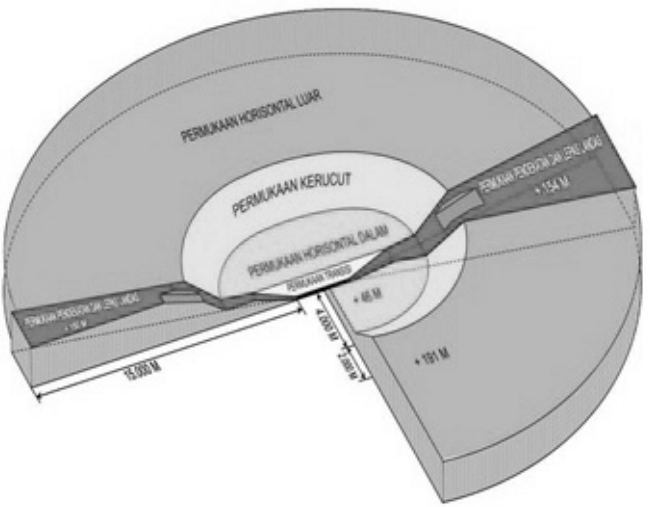

Figure 2. KKOP Husein Sastranegara. Source: dishub.jabarprov.go.id.

In connection with the establishment of the KKOP in Husein Sastranegara by the Bandung City Transportation Agency, data on the condition of the building in the city of Bandung is also needed, especially the data of the high-rise buildings that are currently available and are possible in the Husein Sastranegara KKOP area.

Ranking	Name Building	Number of floors	LOCATION	DISTANCE FROM HSN
-	**Bandung**			
1	Gino Feruci Hotel	18	Braga Street	± 3 km
2	Pullman Bandung Hotel	18	Layang Pasopati Street	± 3.6 km
3	Ibis Styles Hotel	18	Braga Street	± 3 km
4	Landmark Residences I	18	Bima Street	± 1 km
5	Landmark Residences II	18	Bima Street	± 1 km
6	Beverly Residence Apartment	17	Sangkuriang Street	± 3.5 km
7	BRI Office Tower	16	Asia Afrika Street	± 3 km
8	Buah Batu Park Apartment III	16	Adyaksa Street	± 8 km
9	Emerald Tower	16	Sanggar Kencana Street	± 9 km
10	Unikom Tower	16	Dipati ukur Street	± 3.8 km
11	BTC Fashion Hotel	15	Junjunan Street	± 1 km
12	Kantor Menara Mayapada	15	Sudirman Street	± 1.7 km
13	Ibis Styles Braga Hotel	15	Braga Street	± 3 km
14	Dago Butik Hotel Apartment	15	Dago Street	± 3.8 km
15	Marbella Suites Hotel	15	Dago Pakar Street	± 6.5 km
16	Hyatt Regency Hotel	15	Sumatra Street	± 2.8 km
17	Widya Maranatha Christian University I	15	Surya Sumantri Street	± 1.5 km

18	Widya Maranatha Christian University II	15	Surya Sumantri Street	± 1.5 km
19	Grand Setiabudi Apartment	15	Setiabudi Street	± 3.2 km
20	Intercontinental Dago Expert Hotel	14	Resor Dago Pakar Street	± 7.8 km
21	TekMIRA Office	14	Sudirman Street	± 1.5 km
22	Four Points by Sheraton	14	Ir H Juanda Street	± 3.4 km
23	Grand Sugarcane Hotel	14	RE Martadinata Street	± 5.3 km
24	Hotel Setiabudi	14	Setiabudi Street	± 3.3 km
25	Gateway @ Pasteur Apartment I	13-14	Gunung Batu Street	± 1.3 km
26	Gateway @Pasteur Apartment II	13-14	Gunung Batu Street	± 1.3 km
27	Pop! Festival Hotel Citylink	13	Peta Street	± 3 km
28	Holiday Inn Hotel	13	Junjunan Street	± 1 km
29	The Majesty Apartment	13	Surya Sumantri Street	± 2 km
30	Sensa Hotel Ciwalk Extension	13	Cihampelas Street	± 2.4 km
31	Hilton Hotel Bandung	13	HOS Cokroaminoto Street	± 1.6 km
32	MaxOne Hotel	13	Soetta Street	± 13 km
33	Harris Hotel Festival Citylink	12	Peta Street	± 3 km
34	Graha Bumiputera	12	Asia Afrika Street	± 4.5 km

