ANALYSIS OF FLIGHT INFORMATION CENTER SERVICES TOWARD TRAFFIC THAT DOES NOT DO TWO-WAY COMMUNICATION IN THE JAYAPURA SECTOR'S FIC UJUNG PANDANG AREA

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ABSTRACT

Ujung Pandang FIC Jayapura Sector is a Flight Information Services unit in class G airspace, serving various kinds of domestic, military and overflying flights. in carrying out their duties, the Aeronautical Communication Officer (ACO) must, of course, serve every aircraft in their territory from the time the aircraft enters its territory until the aircraft leaves its territory. In its service, there are many obstacles such as aircraft entering the airspace of Ujung Pandang FIC Jayapura Sector without carrying out two-way communication or two-way communication, of course this can have an impact and endanger flight safety. This study uses mixed methods, researchers combine quantitative and qualitative data to find out how well the services provided and the causes of not carrying out two-way communication by pilots operating at the Ujung Pandang FIC Jayapura Sector unit. The purpose of this research is to find out the causes and obstacles experienced by aircraft that do not make contact with the Ujung Pandang FIC Jayapura Sector unit. The research was conducted on 30 Aeronautical Communication Officers (ACO) and 3 pilots from different airlines operating in the Ujung Pandang area of FIC Jayapura Sector. The results of the study show that the services provided by the Ujung Pandang FIC Jayapura Sector unit are in accordance with the Standard Operational Procedure (SOP) and can be said to provide very good service. On the other hand, interviews conducted with the three pilots showed that the pilots still had difficulty making contact/two-way communication with the Ujung Pandang FIC Jayapura Sector unit so that it could be seen that the cause of the aircraft not making contact/two-way communication was due to limited facilities and telecommunications networks that did not yet reach throughout the Ujung Pandang area of FIC Jayapura Sector.

Keywords: *Analysis, Service, Safety Aviation, Communication, Flight Information*

1. INTRODUCTION

Ujung Pandang Unit FIC Jayapura Sector is a unit in AirNav Indonesia Sentani Branch which has the duty and responsibility of providing flight information services (Flight Information Service) and Alerting Services throughout the Papua region within the Ujung Pandang Flight Information Region (FIR). In accordance with annex 11 it is explained that the flight information service and alerting service are as follows. Flight Information Service A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. Alerting Service A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required. [1]

In early 2022 the Jayapura FSS Unit underwent regional restructuring and centralization and changed its name to the Jayapura Sector Ujung Pandang Aviation Information Center. In practice, of course the area of responsibility of the Ujung Pandang FIC Jayapura Sector unit will become wider, in this case it will certainly have good and bad impacts, the good impact of the restructuring is that it is easier to provide information services. because the delivery of services in the Papua region is centered on the Jayapura FIC Ujung Pandang Sector, apart from the good impacts of course it cannot be separated from the bad impacts, the bad impact experienced is increased traffic movement and not all traffic in the area is served in the Ujung Pandang area of the Jayapura FIC Sector maximum.

Based on the quote from the Standard Operational Procedure (SOP) at the airnav Sentani branch, the Aeronautical Communication Officer (ACO) must provide Flight Information Service and Alerting Service to all aircraft that are provided with flight communication guidance services and it is believed that this information can have an impact on flight safety. [2] it can be concluded that aircraft entering the Ujung Pandang area

of Jayapura FIC Sector must immediately carry out two-way communication or two-way communication. However, in this problem, not all traffic transferred by the Adjacent Unit communicates in two directions with the Jayapura Sector FIC Ujung Pandang unit, so an analysis is needed to determine the cause of the problem.

