The Effect of Air Traffic Density During Eid Homecoming Flow on Flight Safety at Sultan Hasanuddin International Airport Makassar

Ahmad Sulaiman[1], Irfan[2], Quirina Ariantji Patrisia Mintje[3], Irwan Jaya[4], Widya Pratiwi[5]
[1, 2, 3, 4, 5] *Makassar Aviation Polytechnic, Barombong Maritime Polytechnic*
Email: irfansudiang@gmail.com

ABSTRACT

The Eid homecoming period in Indonesia significantly increases public mobility, including the use of air transportation. This condition causes a rise in aircraft movements, passenger numbers, and operational activities at airports. Sultan Hasanuddin International Airport Makassar, as one of the main aviation hubs in Eastern Indonesia, experiences substantial air traffic density during the Eid homecoming season. This study aims to analyze the effect of air traffic density during the Eid homecoming flow on flight safety at Sultan Hasanuddin International Airport Makassar. The research used a qualitative descriptive approach. Data were collected through observation, interviews, and documentation involving Air Traffic Controller (ATC) officers, airport operational personnel, Apron Movement Control officers, airline representatives, and aviation safety personnel. The results showed that increased air traffic density affects operational complexity, increases ATC workload, causes aircraft queues on runways and taxiways, and raises the potential risk of operational delays, miscommunication, loss of separation, and human error. However, the implementation of Air Traffic Management (ATM), Air Traffic Flow Management (ATFM), strict Standard Operating Procedures (SOP), and effective coordination among stakeholders can maintain flight safety during peak traffic periods.

Keywords : air traffic density, Eid homecoming, flight safety, Air Traffic Control, airport operations.

Introduction

Air transportation plays a vital role in supporting national connectivity, economic growth, and public mobility in Indonesia. As the world's largest archipelagic country, Indonesia consists of thousands of islands separated by vast seas and long geographical distances. These conditions make air transportation one of the most effective and efficient modes of transportation for connecting regions across the country. Compared to land and sea transportation, air transportation offers faster travel time, higher operational efficiency, and broader accessibility, allowing people and goods to move quickly between provinces and islands. Therefore, the aviation sector has become an essential component in supporting social activities, business development, tourism, education, and government administration throughout Indonesia.

The development of air transportation in Indonesia continues to grow every year due to increasing public demand for fast, safe, and comfortable transportation services. The

advancement of airport infrastructure, airline services, and aviation technology has also contributed to the rapid growth of domestic and international flights. Many major airports in Indonesia serve as important transportation hubs connecting western, central, and eastern regions of the country. This growth not only improves national connectivity but also contributes significantly to economic development by supporting trade, tourism, and investment activities. Consequently, maintaining safe and efficient airport operations has become increasingly important as air traffic volume continues to rise.

Air transportation activities in Indonesia usually experience significant increases during certain periods such as school holidays, Christmas and New Year celebrations, and Eid al-Fitr holidays. Among these periods, the Eid homecoming season or mudik Lebaran is recognized as the largest annual mass mobility event in Indonesia. During this period, millions of Indonesians travel from urban areas back to their hometowns to celebrate Eid al-Fitr with their families. The strong cultural tradition of mudik creates an extraordinary increase in travel demand across all transportation sectors, including aviation. As a result, airlines often increase flight frequencies and provide additional flights to accommodate the surge in passenger demand during the holiday season.

The sharp increase in passenger mobility during the Eid homecoming period significantly affects airport operational activities throughout Indonesia. Major airports experience substantial increases in aircraft movements, passenger traffic, baggage handling operations, and runway utilization. High traffic density frequently occurs during peak operational hours, especially at airports serving as regional transportation hubs. This condition creates operational challenges for airport authorities, Air Traffic Controllers (ATC), airlines, and other aviation stakeholders in maintaining safe and efficient flight operations. Therefore, effective air traffic management, operational coordination, and aviation safety systems are essential to ensure that airport operations remain safe, orderly, and efficient during periods of heavy traffic density.

In 2026, the Eid homecoming period is predicted to significantly increase domestic air transportation demand in Indonesia. The annual mudik tradition encourages millions of people to travel back to their hometowns to celebrate Eid al-Fitr with their families. This large-scale population movement creates a sharp rise in passenger numbers across all transportation sectors, particularly air transportation. Many travelers prefer air transportation because it offers faster travel times, better comfort, and greater efficiency compared to land or sea transportation, especially for long-distance inter-island travel.

