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H. ASAN SAMPIT AIRPORT DEVELOPMENT: AIR TRANSPORTATION INFRASTRUCTURE STRATEGY FOR THE GROWTH OF THE CENTRAL KALIMANTAN REGION

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ABSTRACT

The development of H. Asan Sampit Airport is a strategic step to support increased mobility, economic growth, and regional connectivity in East Kotawaringin Regency. Based on the analysis of demand projections, the number of passengers is expected to increase to 2,300 passengers per day by 2035, or an increase of more than 90% compared to 2018 conditions. However, the current infrastructure condition is inadequate, characterized by a PCN value of only 24/F/C/X/T, well below the minimum standard of 45–50 required for a large body aircraft such as the Airbus A320. This study uses descriptive qualitative methods and Fishbone analysis to identify the root of the problem which includes human aspects, methods, machines, materials, environment, and management. The results of the study show the need to increase the runway to 2,250–2,400 meters, increase the PCN, expand the terminal, and modernize facilities according to ICAO Annex 14 standards. With the right infrastructure and managerial interventions, H. Asan Airport has the potential to increase the regional economic contribution by 0.8–1.3% of GDP per year.

Keywords: H. Asan Airport, infrastructure, air transportation, PCN, Fishbone Diagram, East Kotawaringin.

INTRODUCTION

Air transportation is one of the important tools in supporting regional development, especially in remote and developing areas such as East Kotawaringin Regency (Kotim), Central Kalimantan. As one of the districts with the largest population in the province, Kotim has a high mobility need for economic, government, educational, and social activities. In this context, the existence of H. Asan Sampit Airport as the only civilian airport in the region has an important role in supporting population mobility and distribution of goods, as well as being the main access that connects Kotim with other major cities such as Jakarta, Surabaya, and Banjarmasin.

However, the limitations of the infrastructure at H. Asan Airport, such as the length and carrying capacity of the runway that is not optimal, the limited terminal capacity, and other supporting facilities that do not meet the standards, are the main obstacles in efforts to improve the quality of aviation services and regional development. Currently, the airport can only serve certain types of aircraft such as the Boeing 737-500, which is slowly starting to be abandoned by many airlines (Devita, 2025). This situation clearly hinders the potential growth of aviation, the distribution of goods, and the movement of people that continue to increase.

Realizing the significance of the airport's role in supporting regional development, the development of H. Asan Airport is not only a technical need, but also a long-term strategy to strengthen both regional and national connectivity. This development is in line with national policies and supported by local governments, which have gradually acquired land and established cooperation with the Ministry of Transportation (Dewi, 2024). This step is aimed at supporting the

agenda of equitable development between regions and creating new economic growth centers outside the island of Java.

In order to understand more deeply the urgency of the development of H. Asan Sampit Airport, this research was carried out with a descriptive qualitative approach and the Fishbone Diagram method. This method is applied to uncover the main causes of the non-optimal role of airports in encouraging regional growth. There are six main categories analyzed, namely human aspects, methods, machines, materials, environment, and management. Through this method, it is hoped that the research can present a comprehensive picture of the real state of the airport, the problems faced, and the strategic actions needed to strengthen the position of H. Asan Airport as an air transportation center in Central Kalimantan.

LITERATURE REVIEW

a. Air Transport Theory and Demand Growth

The demand for air transportation is influenced by economic development, population growth, increased investment, and regional development. This theory, as put forward by Doganis (2010), emphasizes that passenger growth tends to follow the trend of regional economic growth. This is relevant for East Kotawaringin which has the plantation and mining sectors as an economic motor.

b. Airport Technical Standards (ICAO Annex 14)

ICAO Annex 14 is the main reference in the determination of airport eligibility and classification. Technical standards include:

- runway length and width specifications,
- the need for RESA (Runway End Safety Area),
- runway pavement strength (PCN),
- runway lighting,
- apron and taxiway provisions,
- and operational safety standards.