In accordance with what is stated in Law No. 1 of 2009 concerning Aviation in articles 271 and 272 concerning the obligation to provide flight navigation services which reads that it is mandatory to provide aircraft flight navigation services. The obligation to provide flight navigation services as referred to in paragraph (1) starts from the first communication contact until the last communication contact between the flight captain and the navigation officer or facility [3]. Classification of services in class G / uncontrolled airspace for both instrument and visual flights is regulated in PM No. 9 of 2022 [4]. In CASR 91 point 91.126 it also explains as follows Operating on or in the Vicinity of an Airport in Class G Airspace. Communications with control towers. Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established as soon as practicable. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the `tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with Section 91.185. [5]

In this study, researchers will analyze the services provided by the Ujung Pandang FIC Jayapura Sector unit. Analysis and Services according to experts is Analysis is an activity of thinking to break down a whole into components so as to recognize the signs of the components, their relationship to each other, and the function of each in an integrated whole. [6] Service is the process of fulfilling needs through the activities of other people directly. Meanwhile, the definition of service in the Indonesian General Dictionary, service is helping to provide everything that is needed by other people such as guests or buyers. Service is an effort to provide assistance or help to other people, either in the form of material or non-material so that the person can solve the problem himself. [7] Service is a process of fulfilling needs through the activities of other people directly. [8]

From the background of the problems above, the authors identify the problems to be discussed, namely:

1) What are the services provided by the Ujung Pandang FIC Jayapura Sector unit?
2) What are the causes of procedural violations at the Ujung Pandang FIC Jayapura Sector unit?

2. METHODS

The research method is a way that can be used to collect data as well as guidelines for the study of a study. In other words, the research method is a way to seek scientific truth based on appropriate data and can be justified for its truth. "Research methods are methods that can be used by researchers to collect data." The statement above provides clarity that one of the successes of a research is supported by appropriate research methods and in accordance with the objectives and characteristics of the problem being studied. [9]

The approach used in this study is a mixed method approach (mixed). This mixed methods approach is used for the purpose of better understanding the research problem by converging (or triangulating) quantitative data in the form of numbers and qualitative data in the form of descriptive details. Regarding the mixed methods approach according to Creswell and Plano in Creswell argues that: Mixed methods research is a research approach that combines or associates qualitative forms and quantitative forms. This approach involves philosophical assumptions, the application of qualitative and quantitative approaches, and mixing the two approaches in one study. [10]

In other words, a mixed methods approach is an approach that combines two approaches at once, namely a qualitative approach and a quantitative approach. Even in this study, a concurrent mixed methods strategy was used.The quantitative analysis should assess the quality and reliability of the information obtained in this study. [11]

2.1 Participants

Participants are research subjects or people who are asked to provide answers regarding perceptions and facts on a particular topic. [9]

This research was aimed at 30 aeronautical communication officer (ACO) personnel and 3 pilots from different airlines operating in the Ujung Pandang area of FIC Jayapura Sector. The collection of population and samples is intended to find out the service and the causes of the aircraft not making contact/two-way communication.

2.2 Analyze

In collecting data on participants, the researcher used the questionnaire method as stated by experts that a questionnaire or questionnaire is a data collection technique that is carried out by giving a set of questions or written statements to respondents to answer. The types of questions in the questionnaire are divided into two, namely: open and closed. [12]

The author uses a Likert scale questionnaire containing 7 statements. So that the data obtained is in accordance with what is needed, the statements in the questionnaire are prepared based on a theoretical basis and Standard Operational Procedures (SOP) Services at Ujung Pandang Flight Information Center Jayapura Sector. The Likert scale is a scale used to measure attitudes, opinions, and perceptions of a person or group of people about social phenomena. With a Likert scale, the variables to be measured are translated into indicator variables. [13]

Table 1. Likert Scale

Scale	Grade
1	Very Less
2	Not Good
3	Neutral
4	Good
5	Very Good

The validity test is the equation of the data reported by the researcher with the data obtained directly that happened to the research subjects. Validity test is used to measure validity or at least a questionnaire. A questionnaire is said to be valid if the statements on the questionnaire are able to reveal what the questionnaire will measure. [13] test reliability is the degree of consistency and stability of data or findings. Unreliable data cannot be processed further because it will produce biased conclusions. A measuring tool that is considered reliable if the measurement shows consistent results from time to time. The reliability test is carried out after the validity test and the test is a valid statement or question [13]

3. RESULT AND DISCUSSION

The method used by the author is a mixed method with a combination of quantitative and qualitative data. Quantitative data collection used the questionnaire method and qualitative data used library research, interviews, and the author's observations while carrying out On the Job Training (OJT) for 5 months at Airnav Indonesia Sentani Branch.

