PROJECTED NUMBER OF PASSENGERS IN THE NEXT 15 YEARS FOR THE INCREASE IN THE NUMBER OF CHECK-IN COUNTERS AT TJILIK RIWUT AIRPORT, PALANGKA RAYA

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ABSTRACT
Tjilik Riwut Airport as the primary air transportation gateway in Central Kalimantan, has experienced significant passenger growth, increasing from 828,748 passengers in early 2025 to a projected 2,156,522 passengers by 2039. This study aims to analyze passenger growth trends and evaluate the necessity for additional check-in counters over the next 15 years. A quantitative approach was employed using simple linear regression analysis on historical data from 2020 to 2024, combined with facility demand modeling based on the technical guidelines of SKEP/77/VI/2005 and the minimum service standards stipulated in PM 41 of 2023. The findings indicate that the current capacity of 20 check-in counters will be insufficient to accommodate the anticipated passenger growth. Specifically, the projected demand includes 14 counters for Lion Group, 7 for Garuda Indonesia, 8 for Citilink, and 1 for pioneer (pioneer) flights. This highlights that the existing facilities are inadequate to support the future increase in passenger traffic. Therefore, expanding the check-in counter facilities, alongside implementing alternative service strategies such as self-check-in kiosks, queue line management systems, and terminal space optimization, is a strategic necessity. This research is expected to serve as a foundation for sustainable terminal facility development planning to ensure efficient, safe, and high-quality airport services.

Keywords: *Passenger Projection, Check-In Counter, Peak Hour Passengers, Tjilik Riwut Airport, Airport Services.*

1. INTRODUCTION

The aviation industry is not spared from the vital services built to support aircraft operations, namely airports. Airports are a very important supporting facility in every country, especially in Indonesia as an archipelagic country that urgently needs air transportation facilities to support the mobility of its population. In supporting aviation services, the development and development of regional transportation systems must be planned precisely, sustainably, gradually, and integratedly.

According to Annex 14 Volume I Aerodrome Design and Operations[1], an airport is a certain area on land and waters that is used for aircraft takeoff and/or landing operations, passenger boarding and landing, baggage loading and unloading processes, as well as places to move intra and intermodal transportation.

Tjilik Riwut Airport which is located in Palangka Raya City, Central Kalimantan, is a class 1 airport managed by PT. Angkasa Pura Indonesia and supervised by the Airport Authority Office of Region VII Balikpapan. Since the inauguration of the new passenger terminal in 2019, the growth of passenger traffic has shown an increasing trend. This is in line with the increasing population and the strategic role of Palangka Raya City as the provincial capital. This increase in the number of passengers gives an idea that projections of the number of passengers in the next 15 years need to be made considering that the needs of airports will continue to increase every year.

According to the Central Statistics Agency (BPS) [2], projection is a forecasting that is carried out in at least five years because if the data collection is less than specified, the amount of need to forecast will not be much different. Therefore, to project the number of passengers, data for the last five years from 2020 to 2024 is used which is sourced from the Airport Movement Control (AMC) unit of Tjilik Riwut Airport which records data based on Actual Passengers on Board.

In the planning process of airport facilities, the number of check-in counters is an important element because it is directly related to the initial process of passenger departure[3]. If passenger growth is not well anticipated, the number of existing check-in counters will face greater pressure, causing long queues, longer service times, and decreased service quality.

In accordance with the Regulation of the Minister of Transportation of the Republic of Indonesia Number PM 41 of 2023, check-in facility services must be able to provide comfort to passengers and adjust to needs (Article 14 letter c). Therefore, the provision of the number of check-in counters must be based on the projected number of passengers and not just the current conditions. In addition, the technical provisions in SKEP/77/VI/2005 stipulate that the number of check-in counters must take into account the service time, handling speed per counter, and the number of passengers during peak hours.

Projecting the number of passengers in the next 15 years and calculating the need for check-in counters at Tjilik Riwut Airport is a strategic imperative so that airport managers can prepare terminal development plans efficiently and measurably[4]. This projection is expected to be the basis for long-term decision-making to ensure airport services that are safe, comfortable, and meet service quality standards.