The increasing number of passengers during the Eid homecoming season forces airlines to enhance their operational capacity. Airlines respond to this growing demand by increasing flight frequencies, adding extra flights, and optimizing aircraft utilization. Additional flight schedules are introduced to accommodate passengers traveling to major cities and regional destinations throughout Indonesia. As a result, airport operational activities become much busier than under normal conditions, particularly at airports serving as national and regional transportation hubs.

Major airports in Indonesia experience significant increases in aircraft arrivals and departures during the Eid homecoming period. The high number of aircraft movements creates dense

operational traffic within airport operational areas such as runways, taxiways, aprons, and terminal facilities. Passenger service activities, baggage handling operations, aircraft parking arrangements, and ground handling services also become more intensive during peak operational hours. This condition requires airports to maximize operational coordination and maintain efficient traffic flow management to avoid operational disruptions.

Sultan Hasanuddin International Airport Makassar is one of the airports experiencing substantial traffic growth during the Eid homecoming period. As one of the largest airports in Eastern Indonesia, Sultan Hasanuddin Airport functions as an important hub connecting domestic and international flight routes. The airport serves flights to major cities such as Jakarta, Surabaya, Denpasar, Jayapura, Kendari, and other destinations in Eastern Indonesia. Due to its strategic role, the airport experiences significant increases in passenger traffic and aircraft movements during holiday seasons, especially during Eid homecoming operations.

Air traffic density refers to a condition in which aircraft movements within airspace or airport operational areas increase beyond normal operational capacity. High-density traffic conditions usually occur when the number of aircraft arrivals and departures exceeds the airport's regular operational workload. Increased aircraft movement requires more intensive traffic control, efficient runway utilization, accurate communication systems, and stronger coordination among aviation stakeholders. In such situations, Air Traffic Controllers (ATC) play a critical role in maintaining safe aircraft separation and ensuring smooth operational flow.

If not managed properly, dense air traffic conditions may affect operational efficiency and aviation safety. High traffic density can result in runway congestion, aircraft queues on taxiways, flight delays, increased ATC workload, communication complexity, and operational risks such as runway incursion and loss of separation between aircraft. In addition, heavy operational workloads may increase fatigue among aviation personnel, potentially leading to human error. Therefore, effective Air Traffic Management (ATM), Air Traffic Flow Management (ATFM), strict Standard Operating Procedures (SOP), and continuous operational monitoring are essential to maintain safe and efficient flight operations during periods of high traffic density.

According to the International Civil Aviation Organization (ICAO) (2022), the continuous growth of air transportation must be supported by adequate aviation infrastructure, navigation systems, operational procedures, and safety management systems. The increasing number of aircraft movements requires airports and aviation authorities to improve operational capacity and maintain high safety standards. Without proper management, rapid growth in air traffic may create operational inefficiencies and increase aviation safety risks. Therefore, aviation stakeholders must ensure that airport facilities, air traffic control systems, and operational personnel are fully prepared to handle increasing traffic volumes safely and efficiently.

ICAO also emphasizes the importance of implementing Safety Management Systems (SMS) in aviation operations. Safety management systems are designed to identify operational hazards, assess potential risks, and implement preventive measures before incidents occur. In high-density traffic conditions, safety management becomes even more important because operational complexity increases significantly. Effective safety management systems help airports and

aviation service providers maintain operational stability while reducing the possibility of accidents and operational disruptions.

In addition to safety systems, operational procedures and communication systems play a critical role in managing dense air traffic conditions. Air Traffic Controllers (ATC) must coordinate continuously with pilots, ground handling personnel, airlines, and airport operators to ensure smooth aircraft movement. Accurate communication and efficient coordination are essential to maintaining aircraft separation and avoiding operational conflicts. If communication systems are ineffective or coordination among operational units is weak, the possibility of operational errors and aviation incidents may increase significantly.

Previous aviation studies have shown that heavy air traffic conditions can increase operational workload and human error potential. During periods of high traffic density, ATC personnel are required to manage multiple aircraft simultaneously while maintaining concentration and operational accuracy. Pilots and ground personnel also experience increased workload due to shorter turnaround times and more intensive operational activities. Continuous operational pressure may lead to fatigue, stress, and reduced situational awareness among aviation personnel, which can negatively affect operational performance and flight safety.