During the second On The Job Training at Perum LPPNPI Sentani Branch, the author found one case where of the many estimated traffic obtained, 50% of them did not carry out two-way communication at the Jayapura Sector FIC Ujung Pandang Unit. In the following, traffic movement data is presented from October 2022 to February 2023 when the author carried out the second On The Job Training (OJT).

Table 2. Data Movement Traffic

Month	*Traffic Contact*			*Traffic No Contact*			Total
	DEP	*ARR*	*OVF*	*DEP*	*ARR*	*OVF*	
OCTOBER	274	188	671	701	201	332	2442
NOVEMBER	253	185	711	914	203	333	2599
DECEMBER	288	257	841	928	256	341	2911
JANUARY	302	230	780	751	186	262	2511
FEBRUARY	252	209	603	651	115	227	2057

From the table above it can be seen that there is more traffic that does not make contact/two-way communication, this happens continuously and continuously when the author is doing On the Job Training. Referring to Law Number 1 of 2009 Article 272 paragraphs 1 and 2 which reads "(1) The flight navigation service provider agency as referred to in Article 271 paragraph (2) is obliged to provide aircraft flight navigation services. (2) The obligation to provide flight navigation services as referred to in paragraph (1) starts from the first communication contact until the last communication contact between the flight captain and the flight navigation officer or facility. [4]

If the aircraft does not carry out two-way communication and does not monitor the frequency, several impacts will occur, including:

a. Air Traffic Services (ATS) personnel will find it difficult to provide Traffic Info
b. Air Traffic Services (ATS) personnel will also find it difficult to determine the position of the aircraft, especially since there is no Surveillance facility at Ujung Pandang FIC Jayapura Sector
c. In Air Traffic Services (ATS) Routes that intersect (Crossing) will find it difficult to give advice especially if the aircraft is in Low Separate condition
d. When there is a deviation, the FIC unit cannot monitor traffic movements
e. If there is a difference in data between a unit it will be difficult when recording flight data
f. Not optimal provision of flight information services

The questionnaire was addressed to 30 Aeronautical Communication Officers (ACO) to measure the provision of navigation and flight information services to each individual with 7 questions based on a theoretical basis and through the media google form. Then interviews were conducted with 3 pilots from different airlines operating in the Ujung Pandang FIC Jayapura Sector area using the Google form media and 4 questions were given regarding constraints, suggestions, and causes of aircraft not making contact/two-way communication at the Ujung Pandang FIC Jayapura Sector Unit.

Table 3. Questionnare and Result

	Statement	Number Of Respondent					Total Respondent
		VG	G	N	NG	VL	
1	I provide services according to Standard Operational Procedure (SOP)	23	7				30
2	I provide services and perform Entering Procedures	27	3				30
3	I provide services and perform Overflying Procedure	24	6				30
4	I Provide services and perform Leaving Procedures	22	8				30
5	I Do the SELCAL Procedure (*if the aircraft is equipped with SELCAL equipment)	23	7				30
6	When the plane doesn't report its position, I make a call to the plane	18	11	1			30
7	I did Transfer of Responsibility Control (TRC) and sent the aircraft estimate to the related adjacent unit	23	7				30

From the results of the questionnaire, then the data was tested for validity and reliability. The results obtained a significance of less than 0.05 so that the questionnaire is said to be valid. In the reliability test, the results obtained were 0.790 cronbach alpha, then adjusted to the reliability table and the questionnaire entered at the Reliable level (0.60-0.80)