2. MATERIALS AND METHOD

This research uses a quantitative descriptive method, which is an approach that aims to describe phenomena that occur through the collection and processing of numerical data [5]. This approach is considered relevant for assessing passenger growth trends and the need for facilities at airports in a measurable manner, using historical data as a basis for decision-making.

This research was conducted at Tjilik Riwut Palangka Raya Airport, Central Kalimantan, which is managed by PT Angkasa Pura Indonesia. Geographically, it is located at the coordinates of 2°13′S 113°57′E and has an Aerodrome Reference Point (ARP) 02º 14' 0.39" S 113º 56' 43.26" E. The selection of this location is based on the airport's strategic position as the main gateway for air transportation in the Central Kalimantan region and the high potential for passenger growth.

Figure 1. Location of Tjilik Riwut Airport

The type of data used in this study is secondary data, in the form of the number of departing passengers over the last five-year period, namely from 2020 to 2024. This data is obtained from the Airport Movement Control (AMC) unit which has the task of recording and reporting the number of passengers based on data *Actual Passengers on Board*. The AMC is a personnel in charge of overseeing compliance on the air side and ensuring reports on aircraft and passenger traffic movements[6]. The selection of the five-year period was carried out because in those years, flight operational activities had returned to normal after the COVID-19 pandemic, and there had been a transition of airport management from UPBU to SOEs, namely PT Angkasa Pura Indonesia, since 2019.

Data analysis was carried out in two stages. The first stage is a simple linear regression analysis, which is used to project the number of departure passengers from 2025 to 2039. Simple linear regression is used because it is suitable for predicting future trends based on the relationship between one independent variable and one bound variable [7]. In the context of this study, the independent variable is the year of observation (X) and the bound variable is the number of passengers (Y). The formula of simple linear regression used is seen below (1).

$$Y = a + bX \quad (1)$$

Y = projected value (number of passengers)

X = N year (what year of the initial data)

a = constant or intercept

b = regression coefficient or slope

The values of a and b were obtained from the results of data processing with statistical software, namely IBM SPSS Statistics. The results of this model are used to estimate the number of passengers from 2025 to 2039.

The second stage is the calculation of the need for the number of check-in counters based on the results of passenger projections. This calculation refers to the Decree of the Director General of Civil Aviation Number SKEP/77/VI/2005 concerning Technical Guidelines for the Implementation of Passenger Terminal Facilities. In

the regulation, it is explained that the need for the number of check-in counters must consider the service capacity per counter, service time per passenger, and the number of passengers during peak hours. Here's the formula:

$$N = \left\{\frac{a+b}{60}\right\} x\ t_1 counter\{+10\%\} \quad (2)$$

The calculation was performed with Microsoft Excel and IBM SPSS Statistics devices to statistically test linear regression.

3.1 DATA COLLECTION

This research was carried out by collecting data on the number of departing passengers at Tjilik Riwut Airport Palangka Raya over the last five years, namely from 2020 to 2024. The data is then used as a basis for projecting the number of passengers in the next 15 years until 2039 using simple linear regression analysis. The following is the passenger data for the last five years that will be forecasted.

3. RESULTS AND DISCUSSION

Table 1 Passenger Data for 2020-2024

Yes	Year	Number of Passengers		Total	Total Growth (%)
		Come	Leave		
1	2020	188.658	189.363	378.021	
2	2021	185.639	206.003	391.642	3,61%
3	2022	281.621	284.110	565.731	44,47%
4	2023	341.528	332.830	674.358	19,15%
5	2024	354.412	355.956	710.368	5,34%

3.2 ANALYSIS OF AIRLINE PASSENGER DATA

Based on the results of research that has been conducted regarding the projected number of passengers and the need for check-in counters at Tjilik Riwut Airport Palangka Raya, it can be concluded that the growth in the number of passengers is experiencing an increasing trend every year. Historical data from 2020 to 2024 shows a significant increase in the past five years.