Airport operational capacity is another important factor influencing aviation safety during high-density traffic periods. If airport facilities such as runways, taxiways, aprons, and passenger terminals are not capable of handling increased operational demand, congestion and delays may occur frequently. Operational congestion may affect aircraft movement efficiency and increase the risk of operational conflicts. Therefore, airport authorities must continuously evaluate airport capacity and implement traffic management strategies to ensure safe and efficient airport operations.

Sultan Hasanuddin International Airport is one of the busiest airports in Eastern Indonesia and serves as a major connecting hub for domestic and international flights. The airport plays a strategic role in supporting regional connectivity and economic activities throughout Eastern Indonesia. Flights from Sultan Hasanuddin Airport connect major cities such as Jakarta, Surabaya, Denpasar, Jayapura, Kendari, and many other destinations. Due to its strategic location and operational role, the airport experiences significant increases in passenger numbers and aircraft movements during national holiday periods, especially during the Eid homecoming season.

During the Eid homecoming period, Sultan Hasanuddin International Airport experiences increased operational pressure caused by high passenger demand and dense aircraft traffic. Airlines usually increase flight frequencies and operate extra flights to accommodate the large number of travelers. Consequently, airport operational areas such as runways, taxiways, aprons, and terminals become much busier than under normal conditions. High traffic density during peak operational hours creates operational challenges for airport management, ATC personnel, airlines, and ground handling operators in maintaining smooth and safe airport operations.

This condition requires effective airport operational management to ensure that safety standards are maintained despite the increase in traffic volume. Airport authorities must implement efficient Air Traffic Management (ATM), Air Traffic Flow Management (ATFM), and operational coordination systems to prevent operational congestion and safety risks. Continuous operational monitoring, strict implementation of Standard Operating Procedures (SOP), and effective communication among aviation stakeholders are essential to maintaining aviation safety during peak travel periods. Therefore, proper traffic management and operational readiness are crucial in supporting safe, orderly, and efficient flight operations during the Eid homecoming season.

The increase in air traffic density significantly affects several operational aspects at airports, particularly during peak travel periods such as the Eid homecoming season. High aircraft movement intensity creates operational pressure on various airport facilities and aviation services. Operational areas such as runways, taxiways, aprons, and airspace sectors experience much heavier activity compared to normal conditions. As aircraft arrivals and departures increase within short time intervals, airport authorities and aviation personnel must work more intensively to maintain operational efficiency and aviation safety.

One of the most affected operational aspects is runway utilization. Runways are critical airport facilities used for aircraft takeoff and landing operations. During periods of dense traffic, aircraft queues frequently occur as multiple aircraft wait for departure clearance or landing sequences. Increased runway utilization requires precise operational coordination to prevent congestion and maintain safe aircraft separation. If runway operations are not managed properly, delays and operational conflicts may occur, potentially affecting airport efficiency and flight safety.

Taxiway movement is also heavily affected by increased traffic density. Taxiways function as connecting routes between aprons and runways, allowing aircraft to move safely within airport operational areas. During high-density traffic conditions, aircraft movements on taxiways become more complex because many aircraft operate simultaneously within limited operational space. Aircraft queues on taxiways may occur when departure traffic exceeds runway handling capacity. Efficient taxiway management is therefore essential to prevent movement conflicts and maintain smooth operational flow.

Apron operations also experience substantial operational pressure during peak traffic periods. The apron area is used for aircraft parking, passenger boarding and unloading, baggage handling, refueling, and other ground handling activities. Increased aircraft arrivals and departures create higher operational intensity within apron areas. Ground handling personnel must work efficiently to ensure that aircraft turnaround times remain within operational schedules. Any delays in apron operations may affect flight schedules and increase overall airport operational congestion.

Airspace management becomes more complex when traffic density increases significantly. Air Traffic Controllers (ATC) are responsible for managing aircraft movements within controlled airspace while maintaining safe separation standards between aircraft. During peak traffic periods, ATC officers must handle more communication with pilots and coordinate multiple aircraft movements simultaneously. This condition increases operational workload and requires a

high level of concentration, communication accuracy, and situational awareness from ATC personnel to ensure safe flight operations.

Operational errors during high-density traffic conditions may potentially lead to serious aviation safety incidents. Errors such as communication misunderstandings, incorrect separation management, runway incursions, or delayed operational responses may increase safety risks. Even small operational mistakes can create dangerous situations when traffic volume is very high. Therefore, strict implementation of operational procedures and continuous operational monitoring are essential to minimizing potential safety hazards during dense traffic conditions.