The application of this standard ensures that the airport development process follows applicable international regulations, especially if the airport wants to increase the type and capacity of aircraft.

c. Pavement Classification Number (PCN)

PCN is an indicator of runway strength that determines the type and weight of the aircraft that can land. According to the FAA (2019), a higher PCN is required for large-body aircraft such as the Airbus A320 or Boeing 737-800. PCN analysis is important to see the suitability of current runway conditions with future operational needs.

d. Fishbone Diagram (Ishikawa)

The Fishbone method is used to identify the root of the problem that causes the airport's function to be not optimal. According to Sulianta (2024), this approach is effective in analyzing systems that have many causative factors, such as airports. The six main categories (People, Methods, Machinery, Materials, Environment, and Management) are particularly relevant to analyze the airport's operations and its organizational structure.

e. Transportation Infrastructure Planning

Previous research by Adam (2016) and Utama (2010) explains the importance of integration between regional needs, connectivity, and government policy support in the development of air transportation. This literature confirms that airports not only function as a transportation node, but also as a catalyst for regional economic development.

Overall, this literature review provides a strong theoretical framework for understanding how technical, operational, regulatory, and socioeconomic aspects affect the development of H. Asan Sampit Airport.

METHOD

The research method used was qualitative descriptive with *Fishbone Diagram analysis.* According to Sulianta (2024), this method is used to identify the cause of a problem. The root of the problem

of this study is the non-optimal role of H. Asan Airport. The six main categories analyzed in the Fishbone method are:

1. Human
   This category includes all the individuals involved in a process or system. The main focus is on skills, experience, competence, work attitude, motivation, and adherence to procedures. Problems in this category can arise due to a lack of training, excessive workload, poor communication, or a low awareness of responsibility.
2. Method
   The method aspect is related to the way or procedure of carrying out an activity. This includes operational standards, work policies, process sequences, and decision-making methods. Inconsistencies or ambiguities in procedures, inefficient working methods, or the absence of standard standards can be sources of problems from this category.
3. Machine
   This category refers to the tools, machines, or technologies used in the work process. Factors such as machine reliability, periodic maintenance, technological sophistication, and the suitability of the tool to work needs are decisive. Operational interruptions, machine failures, or improper use of technology can hinder processes and cause problems.
4. Material
   Materials include raw materials, fixtures, or other inputs used in the process. Problems that may arise stem from poor material quality, delivery delays, non-conformity specifications, or supply limitations. This category is very important in guaranteeing a standard-compliant finish.
5. Environment
   Environmental aspects refer to the physical conditions of the workplace, including lighting, noise, temperature, workspace layout, to external factors such as weather or socio-economic conditions. An unconducive work environment can affect productivity, safety, and comfort of employees in carrying out their duties.
6. Management
   The management category includes leadership roles, supervisory systems, managerial policies, and leadership styles. Weaknesses in decision-making, ineffective internal communication, and lack of coordination or support from superiors can be sources of problems. Managerial functions that do not run optimally can lead to irregularities in the work system.

The basis of the H. Asan Sampit Airport development plan refers to the Decree of the Minister of Transportation Number 188 of 2022 and the Decree of the Governor of Central Kalimantan Number 188.44/257/2015. This project includes the extension and widening of the runway, upgrading the PCN, and relocating PKP-PK facilities. The goal is to create an infrastructure that is able to accommodate modern aircraft such as the Airbus A320 as well as increase the frequency and capacity of flights to and from Kotim.

This study follows a descriptive qualitative procedure with the following steps:

1. Data collection through government documents, regional economic growth reports, passenger data 2015–2024, limited interviews, and ICAO technical literature.
2. Field observation to see the physical condition of the airport, runway, terminal, and supporting facilities.
3. Identify Problems using Fishbone Diagrams with six categories (People, Method, Machine, Material, Environment, Management).
4. Technical Analysis includes demand projections, PCN analysis, runway extension needs, and Annex 14 technical standards.
5. Formulation of Recommendations based on the gap between existing conditions and technical standards.