Table 4. Validity Test

Correlations

		X1	X2	X3	X4	X5	X6	X7	Total
X1	Pearson Correlation	1	.604**	.315	.380*	.255	.277	.627**	.712**
	Sig. (2-tailed)		.000	.090	.038	.174	.138	.000	.000
	N	30	30	30	30	30	30	30	30
X2	Pearson Correlation	.604**	1	.389*	.553**	.342	.537**	.604**	.827**
	Sig. (2-tailed)	.000		.034	.002	.065	.002	.000	.000
	N	30	30	30	30	30	30	30	30
X3	Pearson Correlation	.315	.389*	1	.264	.118	.060	.315	.491**
	Sig. (2-tailed)	.090	.034		.159	.534	.754	.090	.006
	N	30	30	30	30	30	30	30	30
X4	Pearson Correlation	.380*	.553**	.264	1	.380*	.342	.380*	.693**
	Sig. (2-tailed)	.038	.002	.159		.038	.065	.038	.000
	N	30	30	30	30	30	30	30	30
X5	Pearson Correlation	.255	.342	.118	.380*	1	.277	.255	.555**
	Sig. (2-tailed)	.174	.065	.534	.038		.138	.174	.001
	N	30	30	30	30	30	30	30	30
X6	Pearson Correlation	.277	.537**	.060	.342	.277	1	.559**	.682**
	Sig. (2-tailed)	.138	.002	.754	.065	.138		.001	.000
	N	30	30	30	30	30	30	30	30
X7	Pearson Correlation	.627**	.604**	.315	.380*	.255	.559**	1	.791**
	Sig. (2-tailed)	.000	.000	.090	.038	.174	.001		.000
	N	30	30	30	30	30	30	30	30
Total	Pearson Correlation	.712**	.827**	.491**	.693**	.555**	.682**	.791**	1
	Sig. (2-tailed)	.000	.000	.006	.000	.001	.000	.000	
	N	30	30	30	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5. Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.790	7

The results of the questionnaire were tabulated and summed up and obtained a result of 95% where the service provided by the Aeronautical Communication Officer (ACO) at the Ujung Pandang FIC Jayapura Sector unit was included in the Very Good category, so there were no problems in providing flight information/navigation services.

Table 6. Likert Scale Answer Index

Result	Information
0% - 19,99%	Very Less
20% - 39,99%	Not Good
40% - 59,99%	Neutral
60% - 79,99%	Good
80% - 100%	Very Good

Then the results of interviews conducted by researchers with 3 pilots from different airlines operating in the Ujung Pandang FIC Jayapura Sector area, the authors provide 4 questions related to the causes, constraints, and suggestions the authors obtain the following results:

1) The pilot did not make contact with Ujung Pandang FIC Jayapura Sector due to facility constraints, the aircraft had followed the instructions given by Approach Jayapura Radar to make contact but could not be connected/connected but Reading 2 or Reading 3 was difficult to hear and sometimes heard sometimes not. Some aircraft also do not have High Frequency (HF) radio facilities so they cannot reach Ujung Pandang FIC Jayapura Sector which uses High Frequency (HF) radio.
2) Geographical factors also affect communication, where geographical conditions in Papua which are dominated by mountains make radio beams blocked so that aircraft cannot communicate optimally. Apart from geographical conditions, limited facilities owned by aircraft are also a factor in the aircraft not making contact/two-way communication with Ujung Pandang FIC Jayapura Sector.
3) The Traffic Information Broadcast by Aircraft (TIBA) and Common Traffic Advisory Frequency (CTAF) procedures are currently considered effective in assisting in providing flight services and information to flights in class

G/uncontrolled airspace airspace which is not covered by the Ujung Pandang FIC Jayapura Sector unit. , where pilots can provide each other with information on both the weather and surrounding conditions at a predetermined frequency in airport/airstrip areas that do not have personnel.