In addition to operational complexity, increased traffic intensity may also increase fatigue among aviation personnel such as pilots, ATC officers, ground handling staff, and airport operational personnel. During peak operational periods, aviation personnel often work under high pressure with extended working hours and intensive operational demands. Physical and mental fatigue can reduce concentration, situational awareness, communication effectiveness, and decision-making abilities. Consequently, fatigue may increase the possibility of human error, which is recognized as one of the major contributing factors to aviation incidents and accidents.

Therefore, operational monitoring, safety management systems, and coordination among aviation stakeholders become essential during peak traffic periods. Effective Air Traffic Management (ATM), Air Traffic Flow Management (ATFM), Standard Operating Procedures (SOP), and continuous safety evaluations are necessary to maintain safe and efficient airport operations. Strong coordination among airport authorities, airlines, Air Traffic Controllers, and ground handling operators plays an important role in reducing operational risks and maintaining aviation safety. This study aims to analyze the effect of air traffic density during the Eid homecoming period on flight safety at Sultan Hasanuddin International Airport Makassar. The findings are expected to provide valuable insights and practical recommendations for improving airport operational management and aviation safety during future peak travel seasons.

Research Method

This research used a qualitative method with a descriptive approach to analyze the effect of air traffic density during the Eid homecoming period on flight safety at Sultan Hasanuddin International Airport Makassar. The qualitative approach was selected because the study aims to understand operational conditions, aviation safety challenges, and coordination processes among aviation stakeholders during periods of high traffic density. The descriptive approach was used to describe systematically the operational phenomena occurring during the Eid homecoming period, particularly related to airport operational management and aviation safety.

The study focused on two research variables. The independent variable (X) was air traffic density during the Eid homecoming period, which included increased aircraft movements, runway and taxiway congestion, increased flight frequency, and increased Air Traffic Controller (ATC) workload. The dependent variable (Y) was flight safety, which included operational safety,

aircraft movement efficiency, communication accuracy, compliance with operational procedures, and operational risk management during peak traffic periods.

The research was conducted at Sultan Hasanuddin International Airport Makassar during the 2026 Eid homecoming operational period. The airport was selected because it is one of the busiest airports in Eastern Indonesia and experiences significant increases in passenger traffic and aircraft movements during holiday seasons. The research subjects included Air Traffic Controller (ATC) officers, airport operational personnel, Apron Movement Control (AMC) officers, aviation safety officers, airline representatives, and ground handling personnel directly involved in airport operations.

The sampling technique used in this study was purposive sampling. This technique was selected because the research required respondents and informants who have direct knowledge, operational experience, and involvement in managing air traffic density and aviation safety during the Eid homecoming period. Informants were chosen based on their roles, operational responsibilities, and understanding of airport operational conditions during high-density traffic situations.

Data collection techniques consisted of observation, interviews, and documentation. Observation was conducted directly in airport operational areas to monitor aircraft movement patterns, runway utilization, taxiway congestion, apron operations, and operational coordination among aviation stakeholders. Through observation, the researcher obtained direct information regarding operational conditions during peak traffic periods.

Interviews were conducted using in-depth interview techniques with selected informants. The interviews aimed to obtain detailed information regarding operational challenges, workload conditions, safety risks, communication effectiveness, and mitigation strategies implemented during periods of dense traffic. Interview data provided comprehensive explanations regarding operational experiences and aviation safety management practices at the airport.

Documentation techniques were also used to support the research findings. Documents collected included aircraft movement reports, airport operational records, flight schedules, operational manuals, Standard Operating Procedures (SOP), safety reports, and other relevant operational data. Documentation data were used to strengthen and validate information obtained through observation and interviews.

The data analysis method used in this study was the interactive analysis model developed by Miles, Huberman, and Saldana. The analysis process consisted of three stages: data reduction, data presentation, and conclusion drawing. Data reduction was conducted by selecting and categorizing relevant information related to the research objectives. Data presentation was performed descriptively in narrative form to explain operational conditions and aviation safety issues during the Eid homecoming period. Finally, conclusions were drawn based on the interpretation of research findings and analysis results.

To ensure the validity and reliability of the data, this study applied triangulation techniques by comparing information obtained from observations, interviews, and documentation.

Triangulation helped verify the consistency of findings and improved the credibility of the research results. Through this method, the study aimed to provide accurate and comprehensive information regarding the effect of air traffic density on flight safety at Sultan Hasanuddin International Airport Makassar during the Eid homecoming period.