DATA ANALYSIS

Market Demand Analysis

The market demand for the development of H. Asan Airport is triggered by several factors, namely:

a. An increase in the number of passengers from 1,000 to more than 1,200 per day in 2018. (Norjani, 2018).
b. The limitations of airport facilities that currently can only serve the Boeing 737-500, aircraft that are increasingly rarely operated. (Patmalasari, 2025).
c. Economic growth and investment in the plantation, mining, and services sectors are driving the need for air mobility. (Manggalani, 2024).
d. The commitment of the local government in providing infrastructure in accordance with aviation safety standards. (Harmoko, 2025).

Historical data shows that the number of passengers increased **by 4.5% per year (CAGR 2015–2023).** With a baseline of 1,200 passengers/day (2018), the projection is:

a. **2025:** 1,450 passengers/day
b. **2030:** 1,810 passengers/day
c. **2035:** 2,300 passengers/day This figure indicates that the capacity of the existing terminal (maximum ±800 passengers/day) **will not be able to accommodate the growth of the next 10 years**.

Regional mobility and connectivity

As the area with the largest population in Central Kalimantan, East Kotawaringin (Kotim) requires very high mobility, both for economic, governmental, educational, and social purposes. According to Norjani (2018) from Antara Kalteng "This increase in demand can be seen from the very significant increase in the number of aircraft passengers, namely from around 1,000 passengers per day to more than 1,200 passengers per day in 2018". This shows that the existence of air transportation in Kotim is increasingly important in supporting community activities and strengthening connectivity between regions.

In this context, H. Asan Sampit Airport plays an important role as the main gateway that connects Kotim with a number of major cities in Indonesia, such as Jakarta, Surabaya, and Banjarmasin (Maulina, 2025). However, until now, the limited capacity of airport infrastructure, both in terms of runway length and passenger terminal area, is still the main obstacle in accommodating the high demand for flights. The number of flight routes is still limited, and the types of aircraft that can operate at this airport have not been able to reach a larger capacity.

Therefore, the development of H. Asan Airport infrastructure is an urgent need that must be realized immediately. The improvement of airport facilities is expected to not only be able to significantly increase connectivity in the Kotim area, but also have a positive impact on the surrounding areas, such as Seruyan Regency, which is also highly dependent on air transportation access. With better connectivity, the movement of people and goods will become more efficient, accelerate regional economic growth, and expand access to better quality public services.

Economic Potential and Distribution of Goods

East Kotawaringin Regency (Kotim) is one of the strategic areas in Central Kalimantan that is the center of economic activity, especially in the oil palm plantation and mining sectors. It is recorded that there are more than 53 large-scale companies operating in the two main sectors, supported by more than 5,000 professionals whose business activities are highly dependent on the accessibility and efficiency of air transportation (Manggalani, 2024). In this context, the existence and development of airport infrastructure has a vital role.

A modern and adequate airport will speed up the process of distributing goods and logistics, while increasing time efficiency and operational costs for business actors. Not only that, the improvement of flight facilities will also open up wider trade opportunities, both between regions

in Kalimantan and to other national regions. Thus, the development of the airport is not only a transportation need, but also a lever for regional economic growth as a whole.

Safety Aspects and Operational Standards

Modern aircraft operations, especially large-body aircraft, require reliable airport infrastructure support and meet international aviation safety standards. One of the main parameters in assessing the ability of a runway pavement structure is the Pavement Classification Number (PCN). The PCN value determines the type and load of aircraft that can be operated safely on a runway.

Based on current conditions, H. Asan Sampit Airport only serves Nam Air flights that use aircraft with a relatively old operational age. This shows that the capacity and strength of the runway structure is still limited. According to Patmalasari (2024), this airport cannot be landed by Airbus A320 aircraft because the runway PCN value is still low.

Technical data from the Ministry of Transportation (2023) shows that H. Asan Airport has an existing PCN value of 24/F/C/X/T, which in practice is only suitable for aircraft of the B737-500 and ATR-72 classes. Meanwhile, to be able to serve large-body aircraft such as Airbus A320, a minimum PCN of 45–50/F/C/X/T is required.