As a follow-up to the overall passenger projection, the analysis of passenger data from each airline is important for distribution to evenly distribute the service load between airline operators. Each airline has different flight frequencies and passenger volumes, so the check-in counter needs will vary according to their contribution.

The data used in this analysis includes the number of passengers from each airline during the period 2020 to 2024. The airline's data will be grouped based on the current check-in counter usage. The grouping is part of the Lion Group airlines (Lion Air, Batik Air, Super Air Jet, and Wings), Garuda Indonesia, Citilink, and pioneer airlines (Sushi Air and Smart Aviation).

Table 2 Lion Group Passenger Data

Lion Group Passenger Data				
NO	Year	Passenger		
		Come	Squirt	Total
1	2020	167.793	169.921	337.714
2	2021	139.195	158.905	298.100
3	2022	228.647	232.690	461.337
4	2023	254.831	249.088	503.919
5	2024	255.490	257.209	512.699

Table 3 Garuda Indonesia Passenger Data

Lion Group Passenger Data				
NO	Year	Passenger		
		Come	Squirt	Total
1	2020	16.066	14.567	30.633
2	2021	21.888	19.167	41.055
3	2022	21.633	21.844	43.477
4	2023	25.129	23.388	48.517
5	2024	42.971	43.404	86.375

Table 4 Citilink Indonesia Passenger Data

Lion Group Passenger Data				
NO	Year	Passenger		
		Come	Squirt	Total
1	2020	4.183	4.120	8.303
2	2021	23.200	26.558	49.758
3	2022	29.582	27.885	57.467
4	2023	59.687	58.543	118.230
5	2024	53.599	53.590	107.189

Table 5 Pioneer Passenger Data

Lion Group Passenger Data				
NO	Year	Passenger		
		Come	Squirt	Total
1	2020	616	755	1.371
2	2021	1356	1373	2.729
3	2022	1759	1691	3.450
4	2023	1.881	1.811	3.692
5	2024	2352	1753	4.105

3.2 FORECASTING THE NUMBER OF PASSENGERS

The method used in projecting the number of passengers is a simple linear regression that is suitable for predicting growth trends based on the relationship between the year of observation (X) and the number of passengers (Y). The forecast of the number of passengers will be divided into each airline according to historical data for the past five years. The values obtained from the results of simple linear regression output with SPSS, are then entered into the regression equation formula which can be seen in the table below.

Table 6 Lion Group Passenger Number Prediction

Predicted Number of Passengers			
Year	a	b	Y = a+bX
2025	-111.957.782	55.579	589.693
2026	-111.957.782	55.579	645.272
2027	-111.957.782	55.579	700.851
2028	-111.957.782	55.579	756.430
2029	-111.957.782	55.579	812.009
2030	-111.957.782	55.579	867.588
2031	-111.957.782	55.579	923.167
2032	-111.957.782	55.579	978.746
2033	-111.957.782	55.579	1.034.325
2034	-111.957.782	55.579	1.089.904
2035	-111.957.782	55.579	1.145.483
2036	-111.957.782	55.579	1.201.062
2037	-111.957.782	55.579	1.256.641
2038	-111.957.782	55.579	1.312.220
2039	-111.957.782	55.579	1.367.799

Table 7 Garuda Indonesia Passenger Predictions

Predicted Number of Passengers			
Year	a	b	Y = a+bX
2025	-24.202.869	11.995	87.006
2026	-24.202.869	11.995	99.001
2027	-24.202.869	11.995	110.996
2028	-24.202.869	11.995	122.991
2029	-24.202.869	11.995	134.986
2030	-24.202.869	11.995	146.981
2031	-24.202.869	11.995	158.976
2032	-24.202.869	11.995	170.971
2033	-24.202.869	11.995	182.966
2034	-24.202.869	11.995	194.961
2035	-24.202.869	11.995	206.956
2036	-24.202.869	11.995	218.951
2037	-24.202.869	11.995	230.946
2038	-24.202.869	11.995	242.941
2039	-24.202.869	11.995	254.936