35	Pasar Baru Trade Center	12	Otista Street	± 3 km
36	Park Hotel Bandung	12	PH H Mustofa Street	± 6.7 km
37	Citibank Tower	12	Asia Afrika Street	± 4.5 km
38	Wisma CIMB Niaga Bandung	12	Dipati Ukur Street	± 4 km
39	Novotel Bandung Hotel	12	Cihampelas Street	± 2.5 km
40	Dago Plaza Mall	12	Dago Street	± 5 km
41	Panghegar Hotel	12	Merdeka Street	± 3.7 km
42	The Luxton Hotel	12	H Juanda Street	± 3.4 km
43	Lucky Square Mall	12	Terusan Jakarta Street	± 7 km
44	Kings Shopping Center	12	Kepatihan Street	± 3.8 km
45	De Pavilijoen Condotel	12	RE Martadinata Street	± 4.4 km
46	Grand Asrilia Hotel	12	Pelajar Pejuang Street	± 6 km

Table 1. Bandung City High Building Data 2017. Source: skyscrapercity.com.

Meanwhile, the growth of buildings in the city of Bandung from time to time is increasing rapidly along with the demographic growth of the population and the potential of the city of Bandung as a tourism city that is increasing as well, resulting in the increasing impact of goods and services and tourism business sharp. The city of Bandung itself has 30 sub-districts with 153 urban villages, and there are four sub-districts around Husein Sastranegara namely Cicendo, Andir, Sukajadi, and Sukasari Districts. The growth of buildings in the region is very dense and continues to increase every year. Building data in 2017 can be seen in the following table:

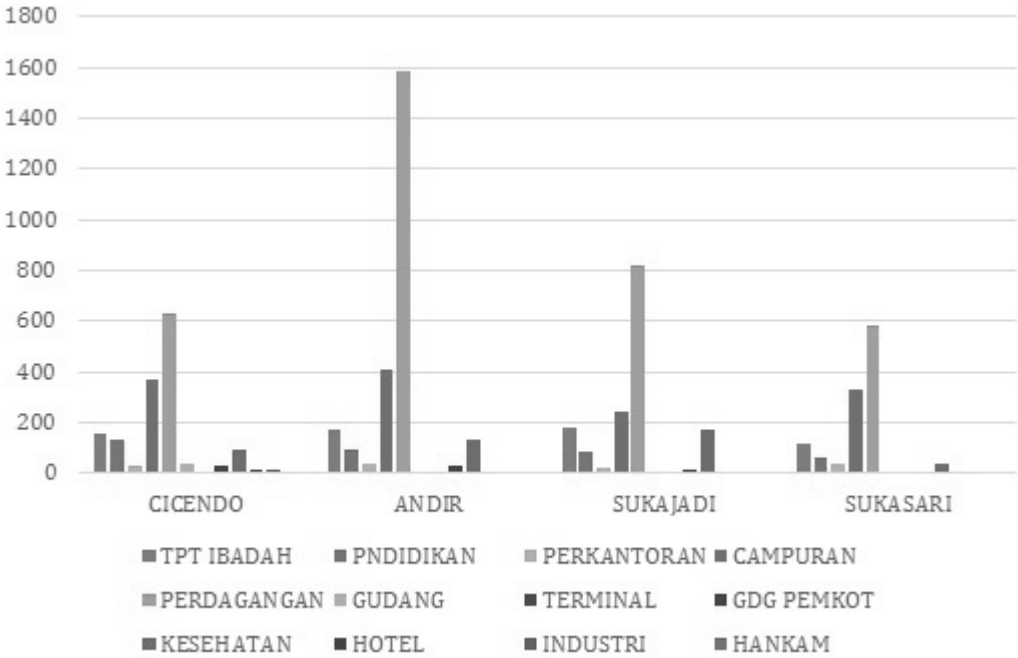

Figure 2. (Building data in the city of Bandung - around Husein S.). Source: Space Administration Service Bandung City 2017.

From Figure 2. above can be said that the most building around Husein Sastranegara is a trading building, which in reality stands more than two floors. Other multi-storey buildings are 129 offices and 47 buildings. This means that the potential for high buildings as an obstacle for airlines is quite large.

From the data above, when linked with Husein Sastranegara KKOP can be explained in the following.