Therefore, increasing PCN is a strategic and urgent step. This effort can be carried out through pavement overlays and reconstruction of runway structures in critical segments with a length of approximately 600–800 meters in need of improvement. The upgrade not only allows the airport to serve larger aircraft, but also increases passenger and cargo carrying capacity, as well as supporting smooth operations amid increasing demand for air transportation.

In addition to serving to increase capacity, the reinforcement of the runway structure is also an important aspect in ensuring flight safety, especially during extreme weather conditions or when flight frequencies increase so that the repetitive load on the pavement is greater. Without structural improvements, H. Asan Airport risks lagging behind in the development of the aviation world that demands efficiency, large carrying capacity, and high safety standards. The impact not only hinders regional economic growth, but can also reduce the airline's interest in opening or maintaining regular routes to Sampit in the future.

Government and National Policy Support

The East Kotawaringin regional government has shown a strong commitment to supporting the development of H. Asan Airport through various concrete steps. One of the tangible forms of this commitment is the implementation of a gradual land acquisition program for the expansion of the airport area, which is the main prerequisite for capacity building and the development of aviation facilities (Harmoko, 2025). In addition, local governments also establish active cooperation with the Ministry of Transportation as part of cross-sector synergy in accelerating the development of air transportation infrastructure.

This airport development project does not stand alone, but is an integral part of the national strategic plan in order to strengthen air connectivity in areas outside Java. This effort is in line with the vision of equitable distribution of infrastructure development launched by the central government, in order to reduce inequality between regions and encourage regional economic growth. With full support from the local government and collaboration with relevant ministries, the development of H. Asan Airport is expected to be a catalyst for economic progress, tourism, and investment in Central Kalimantan, especially for the people of Kotim and its surroundings.

RESULTS AND DISCUSSION

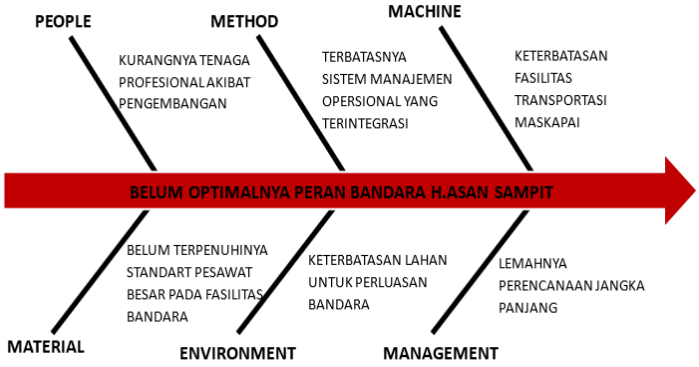
Main Problem: The role of H. Asan Sampit Airport in supporting air transportation and regional economic growth has not been optimal.

1.1 Fishbone Analysis

a. People: There is a need for additional professionals in the technical and service fields of airports due to the increase in passengers.

b. Method: Limited integration into the operational management system.
c. Machine: Limited airline transportation facilities.
d. Material: Physical facilities (runways, terminals) do not meet the standards of large-body aircraft.
e. Environment: Limited land for airport expansion.
f. Management: Weak long-term planning.