Result and Discussion

Result

The results of this study indicate that Sultan Hasanuddin International Airport Makassar experienced a significant increase in air traffic density during the 2026 Eid homecoming period. The increase was reflected in the rising number of aircraft arrivals and departures, additional flight schedules, and increased passenger movement during peak operational hours. Based on observations and interviews conducted with operational personnel, the highest traffic density generally occurred during the morning and evening operational periods, when many domestic flights operated simultaneously.

The increase in aircraft movements directly affected several operational areas at the airport, particularly runway utilization, taxiway operations, apron management, and airspace coordination. During periods of high traffic density, aircraft queues frequently occurred on taxiways while waiting for departure clearance or parking availability. Several flights also experienced operational delays due to increased runway occupancy time and congestion during peak operational hours.

Table 1. Operational Conditions During Eid Homecoming Period

Operational Aspect	Observed Condition
Aircraft Movements	Increased significantly
Runway Utilization	High operational intensity
Taxiway Operations	Aircraft queues occurred
Apron Operations	Increased parking activity
Flight Delays	More frequent during peak hours
ATC Workload	Increased substantially

Source: Research Data (2026)

The results also showed that Air Traffic Controllers (ATC) experienced a significant increase in operational workload during the Eid homecoming period. ATC officers were required to manage multiple aircraft movements simultaneously while maintaining aircraft separation standards and communication accuracy. Interviews with ATC personnel indicated that communication intensity between pilots and controllers increased considerably during peak traffic periods, requiring higher concentration and faster decision-making.

In addition to ATC workload, operational pressure also affected ground handling personnel and airport operational staff. Apron personnel experienced increased operational activity related to aircraft parking, passenger boarding, baggage handling, and aircraft turnaround operations.

Operational coordination among airport stakeholders became more intensive to ensure smooth airport operations and minimize delays.

The study also identified several operational risks associated with dense traffic conditions. These risks included runway congestion, communication complexity, operational delays, and the potential risk of loss of separation between aircraft. Informants explained that operational fatigue among aviation personnel became one of the major concerns during periods of prolonged high-intensity operations. Fatigue potentially affected concentration, communication effectiveness, and operational performance.

To address these operational challenges, airport authorities implemented several operational management strategies during the Eid homecoming period. These strategies included Air Traffic Management (ATM), Air Traffic Flow Management (ATFM), flight slot coordination, additional operational monitoring, and strict implementation of Standard Operating Procedures (SOP). Airport operational units also strengthened coordination among Air Traffic Controllers, airlines, ground handling operators, and aviation safety personnel to maintain operational efficiency and aviation safety.

The results showed that the implementation of operational coordination and traffic management strategies helped reduce excessive congestion and maintain safe operational conditions despite the increase in traffic volume. Although operational pressure increased significantly during the Eid homecoming period, aviation safety standards were maintained through continuous monitoring, operational supervision, and effective coordination among aviation stakeholders

Discussion

The findings of this study demonstrate that air traffic density during the Eid homecoming period significantly influences airport operational complexity and aviation safety management at Sultan Hasanuddin International Airport Makassar. Increased aircraft movements create operational pressure across multiple airport operational sectors, including runway management, taxiway coordination, apron operations, and airspace control. These findings support the theory proposed by ICAO (2022), which states that increasing air traffic volume must be balanced with effective operational management systems, navigation support, and aviation safety procedures.

The increase in ATC workload identified in this study is consistent with previous studies explaining that high-density air traffic conditions increase communication complexity and operational responsibilities among Air Traffic Controllers. Under peak traffic conditions, ATC personnel are required to manage multiple aircraft simultaneously while ensuring safe aircraft separation and maintaining communication accuracy. According to EUROCONTROL (2021), increased operational workload during dense traffic periods may increase operational stress and reduce controller performance if not supported by adequate operational systems and personnel management.

This study also found that operational congestion frequently occurred on taxiways and runways during peak operational periods. Aircraft queues and increased runway occupancy time contributed to flight delays and operational inefficiency. These findings are consistent with

airport operational management theories explaining that airport operational capacity can become overloaded when aircraft movement demand exceeds normal operational capability. Efficient runway scheduling, slot allocation, and traffic flow management therefore become essential components in maintaining operational efficiency during high-density traffic periods.