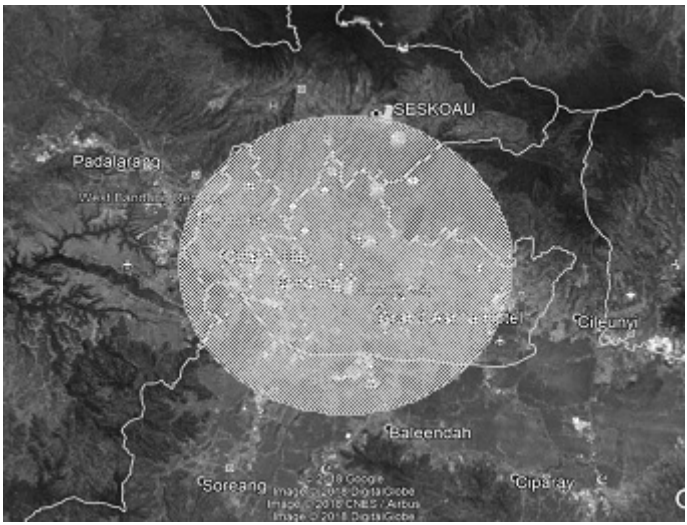

Figure 3. Application of KKOP Husein Sastranegara. Source: From various sources.

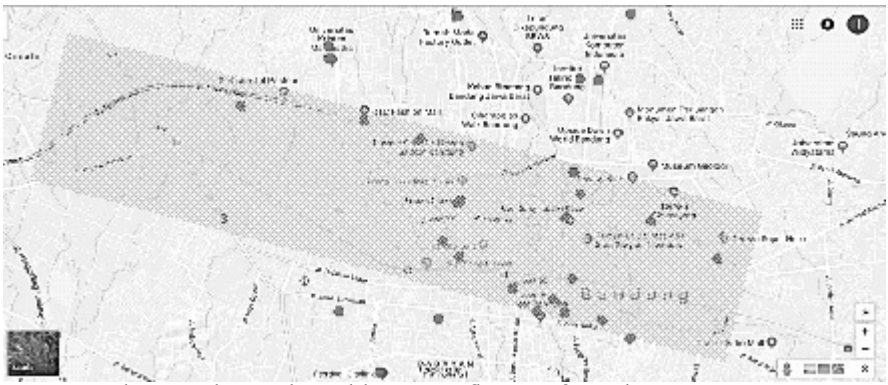

Figure 4. Plotting the High Building (> 12 floors) of Bandung City. Source: From various sources.

How the condition of the KKOP area within a 15 km radius of Husein Sastranegara must be in a safe condition from the possibility of Obstacle a tall building, but in reality, there is still a high density of buildings that are on the Husein Sastranegara flight path from the East (Runway 29).

a. The surface of the Take-off Climb: A climbing surface take-off that is set for each runway direction used for take-off. This area is an area that leads directly to the runway, so this position is a position that is truly clean of the obstacle of high buildings that have been required in the Husein Sastranegara KKOP. In the research that has been conducted, there are several points of high-rise buildings, especially hotel buildings that are on the Take-off Climb line, but are still in a reasonable level and have not disrupted flights. (Figure 4) However, according to the military pilot we interviewed, it was said that the large number of multi-story buildings that led directly to Husein Sastranegara was quite alarming even though it was still in a safe condition.
b. Approach Surface: The surface approach is designed and made for each direction of the runway used for aircraft landing. In the research conducted, the condition obstacle in the area was Approach Surface still at a reasonable level and was still in good condition. Some buildings in this area are settlements and several business buildings under five floors (<45 m), so that they are considered to be within safe limits.
c. Transitional Surface: Transitional surfaces are designed and made for any base used for aircraft landing. Transitional surface areas according to the results of the study are residential areas and several business buildings as far as 300 m from Husein Sastranegara and are seen as still within reasonable limits (<45 m). Within reasonable limits, it is possible that there will be high building growth if the relevant parties do not routinely carry out strict supervision. Especially business buildings such as shops and malls that are mushrooming in the Husein Sastranegara track area.
d. Inner Horizontal Surface: The plane is located 45 meters above the surface height aerodrome in a horizontal dimension[9]. This is a sign/benchmark as a controller that will be given to eliminate or cover new and existing obstacles to aircraft maneuvering visually around the aerodrome. At the Husein Sastranegara KKOP, a horizontal surface within 4 km of Husein Sastranegara, the area is densely populated, business areas and services (offices, trade, industry, and hospitality) so that there are many potential obstacle buildings that can disrupt flights. However, from the conclusion of Airnav and the Bandung City Spatial Service, the

condition of several high-rise buildings is still within normal limits but is quite critical for airlines in a sense that needed from the pilot's awareness is to be able to control the aircraft.