Table 8 Citilink Passenger Predictions

Predicted Number of Passengers			
Year	a	b	Y = a+bX
2025	-53.766.347	26.624	147.253
2026	-53.766.347	26.624	173.877
2027	-53.766.347	26.624	200.501
2028	-53.766.347	26.624	227.125

2029	-53.766.347	26.624	253.749
2030	-53.766.347	26.624	280.373
2031	-53.766.347	26.624	306.997
2032	-53.766.347	26.624	333.621
2033	-53.766.347	26.624	360.245
2034	-53.766.347	26.624	386.869
2035	-53.766.347	26.624	413.493
2036	-53.766.347	26.624	440.117
2037	-53.766.347	26.624	466.741
2038	-53.766.347	26.624	493.365
2039	-53.766.347	26.624	519.989

Table 9 Predicted Number of Pioneer Passengers

Predicted Number of Passengers			
Year	a	b	Y = a+bX
2025	-1.297.279	643	4.796
2026	-1.297.279	643	5.439
2027	-1.297.279	643	6.082
2028	-1.297.279	643	6.725
2029	-1.297.279	643	7.368
2030	-1.297.279	643	8.011
2031	-1.297.279	643	8.654
2032	-1.297.279	643	9.297
2033	-1.297.279	643	9.940
2034	-1.297.279	643	10.583
2035	-1.297.279	643	11.226
2036	-1.297.279	643	11.869
2037	-1.297.279	643	12.512
2038	-1.297.279	643	13.155
2039	-1.297.279	643	13.798

The table above is the result of the prediction of the number of passengers in the next 15 years from each airline using a simple linear regression formula. The prediction will be further processed to get high-time passengers (PWS) from each airline, as one of the indicators for calculating the number of check-in counter facility needs. It can be interpreted that each airline will have a different PWS as well.

3.3 PASSENGERS DURING PEAK HOURS

Passenger Peak Time (PWS) is an important indicator in capacity planning and airport facility management, especially to ensure that services during peak times can run optimally and efficiently. In accordance with the provisions in PM 41 of 2023, the annual PWS calculation is carried out based on the total number of passengers in one year and the use of certain coefficients that have been set. It is known that from 2025 to 2039 it will have different numbers of passengers and will provide different coefficients as well. The determination of the number of passengers and the coefficient has been described in PM 41 of 2023 which is shown in table 10 below.

Table 10 Determination of PWS Coefficient per Year

Number of Passengers / Year (Million)	PWS coefficient (%)	PWS
> 30	0,035%	>10,500
20-29,999	0,040%	8000 - 11999
10 - 19,999	0,045%	4500 - 8999
1 - 9,999	0,050%	500 - 4999
0,5 - 0,999	0,080%	400 - 799
0,1 - 0,4999	0,130%	130 - 649
< 0.1	0,2%	< 200

The estimated number of PWS from 2025 to 2039 is calculated using the percentage of the PWS coefficient to the number of passengers in the year in question, referring to the formula in PM 41 of 2023, which is as follows:

$$PWS = \frac{Jumlah\ Penumpang\ Tahun \times Koefisien}{100} \quad (3)$$

With the formula that has been determined, the results of calculating the number of PWS from each airline are as follows.

Table 11 PWS 2025-2039 Lion Group Results

Year	Number of Passengers/Year	Coefficient	PWS
2025	589.693	0,08%	472
2026	645.272	0,08%	516
2027	700.851	0,08%	561

2028	756.430	0,08%	605
2029	812.009	0,08%	650
2030	867.588	0,08%	694
2031	923.167	0,08%	738
2032	978.746	0,08%	783
2033	1.034.325	0,05%	517
2034	1.089.904	0,05%	545
2035	1.145.483	0,05%	573
2036	1.201.062	0,05%	601
2037	1.256.641	0,05%	628
2038	1.312.220	0,05%	656
2039	1.367.799	0,05%	684