4) The facilities used by both airlines and Airnav need to be continuously developed and improved, bearing in mind that the coverage of the High Frequency (HF) radio network at the Ujung Pandang FIC Jayapura Sector unit cannot yet cover the entire area of Papua, while on High Frequency (HF) radio between villages The existing airstrips can still be reached by pilots. Of course, Airnav also has an obligation to improve its facilities as best as possible in order to support flight safety, especially in the Papua region itself.

From the conclusions of the interview results above, researchers can provide suggestions for solving problems including the following:

1) Improvement of facilities, especially in radio transmission, adding antennas at several points to make it easier for pilots to make contact.
2) Holding a kind of evaluation/morning coffee meeting to address complaints faced by pilots and Air Traffic Services (ATS) personnel.
3) Air Traffic Services (ATS) personnel ask the related Adjacent Unit whether the aircraft has been established with the Adjacent Unit
4) If the aircraft cannot communicate with the FIC unit, then the FIC personnel will contact the relevant Adjacent Unit to request the last position of the aircraft, and ask the Adjacent Unit to instruct the aircraft to try to contact the Ujung Pandang Unit of FIC Jayapura Sector again.
5) Request assistance from the aircraft/Adjacent Unit closest to Traffic to relay information from the Jayapura Sector FIC Ujung Pandang unit
6) At airports without personnel (Unattended) to ensure the plane has arrived (Arrival) can be cross-checked through the Flight Watch Papua group on Operational Phone.
7) Optimizing the Common Traffic Advisory Frequency (CTAF) procedure between Ujung Pandang FIC Jayapura Sector, Related UPBU Personnel, and adding a Letter of Coordination Agreement (LOCA) with Airlines

4. CONCLUSION

The conclusions that can be drawn after the Compiler conducts the research are:

1) The Aeronautical Communication Officer (ACO) at the Ujung Pandang FIC Jayapura Sector unit has provided services in accordance with the Standard Operational Procedures (SOP) and obtained results with the title Very Good according to the results of the questionnaire test.
2) The constraints experienced by pilots are more dominant in inadequate and less than optimal facilities, where pilots have difficulty making contact/two-way communication so that service and information reception for flight efficiency is less than optimal.

Apart from that, regardless of the conditions experienced during the flight, the pilot must immediately establish communication with the control tower / related Air Traffic Services unit. [5]

REFERENCES

[1] International Civil Aviation Organization, Annex 11 Air Traffic Services, 2001.

[2] Airnav Sentani, Standart Operational Procedure AMS DJJ Bagian 23, 2021.

[3] Kementrian Perhubungan, UU No.1 Tentang Penerbangan, 2009.

[4] Kemetrian Perhubungan, Peraturan Menteri No. 9 Tentang Tatanan Navigasi Penerbangan Nasional, 2022.

[5] Kementerian Perhubungan, CASR Part 91 General Operating And Flight Rules, 2010.

[6] Komaruddin, “Ensiklopedia Manajemen Edisi ke-5,” Jakarta, Bumi Aksara, 2002.

[7] Suparlan, Cost Management, Jakarta: Salemba Empat, 2000.

[8] Moenir, Manajemen Pelayanan Umum di Indonesia, Jakarta: Bumi Aksara, 2005.

[9] Arikunto, Prosedur Penelitian Suatu Pendekatan Praktek, Jakarta: PT. Rineka Cipta, 2006.

[10] J. W. Creswell, Research design: pendekatan kualitatif, kuantitatif, dan mixed, Yogyakarta: PT Pustaka Pelajar, 2010.

[11] Rochmawati L, Fatmawati F, MaharaniSukma M and Sonhaji I, “Online learning motivation for Aviation English: Attitude, readiness, anddemographic factors,” 2021.

[12] Sugiyono, Metode Penelitian Kuantitatif, Kualitatif, dan R&D, Bandung: CV. Alfabeta, 2017.

[13] Sugiyono, Metode Penelitian Kuantitatif, Bandung: Kuantitatif, 2018.