e. Cone Surface: This surface is tilted up and out of the inner horizontal surface outer boundary. It is at a slope of 5%, with an altitude of 80 to 145 m[9]. Conical surfaces are an important guide for airlines to determine heading aircraft and elevation or as a guide when carrying out aircraft landing processes. According to Airnav Husein Sastranegara, the elevation between 2% to 5% is a safe elevation for landing. The cone surface factor according to KKOP Husein Sastranegara is a maximum of 5% elevation with a distance of 6 km from Husein Sastranegara, so it can be seen that densely populated settlements, business areas, and services (offices, trade, industry, and hospitality) are estimated to be quite alarming if the stakeholders relevant not together - similarly carry out its function in suppressing the growth of high buildings in the city of Bandung.

Flight safety and safety in the national defense

Husein Sastranegara is an Air Force military base in which there is an international civil airport (enclave civil), which includes a very busy and crowded air base. From both military and civil flight data, the level of flight density in Husein Sastranegara is seen. The data on military flights at the Husein Sastranegara Air Force Base is as follows:

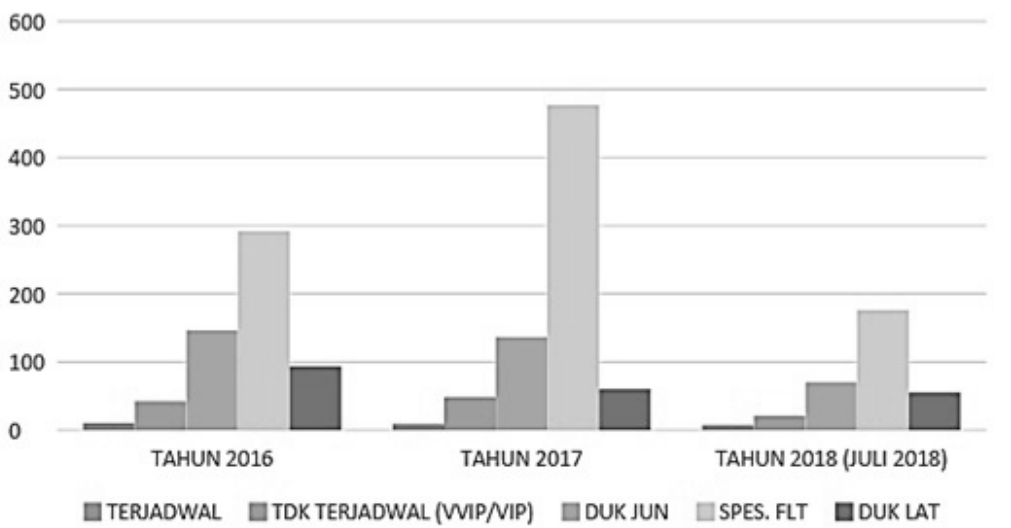

Figure 5. Military Flight on Husein Sastranegara. Source: Operation Staff of Husein S. Air Force Base.

In 2016 there were military aviation activities namely ten scheduled transport support, unscheduled transport support, namely support for 12 VVIPs and 30 VIPs, 147 dropout support, Flight Specials as many as 292, training support as many as 93 and total flights are 584 flights.

In 2017 there were military flight activities, namely scheduled transportation support of 9, unscheduled transport support, namely support for 14 VVIPs and 34 VIPs, 137 dropout support, 477 Special Flights, 60 training support, and 735 total flights.

In 2018 (until July 2018) there were military flight activities, namely scheduled transportation support of 7, unscheduled transportation support, namely support for 12 VVIPs and 9 VIPs, 70 dropout support, 176 Special Flights, 55 training support, and total flights 329 flights.

Air Base Military flight data above, explains that how the role of Husein Sastranegara Air Force Base is quite important, especially in terms of supporting military aviation operations both in terms of VVIP / VIP flight duties (president, vice president, state officials, and state guests) and duties training and operation of the TNI / TNI AU. This gives a signal that the Husein Sastranegara Air Force Base must prioritize flight safety and security factors gave that military flights carry high and critical state defense tasks.