1.2 Diagram Fishbone



Picture 1. Fishbone Diagram of H.Asan Sampit Airport Development

1.3 Strategic Steps of Airport Development

1. Runway Extension and Widening
   The extension and widening of the runway at H. Asan Sampit Airport is the main step in increasing the capacity and operational efficiency of the airport. Longer and wider runways will allow airports to handle large-body aircraft such as Airbus A320, which will expand their flight network and frequency (Yarlina & Lindasari, 2017). With the ability to accommodate larger aircraft, the airport will be able to serve more passengers as well as increase trade and tourism flows in the area. This move could also attract more airlines to open new routes, improve regional connectivity with other major cities, and strengthen H. Asan Sampit Airport's position as a competitive air transportation hub. Thus, the extension of the runway is not only about increasing capacity, but also opening up greater economic opportunities for the East Kotawaringin region.
2. Peningkatan PCN (Pavement Classification Number).
   The increase in the Pavement Classification Number (PCN) is a crucial step to strengthen the runway structure and ensure airports can handle larger aircraft and more intensive operations. Without the increase in PCN, H. Asan Sampit Airport will have difficulty in serving modern aircraft with higher weights, such as the Airbus A320 and Boeing 737, which are increasingly used by airlines. An upgrade to the PCN will guarantee that the runway structure can withstand greater aircraft loads, reduce the risk of damage to the runway, and allow for increased flight frequency (Wigreny & Kristiana, 2020). In addition, with a stronger and safer structure, airports can expand their operational capacity, increase airline confidence, and minimize disruption to flight activities, so that the safety and smooth operation of the airport can be well maintained.
3. Improvement of Terminal Infrastructure.

The improvement of the terminal infrastructure of H. Asan Sampit Airport is very important to accommodate the increase in the number of passengers which is expected to continue to increase in line with economic development and the growth in the number of flights. The terminal update includes the expansion of the check-in area, departure and arrival areas, as well as other facilities such as a larger waiting area and better passenger service facilities (Sitorus & Sitorus, 2016). With more modern and comfortable facilities, passengers will experience a better experience, which in turn can increase the attractiveness of H. Asan Sampit Airport for tourists and business people. In addition, with more efficient and organized terminals, the security check-in, baggage claim, and check-in processes will be faster and smoother, reducing passenger wait times, and improving customer satisfaction levels. All of this will support the improvement of airport operations and strengthen its position as one of the main airports in Central Kalimantan.

4. Improving Human Resource Training.
   Improving human resource (HR) training at H. Asan Sampit Airport is an equally important aspect in airport development. With the increasing volume of passengers and increasing operational complexity, skilled and trained professionals are key to maintaining the smooth and safe operation of airports (Giap et al., 2016). Intensive training programs for all airport staff, from security officers, baggage handlers, to administrative staff, must be conducted regularly to ensure they have the necessary skills to face new challenges (Saraswati & Adi, 2022). In addition, technology-based training and an integrated operational management system will assist airport staff in managing the flow of passengers and goods more efficiently. By improving the quality of human resources, H. Asan Sampit Airport will be able to provide more professional services, improve the level of flight safety, and reduce the possibility of operational errors that can have a negative impact on the airport's reputation.
5. Development of an integrated operational management system.
   The development of an integrated operational management system at H. Asan Sampit Airport is indispensable to improve the efficiency and effectiveness of airport operational management. With this system, all operational aspects, from flight schedule management, passenger service, baggage handling, to security supervision, can be done in one interconnected platform (Adam, 2016). This integration allows airport officers to monitor and manage data in real-time, so that they can make faster and more accurate decisions in dealing with various situations (Putra & Widagdo, 2024). The system can also minimize the risk of human error and speed up the service process, which in turn will improve passenger satisfaction. With an integrated management system, H. Asan Sampit Airport will be able to run its operations more smoothly and organized, and be ready to face the challenges of increasing passenger volumes and larger flights in the future.
6. Coordination with Regional Governments and Related Parties.
   Strong coordination with local governments and related parties is essential to ensure that the development of H. Asan Sampit Airport can run smoothly and according to plan. One of the first steps that needs to be taken is to accelerate the land acquisition process required for airport expansion, both for runway extensions and the construction of new terminal facilities (Arifin & Meilani, 2024). In this case, effective communication between airport managers, local governments, and relevant ministries is needed so that there are no administrative obstacles that can slow down the development process. In addition, good cooperation will also ensure that the development of the airport meets international aviation safety standards and can attract more airlines to operate at H. Asan Sampit Airport. Strong government and policy support will also strengthen the airport's position in supporting regional economic growth, increasing its competitiveness, and opening up new opportunities in the air transportation sector. (Putra & Widagdo, 2024)