Table 12 Garuda PWS 2025-2039 Results

Year	Number of Passengers/Year	Coefficient	PWS
2025	87.006	0,2%	174
2026	99.001	0,2%	198
2027	110.996	0,130%	144
2028	122.991	0,130%	160
2029	134.986	0,130%	175
2030	146.981	0,130%	191
2031	158.976	0,130%	207
2032	170.971	0,130%	222
2033	182.966	0,130%	238
2034	194.961	0,130%	253
2035	206.956	0,130%	269
2036	218.951	0,130%	285
2037	230.946	0,130%	300
2038	242.941	0,130%	316
2039	254.936	0,130%	331

Table 13 Citilink PWS 2025-2039 Results

Year	Number of Passengers/Year	Coefficient	PWS
2025	147.253	0,130%	191
2026	173.877	0,130%	226
2027	200.501	0,130%	261
2028	227.125	0,130%	295
2029	253.749	0,130%	330
2030	280.373	0,130%	364
2031	306.997	0,130%	399
2032	333.621	0,130%	434
2033	360.245	0,130%	468
2034	386.869	0,130%	503
2035	413.493	0,130%	537
2036	440.117	0,130%	572
2037	466.741	0,130%	607
2038	493.365	0,130%	641
2039	519.989	0,080%	416

Table 14 PWS 2025-2039 Pioneer Results

Year	Number of Passengers/Year	Coefficient	PWS
2025	4.796	0,2%	10

2026	5.439	0,2%	11
2027	6.082	0,2%	12
2028	6.725	0,2%	13
2029	7.368	0,2%	15
2030	8.011	0,2%	16
2031	8.654	0,2%	17
2032	9.297	0,2%	19
2033	9.940	0,2%	20
2034	10.583	0,2%	21
2035	11.226	0,2%	22
2036	11.869	0,2%	24
2037	12.512	0,2%	25
2038	13.155	0,2%	26
2039	13.798	0,2%	28

Based on the table above, the number of passengers in annual peak time at Tjilik Riwut Airport is still combined between departures and arrivals. To calculate the need for check-in counters in the next 15 years, separate data on busy passengers is needed. Therefore, the value of departure and arrival must be known in advance.

3.4 FORECASTING PWS DEPARTURES AND ARRIVALS

The determination of PWS of departure and arrival requires a percentage calculated from the comparison of the number of departing or arriving passengers to the total number of passengers. The calculation results show that the percentage of PWS departures is different for each airline which is obtained from the total departing passengers divided by the total passengers in the last five years, then multiplied by 100%. The same applies to arrival passengers.

Table 15 Lion Group Passenger Percentage Results

Year	Number of Passengers		Total
	Come	Leave	
2020	167.793	169.921	337.714
2021	139.195	158.905	298.100
2022	228.647	232.690	461.337
2023	254.831	249.088	503.919
2024	255.490	257.209	512.699
Total	1.045.956	1.067.813	2.113.769
Comparison (%)	49%	51%	100%

Table 16 Garuda Passenger Percentage Results

Year	Number of Passengers		Total
	Come	Leave	
2020	16.066	14.567	30.633
2021	21.888	19.167	41.055
2022	21.633	21.844	43.477
2023	25.129	23.388	48.517
2024	42.971	43.404	86.375
Total	127.687	122.370	250.057
Comparison (%)	51%	49%	100%

Table 17 Citilink Passenger Percentage Results

Year	Number of Passengers		Total
	Come	Leave	
2020	4.183	4.120	8.303
2021	23.200	26.558	49.758
2022	29.582	27.885	57.467
2023	59.687	58.543	118.230
2024	53.599	53.590	107.189
Total	170.251	170.696	340.947
Comparison (%)	50%	50%	100%

Table 18 Pioneer Passenger Percentage Results

Year	Number of Passengers		Total
	Come	Leave	
2020	616	755	1.371
2021	1356	1373	2.729
2022	1759	1691	3.450
2023	1.881	1.811	3.692
2024	2352	1753	4.105
Total	7.964	7.383	15.347
Comparison (%)	52%	48%	100%

The average percentage of PWS of each airline is an important reference in projecting the need for check-in counter facilities in the future. By knowing the PWS value of departure and arrival, a more accurate analysis of the required capacity can be carried out. The data from the calculation is presented in the following table.