The flight data at Husein Sastranegara civil airport in 2016 are as follows:

Bulan *Month*	Penerbangan /Flight		Penumpang/ Passengger	
	Berangkat	Datang	Berangkat	Datang
Januari/*January*	1.185	1.184	147.052	152.513
Februari/*February*	1.126	1.126	142.689	141.630
Maret/*March*	1.215	1.219	153.601	150.198
April/*April*	1.195	1.195	146.597	147.614
Mei/*May*	1.242	1.241	170.396	168.198
Juni/*June*	1.164	1.163	144.209	137.540
Juli/*July*	1.274	1.279	179.377	184.756
Agustus/*August*	1.188	1.190	159.640	160.396
September/*September*	1.160	1.174	151.577	149.282
Oktober/*October*	1.202	1.202	151.627	145.891
November/*November*	1.135	1.134	143.076	141.726
Desember/*December*	1.182	1.184	165.661	153.404
Jumlah/Total	**14.268**	**14.291**	**1.855.502**	**1.833.148**

Table 2. Flight Data at Husein Sastranegara Airport 2016. Source: Statistic Of West Java.

In the diagram picture can be described as follows:

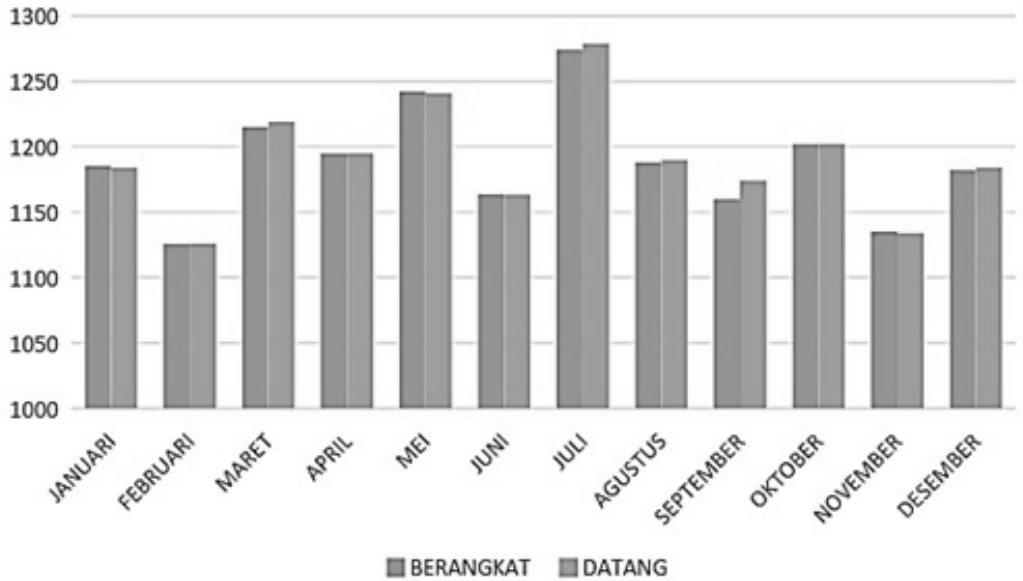

Figure 6. Flight Data of Husein Sastranegara International Airport 2016. Source: Statistic Of West Java.

From the flight data at the Husein Sastranegara International Airport above, the flight level is quite high considering that the flight facilities (runway, apron and passenger terminal) are not too large.

According to Supriyatno[20], in defense, there is defense management (management of defense power), which is how to manage the forces that are factually present and essentially constitute a military force consisting of human resources, materials, facilities, and services as well as military health. Although the management of the military is better than the enforcement of defense potential, as a state instrument entity, there needs to be ongoing handling so that it is always ready when the state is needed. Readiness is a key element of the military, discipline, skills, and courage (braveness) which would require practice and support facilities and adequate infrastructure. This also includes how the Husein Sastranegara Air Force Base must always be ready to carry out its defense functions as a military air base that supports all aspects of defense and its supporters.

As a military airbase, in some military activities, especially in peacetime, various activities have been carried out in order to prepare peacetime for war operations in the possible conditions. Air Force Base Husein Sastranegara does many things inside or outside the base, has standard management that is always obeyed by all rules, follows the required standards, and designs the right plan.