Another important finding of this study is the influence of operational intensity on aviation personnel fatigue. Increased workload among pilots, ATC officers, and ground handling personnel potentially affects concentration, communication effectiveness, and operational decision-making. Human factors remain one of the most critical elements influencing aviation safety. According to Reason's Swiss Cheese Model (1997), operational accidents often occur due to multiple system weaknesses and human performance limitations occurring simultaneously. Therefore, fatigue management and operational supervision are essential in minimizing aviation safety risks during periods of intense operational activity.

The implementation of Air Traffic Management (ATM) and Air Traffic Flow Management (ATFM) strategies at Sultan Hasanuddin International Airport proved effective in maintaining operational stability during the Eid homecoming period. Through flight slot management, operational coordination, and continuous monitoring, airport authorities successfully minimized excessive operational congestion and maintained safe aircraft movement conditions. These findings support previous studies stating that effective traffic management systems play a crucial role in balancing operational demand and airport capacity during periods of high traffic density.

In addition, strong coordination among airport stakeholders became one of the key factors supporting operational safety during dense traffic conditions. Coordination among Air Traffic Controllers, airport management, airlines, aviation safety personnel, and ground handling operators allowed operational issues to be resolved more effectively and reduced the possibility of operational miscommunication. Effective coordination systems are especially important during periods when operational pressure increases rapidly due to high passenger and aircraft movement volumes.

This study has several limitations that should be considered. First, the research used a qualitative descriptive approach focusing mainly on operational observations and interview findings. As a result, the study did not include detailed quantitative analysis regarding the statistical relationship between traffic density and operational safety indicators. Second, the study focused specifically on Sultan Hasanuddin International Airport during the Eid homecoming period, meaning that operational conditions at other airports may differ depending on airport capacity, traffic volume, and operational systems.

Future research is recommended to apply quantitative methods to measure more specifically the relationship between traffic density, operational workload, and aviation safety performance. Further studies may also compare operational conditions among multiple airports in Indonesia during peak travel periods to provide broader insights into airport operational management and aviation safety strategies. Despite these limitations, this study provides important practical insights regarding the management of dense air traffic conditions and aviation safety during major national travel periods such as Eid homecoming operations.

Conclusion

This study concludes that air traffic density during the 2026 Eid homecoming period significantly affected operational activities and flight safety management at Sultan Hasanuddin International Airport Makassar. The increase in aircraft arrivals and departures created higher operational intensity in several airport operational areas, including runway utilization, taxiway movement, apron operations, and airspace management. High traffic density also increased the workload of Air Traffic Controllers (ATC), operational personnel, and ground handling staff, particularly during peak operational hours.

The research findings show that dense traffic conditions may increase operational risks such as runway congestion, flight delays, communication complexity, operational fatigue, and the potential risk of human error and loss of separation. However, despite the increase in operational pressure, aviation safety could still be maintained through effective implementation of Air Traffic Management (ATM), Air Traffic Flow Management (ATFM), strict Standard Operating Procedures (SOP), continuous operational monitoring, and strong coordination among aviation stakeholders.

The novelty of this research lies in its focus on analyzing the operational impact of air traffic density during the Eid homecoming period at Sultan Hasanuddin International Airport Makassar, one of the busiest aviation hubs in Eastern Indonesia. This study specifically highlights the relationship between increased traffic density, operational workload, and aviation safety management during a major national travel period. The findings contribute to the development of operational safety management strategies for airports experiencing temporary but significant increases in traffic volume.

The implications of this research emphasize the importance of improving airport operational readiness, strengthening traffic management systems, enhancing coordination among aviation stakeholders, and implementing effective fatigue management during peak traffic periods. Airport authorities and aviation service providers are encouraged to continuously improve operational capacity, communication systems, and safety management practices to ensure safe, orderly, and efficient flight operations during future Eid homecoming periods and other high-density operational situations.

References

EUROCONTROL. (2021). Air traffic management operational performance review. EUROCONTROL.

International Civil Aviation Organization. (2018). Air Traffic Management (Annex 11). ICAO

International Civil Aviation Organization. (2022). Safety management manual (Doc 9859). ICAO.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative data analysis: A methods sourcebook (3rd ed.). SAGE Publications.

Mulyono. (2019). Airport Traffic Movement Analysis

Reason, J. (1997). Managing the risks of organizational accidents. Ashgate Publishing.
Sugiyono. (2022). Metode Penelitian Kualitatif.
Undang-Undang Republik Indonesia Nomor 1 Tahun 2009 tentang Penerbangan