Table 19 PWS Lion Group Percentage Calculation Results

Year	PWS	Departing (51%)	Coming (49%)	Transfer (20%)
2025	472	193	185	94
2026	516	211	202	103
2027	561	229	220	112
2028	605	247	237	121
2029	650	265	255	130
2030	694	283	272	139
2031	738	301	289	148
2032	783	319	307	157
2033	517	211	203	103
2034	545	222	214	109
2035	573	234	224	115
2036	601	245	235	120
2037	628	256	246	126
2038	656	267	258	131
2039	684	279	268	137

Table 20 Results of Garuda PWS Percentage Calculation

Year	PWS	Departing (51%)	Coming (49%)	Transfer (20%)
2025	174	68	71	35
2026	198	78	81	40
2027	144	56	59	29
2028	160	63	65	32
2029	175	69	71	35
2030	191	75	78	38
2031	207	81	84	41
2032	222	87	91	44
2033	238	93	97	48
2034	253	99	103	51
2035	269	105	110	54
2036	285	112	116	57
2037	300	118	122	60
2038	316	124	129	63
2039	331	130	135	66

Table 21 Results of the Percentage Calculation of Citilink's PWS

Year	PWS	Departing (51%)	Coming (49%)	Transfer (20%)
2025	191	76	76	38

2026	226	90	90	45
2027	261	104	104	52
2028	295	118	118	59
2029	330	132	132	66
2030	364	146	146	73
2031	399	160	160	80
2032	434	174	174	87
2033	468	187	187	94
2034	503	201	201	101
2035	537	215	215	107
2036	572	229	229	114
2037	607	243	243	121
2038	641	256	256	128
2039	416	166	166	83

Table 22 Results of the Calculation of the Percentage of Pioneer PWS

Year	PWS	Departing (51%)	Coming (49%)	Transfer (20%)
2025	10	4	4	2
2026	11	4	5	2
2027	12	5	5	2
2028	13	5	5	3
2029	15	6	6	3
2030	16	6	7	3
2031	17	7	7	3
2032	19	7	8	4
2033	20	8	8	4
2034	21	8	9	4
2035	22	8	9	4
2036	24	9	10	5
2037	25	10	10	5
2038	26	10	11	5
2039	28	11	12	6

Based on the results of the calculations above, it can be determined that the need for an adequate check-in counter for the next 15 years can be determined according to the PM 41 service standard of 2023. The facility needs of each airline will be calculated using the formula that has been set out in national regulations as the basis for further calculation.

3.5 ANALYSIS OF THE NEED FOR THE NUMBER OF CHECK-IN COUNTERS

In order to meet the latest provisions regarding check-in service standards and projecting the need for check-in counters until 2039, data on the number of passengers at peak hours and departure passengers for 2025 and 2039 is needed.

Transfer passengers are also one of the main components in the calculation which refers to SKEP 77/VI/2005 assuming 20% of the total passengers at peak hours. Based on this assumption, the number of transfer passengers in 2025 is projected to increase in 2039 in line with the growth of total passengers, and the calculation will be carried out according to the formula that has been set. The results of the passenger transfers of each airline have been mentioned in the previous table.

The results of the calculation of the number of transfer passengers will be the basis for projecting the need for check-in counters. This analysis is carried out through the application of the formula from SKEP 77/VI/2005 as follows:

$$N = \frac{(a+b)}{60} \times t1\ counter + (10\%) \quad (4)$$

N : Number of tables *Check-in counter* What is needed

a : Number of passengers departing during peak hours

b : Number of transfer passengers (20%)

T1 : Service time *Check-in* per passenger, assumption (two minutes)

To find out the number of *check-in counter facilities needed* in the next 15 years, a basis is needed according to PM 41 of 2023 and the calculation formula from SKEP/77/2005. Here's how it works.