By looking at the flight conditions, both military and civil, as well as the types of military aviation carried out in Husein Sastranegara, flight safety and security factors from the side obstacle are very important factors to be considered and considered. Indeed, the current conditions obstacle high building around the aerodrome are Hussein good enough so that military and civil flights are still safe.

What is the effect of flight security and safety on Hussein on the defense side (state)? This is certainly related to how the function of the Husein Sastranegara Air Force Base supports the military, and civil aviation carried out. By looking at the data on military flights during 2016 to 2018 (semester 1), it can be concluded that the importance of Husein's air force base, which can be seen from the types of flights that occur, includes:

a. Military flights that support VVIP / VIP. This means that Husein Sastranegara is an important Air Force base from the VVIP / VIP support side. This means that the President / Vice President, state guests and officials of the same level are icons state that must be protected optimally both in terms of flight safety and security and from the terminal side of the passengers. The factor obstacle which is one of the factors of flight safety is a factor in how safety is one of the VVIP / VIP flight determinants running safe and securely. By ensuring flight safety and security in Husein Sastranegara, VVIP / VIP flight activities that carry important passengers of the country (symbol of national defense) will be able to walk safely and secure.
b. Military flights that support the training of TNI / TNI AU. Air Force Base Husein Sastranegara routinely carries out flight support for military / TNI AU military exercises such as jumps, inter-matric training, counter-terrorism training, VVIP / VIP security training and other military exercises which are generally exercises in order to improve the proficiency of TNI / TNI AU soldiers which means the defense management of personnel can run smoothly so that in peacetime the soldier can improve his ability and in wartime the soldier is ready to carry out the tasks of national defense.

c. Existence of the National Defense Industry PT. DI. In addition to military and civil aviation support facilities in Husein Sastranegara, at the Husein Sastranegara Air Force Base, there are also vital state facilities in the form of the defense industry of PT. DI, which supports the state's need for air defense equipment such as aircraft and spare parts aircraft. With the existence of PT DI, all activities in it such as a definite trial using flight facilities at Husein Sastranegara. With this condition, it must also be ensured that the safety and security of the aircraft testing process must be a top priority, especially in this case must be clear from high building barriers that have the potential to be an obstacle for aircraft. So that in this case, flight safety and security factors, especially obstacle factors are very influential on the national defense side which is in contact with PT DI's defense industry which is a strategic defense industry that is important to be protected.
d. The Depot of Maintenance of the Air Force. In maintaining the performance capabilities of military aircraft, the Air Force has several maintenance depots scattered in several airbases, one of which is at the Husein Sastranegara Air Force Base, Depohar 10 which handles the maintenance of light and heavy airplanes and electronic components. In the process, after maintenance at Depohar 10, the planes will be piloted at Husein Sastranegara Air Force Base, so that the security and safety of the airplane testing process must be a top priority, especially in this case must be clear from high building barriers that have the potential to an obstacle for flights. So that in this case, aviation safety and security factors, especially obstacle factors are very influential on the national defense, especially in terms of maintaining the performance of military aircraft through maintenance. From some things about how important Husein Sastranegara Bandung Air Force Base is in supporting the defense function of the country, especially in peacetime like this, it is necessary to secure airbase conditions and fulfill flight safety factors, especially factors obstacle that are the pointers in this research, which turns out that there are many high-rise buildings around the aerodrome Husein Sastranegaraand in the city of Bandung which have the potential to become an obstacle for airlines, both military and civilian. Readiness military air base Husein Sastranegara Air Force is a top priority and absolutely must be met every time

as well as the readiness of the Air Force in support of national defense, especially in times of peace as it is today.

Conclusion

Husein Sastranegara Air Force Base as a military airbase carrying out a lot of support for flight activities, especially airlines, which support activities related to national defense such as VVIP / VIP flights, support training, and operations of TNI / TNI AU, military aircraft test flights and from the aerospace industry. The existing condition of aerodrome Husein Sastranegara must be secure from all obstacles, especially from high-growth buildings that are not well controlled. This concerns flight safety and security, if many obstacles are allowed to hamper flights. If the many obstacles that interfere with the flight, the readiness Husein Sastranegara Air Force Base interrupted, and all military flights which are a measure of the country's defense preparedness cannot be carried out safely it can also be stated military aviation and defense of the country is not going well.

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