1.4 Solutions to Problems at H.Asan Sampit Airport

1. Manusia (People)
   Given the low activity at H. Asan Sampit Airport, including professionals in the technical and airport service fields, it is important for managers to improve the quality and number of human resources (HR) to support better services and operations (Maria & Dhiani, 2024). The first thing that needs to be done is to design training and certification programs for the existing workforce, so that they have skills relevant to the operation of modern airports. This training must involve various aspects, ranging from flight safety, passenger service, to handling large aircraft (Dyahjatmayanti & Seran, 2024). In this regard, collaboration with education and training institutions specifically for the aviation industry can help to improve the technical capabilities of employees, so that they are ready to face increasingly complex challenges.
   In addition, airport managers also need to increase the number of professional workers in the field of airport operations. This can be done by opening opportunities for local people to have a career in aviation. The recruitment program for experts who are specially trained in the field of aviation and airport management must be carried out on an ongoing basis, in order to anticipate the increase in the number of passengers and the complexity of airport operations (Ayuwangi, 2019). By providing an adequate and professional workforce, H. Asan Sampit Airport will be able to serve passengers more efficiently, improve service quality, and reduce the possibility of congestion or delays.
2. Method
   To overcome the problem of limited integrated operational management systems, H. Asan Airport needs to immediately design and implement a technology-based airport management system that can integrate all airport operational processes, from arrival to aircraft departure. This system will include passenger ticket management, baggage handling, flight schedule arrangements, and flight security and safety supervision (Saragi et al., 2018). With an integrated management system, airport managers can obtain data in real-time, which will facilitate quick and appropriate decision-making in dealing with various situations that occur.
   The implementation of this system must also be accompanied by the use of modern technologies such as the Internet of Things (IoT), big data, and artificial intelligence (AI) that can accurately monitor and analyze airport operational data (Utama, 2010). This technology can help in improving the efficiency of operational processes and reducing the likelihood of human error that could potentially lead to problems. The implementation of an integrated system will also speed up operational flows, reduce passenger wait times, and improve comfort and safety while at the airport. Overall, the implementation of an integrated management system will strengthen the competitiveness of airports in the face of increasingly high market demands.
3. Machine
   In the face of the limitations of airline transportation facilities that can be served by H. Asan Sampit Airport, the most urgent solution is to extend and widen the runway. This is the first step to be taken to increase the capacity of airports in order to receive large-body aircraft such as the Airbus A320 or Boeing 737 currently used by international airlines. The extension of the runway will allow the airport to handle larger aircraft and with a capacity of more passengers, which in turn will increase the number of flights and the frequency of aircraft arrivals (Pusponegoro & Sujudi, 2016). It also opens up opportunities for major airlines to open new routes that can increase the number of tourists and businesses coming to the region.
   In addition, an increase in the Pavement Classification Number (PCN) on the runway also needs to be done to ensure that the runway structure can support aircraft with greater

weight. With the increase in the size of aircraft that can land at the airport, the airport's capacity will automatically increase and have a positive impact on regional economic growth (Ayuwangi, 2019). This planning process should involve authorities, such as the Ministry of Transportation, as well as construction and aviation experts to ensure that the development process is in line with international safety and operational standards. This facility upgrade will encourage airlines to operate more efficiently, as well as provide convenience for passengers using H. Asan Sampit Airport.