1. Lion Group Airlines

$$N = \frac{(a+b)}{60} \times t1\ counter + (10\%)$$

$$N = \frac{(279+137)}{60} \times 2 + (0{,}1)$$

$$N = 13{,}9$$

$$N = 14$$

2. Garuda Airlines

$$N = \frac{(a+b)}{60} \times t1\ counter + (10\%)$$

$$N = \frac{(130+66)}{60} \times 2 + (0{,}1)$$

$$N = 6{,}6$$

$$N = 7$$

3. Citilink Airlines

$$N = \frac{(a+b)}{60} \times t1\ counter + (10\%)$$

$$N = \frac{(166+83)}{60} \times 2 + (0{,}1)$$

$$N = 8{,}4$$

$$N = 8$$

4. Pioneer Aviation

$$N = \frac{(a+b)}{60} \times t1\ counter + (10\%)$$

$$N = \frac{(11+6)}{60} \times 2 + (0{,}1)$$

$$N = 0{,}6$$

$$N = 1$$

As of the current time period, the condition of the number of *check-in counters* at Tjjilik Riwut Airport is 20 which are each used for several airlines. The following is data on the use of *check-in counters* by airlines in serving their passenger facilities.

Flight Operators	Check-in Counter Number
Unscheduled Flight	1
Lion Air	2,3,4,5 and 8
Super Air Jet	6 and 7
Batik Water	2,3,4,5
Wings Air	2 and 3
Garuda	9,10,11,12,13
Citilink	14,15,16,17
Smart Aviation	20
Sushi Water	20

The calculation of check-in counter needs at Tjilik Riwut Airport refers to SKEP/77/VI/2005 and PM 41 service standards of 2023. The results of the calculation show that a total need of 30 units in the next 15 years while the existing condition is only 20 units, so additional facilities are needed.

On a per-airline basis, Lion Group is projected to increase from 7 to 14 units, Garuda from 5 to 7 units, and Citilink from 4 to 8 units, while pioneer flights do not require additions. Thus, the total additional needs reach 10 units to maintain the quality of service in accordance with regulations.

4. CONCLUSION

Based on the results of the analysis, this study concludes that the projected number of passengers at Tjilik Riwut Airport Palangka Raya has increased significantly during the period from 2025 to 2039. The total number of passengers is expected to increase from 828,748 people in 2025 to 2,156,522 people in 2039. In terms of airline breakdown, Lion Group grew from 589,693 to 1,367,799 passengers, Garuda Indonesia from 87,006 to 254,936 passengers, Citilink from 147,253 to 519,989 passengers, and pioneer flights from 4,796 to 13,798 passengers. This growth shows an increase in community mobility and the need for air transportation services that must be balanced with the sustainable development of terminal facilities.

In addition, the calculation results show that in 2039 Tjilik Riwut Airport needs 30 check-in counter units, while the number currently available is only 20 units. In more detail, the needs of each airline include 14 units of the Lion Group, seven units of Garuda Indonesia, eight units of Citilink, and one unit of fixed pioneer flights. Thus, it is necessary to add and rearrange check-in counter facilities so that service capacity is in line with passenger growth and in accordance with the service standards set out in PM 41 of 2023.

5. SUGGESTION

As a follow-up to the results of the research, the manager of Tjilik Riwut Airport is advised to prepare a plan to add check-in counters before 2039 so that services during peak hours are still fulfilled according to the minimum indicators in PM 41 of 2023 and technical

guidelines SKEP/77/VI/2005. In addition to physical additions, it is also necessary to implement modern service innovations such as self-check-in kiosks, digital check-in integration, and rearrangement of the queue system to improve efficiency and comfort. This effort is expected to be able to support airport services that are adaptive, fast, and in line with global standards.

ACKNOWLEDGMENTS

The author expressed his gratitude to the Management and all parties at Tjilik Riwut Airport, Palangka Raya for providing opportunities and support in the implementation of this research. The author also conveyed his highest appreciation to Mrs. Dr. Sri Rahayu Surtiningtyas and Mr. Agus Triyono, ST., MT. for the guidance, direction, and support provided during the process of preparing and completing this final project. This support is an important part of the success of this research.

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