4. Material (Material)
   To overcome the problem of physical facilities that do not meet the standards of large-body aircraft, H. Asan Sampit Airport needs to make major improvements to the physical infrastructure, especially the terminal and runway. The construction or renovation of a larger and more modern terminal must be a priority in order to handle the increasing number of passengers. This update includes the expansion of the check-in area, departure and arrival areas, as well as supporting facilities such as comfortable waiting rooms and shopping areas. With a wider terminal and more complete facilities, passengers will feel more comfortable and satisfied, which can ultimately improve the image of the airport in the eyes of the public and tourists.
   On the other hand, the extension and widening of the runway should be designed in such a way as to support more large-body aircraft. Adequate aircraft parking facilities also need to be considered so that the landing and take-off process of the aircraft can run smoothly without obstacles (Nugroho et al., 2025). Therefore, airport managers must work closely with local governments and construction companies to ensure that the development of these facilities runs in accordance with the plans and budgets that have been set. Improving the quality and capacity of the airport's physical facilities will not only improve passenger comfort, but will also make H. Asan Sampit Airport a more competitive air transportation hub in Central Kalimantan.
5. Environment
   To overcome the problem of limited land for airport expansion, it is important for the local government to immediately acquire the land needed for the development of H. Asan Sampit Airport. The land acquisition process must be carried out with a transparent and fair approach, taking into account the interests of the affected local communities. The government must communicate with the landowners, as well as provide appropriate compensation to facilitate this land acquisition process. In addition, the use of available land must also be planned wisely, prioritizing the development of the most needed facilities, such as the expansion of runways, terminals, and aircraft parking areas.
   On the other hand, airport managers also need to re-evaluate the spatial layout around the airport to ensure that the development of airport infrastructure does not interfere with the surrounding environment. Good environmental management will prevent damage to the ecosystem and negative impacts on the people living around the airport (Lestari & Dharasta, 2024). Therefore, it is important to involve a team of environmental experts in every stage of airport development, from planning to implementation. Thus, the development of H. Asan Sampit Airport can be carried out in a sustainable manner, without sacrificing environmental sustainability and the welfare of the surrounding community.
6. Management
   To overcome the problem of weak long-term planning, the manager of H. Asan Sampit Airport needs to prepare a more comprehensive and realistic development plan for the next 10 to 20 years. This development plan should include predictions of future market demand, as well as identifying infrastructure needs that must be met to support that growth. Airport managers must also involve various stakeholders, including local governments, relevant ministries, and airlines, in formulating these plans (Prasetyo & Ulfa, 2023). With a clear long-term plan, airport managers can prepare everything needed to deal with the upcoming

increase in demand, so that airport development projects can run according to the vision that has been set.

In addition, long-term planning should also include periodic evaluations of airport infrastructure and operations, in order to immediately identify potential problems that may arise and find appropriate solutions. Effective and proactive management is essential to ensure that airport development is carried out in accordance with market needs and the ever-changing development of aviation technology. With more planned and structured management, H. Asan Sampit Airport can be better prepared to face future challenges and become a more competitive air transportation hub in the Kalimantan region.

CONCLUSION

1. Projected passenger demand shows a significant surge, with an estimated 2,300 passengers per day by 2035. This condition requires an increase in terminal capacity of at least 2.5 times the existing capacity so that services remain optimal and meet ICAO Level of Service (LoS) standards.
2. The existing runway with a PCN value of 24/F/C/X/T does not meet the operational needs of Airbus A320 aircraft which require PCN 45–50/F/C/X/T. This structural gap confirms the need for pavement improvement (overlay + reconstruction) as a top priority to ensure safety and compatibility with large-body aircraft.
3. Regional economic growth of 5.2% per year and the existence of more than 53 large companies demand increased reliable air connectivity. The mobility of goods and people in the plantation, mining, and trade industry sectors is increasingly suppressing the need for airports with high carrying capacity.
4. The extension of the runway from 1,800 meters to 2,400 meters is a critical requirement to attract large airlines, enable full operation of narrow-body aircraft such as the Airbus A320/B737-800, as well as open up opportunities for the opening of new domestic and regional routes.
5. Based on ICAO Annex 14 standards, airport technical development needs to include improving safety facilities (RESA, runway strips, markings and navigation aids), expanding the apron, and optimizing terminal capacity to meet international standards and maintain operational reliability.
6. With the implementation of these technical and managerial interventions, H. Asan Airport has the potential to increase the regional economic contribution by 0.8-1.3% to GDP per year, through increasing passenger mobility, accelerating logistics flows, and greater investment attraction.

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